



TE'S RAYCHEM HIGH VOLTAGE CABLE ACCESSORIES

up to 245 kV

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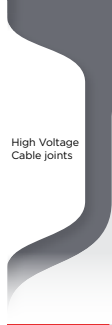


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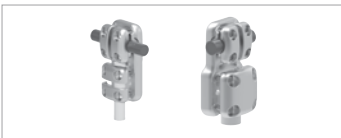
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High Voltage Connectors

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Link Boxes

Who is TE?

We are a reliable provider of energy solutions for any environment. With a focus on employee expertise and durable products, we deliver the solutions and support that our customers can count on under any circumstance.

We support the generation, transmission and distribution of electricity in a wide array of industries, applications and environments around the world. Through our well-known product families Raychem, SIMEL, AMP and Bowthorpe EMP, we work collaboratively with you, our customers, to tackle your toughest challenges by providing engineering support, qualified products and extraordinary customer experiences.



2300
EMPLOYEES



8K
CUSTOMERS



11
MANUFACTURING
LOCATIONS

1K+
Patents
granted or pending

\$703M
Sales Worldwide
in FY18

49
Countries

40K
Products

Product Portfolio

CABLE ACCESSORIES

Our comprehensive range of cable accessories maintains service reliability in environmental extremes and can be used in both overhead and underground installations. TE and TE's Raychem power cable accessories have been trusted for over 60 years in industries and utilities such as underground, substations, offshore, nuclear and renewable.

Low Voltage



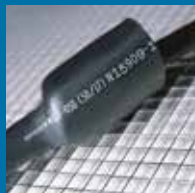
Medium Voltage



High Voltage



Nuclear



CONNECTORS & FITTINGS

Our well-known product families include AMP, Simel, and Utilux supply connectors and fittings for low, medium, and high voltage overhead and underground networks. These products have been trusted for decades in complex markets such as substations, overhead lines, underground networks, grounding, original equipment manufacturers, and industrial applications.

High Voltage



Underground



Low / Medium Voltage



Grounding



INSULATION & PROTECTION

We provide vital insulation and protection services for power utility, power OEM, railway, and wind applications from 280 V up to 1200 kV that ensure a safe and reliable power supply. TE's Raychem Cable Accessories, Bowthorpe EMP Surge Arresters, and Axicom High Voltage Insulators – and TE's material expertise have earned worldwide recognition for long-term performance in harsh environments.

Insulators/Surge Arresters



Wildlife & Asset Protection



High Voltage Components



Hollow Core Insulators



Our Mission

Provide an integrated offering to deliver the best end-to-end cost advantage with the highest material science competence and drive flawless execution across all functions to gain strong customer intimacy.

A Legacy of Trusted Product Lines

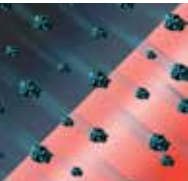
ALR | AMP | Axicom | Bowthorpe EMP | Crompton Instruments | Raychem | SIMEL | Utilux

Our Culture of Innovation

We know your industry never stands still; and neither does TE. Our world-class materials science expertise helps us focus on what you need right now – and continue to create the next generation of technology to better serve you.

Material Innovations

Better, longer lasting products start with better materials. Our core materials science focus keeps us ahead of the changing needs of the electrical power industry.



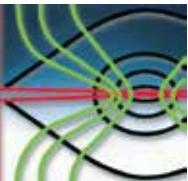
Non-tracking and UV
stable materials



UHV composite
materials



Moisture blocking



Reduced contact
resistance



Surge suppression
systems



Resin technology



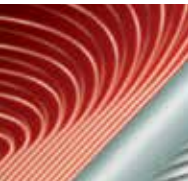
PowerGel
insulating material



Shear bolt
technologies



High performance
heat-shrinkable
multi-layer
materials



Electrical
stress control

High Voltage Cable Accessories



Energy business unit headquarters situated in Ottobrunn (close to Munich), Germany

The brands that make up TE's portfolio of high voltage components represent more than 5 decades of product line experience in the power transmission business. This long-term track record, with projects all over the world, is united under a single company to provide you with a single source of supply. Our global network of technical and sales representatives provides expert application and engineering assistance, hands-on field training and continuous after-sales support to help our customers successfully master the challenges of today's businesses.

Expertise in materials science, product design and process engineering go into the invention, development, manufacture and marketing of our high-performance products. Our competitive advantages are well recognized in the market:

- Customer focused organization
- Innovation and technology driven
- Extensive product offering
- Multiple market segments presence
- Industry leadership and expertise
- Structural and financial strength

Our wide range of reliable and cost-effective solutions is continuously expanded through research-driven product development.

The most innovative utilities and industries around the world use our high voltage 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.

All TE's Raychem high voltage cable accessories 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 therefore 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, ANSI, and virtually all national standards.

With manufacturing facilities across five continents, we can react promptly to customer requirements and keep lead times and shipping distances to a minimum. An effective product supply chain ensures products move from origin to installation efficiently. Local customer service centers offer a single point of contact with staff that can provide country-specific support based on the needs of each region. By combining local knowledge with world-class research, product development and manufacturing capabilities, we set high standards of performance and user convenience. ISO 9000 series and ISO 14001 certifications for almost all locations underline our continuing commitment to quality and the environment.

Our core competencies



Understanding the value of high voltage cable accessories as essential elements in a cable system

Since the foundation of TE's Raychem in 1957, we have specialized in the development, design, manufacture and installation of cable accessory products. Our experience and involvement in all of these key areas has positioned us as experts within electrical power engineering. Our expertise in this field means that we can offer safe and reliable products that will form part of your complete cable system.



Manufacturing and quality assurance of high voltage insulation systems

With latest manufacturing technology and quality management processes, we maximise efficiencies and thereby offer competitive high voltage cable accessories. We have material expertise as well as test facilities for all related fluid, gaseous and solid insulation material developments, which are used in our complete range of high voltage cable accessories, resulting in maximum product lifetime for our customers. In addition, we are producing and using our own raw material, which allows us to optimize the material properties perfectly based on the needs of our customer.



Electrical, mechanical and thermal design of high voltage cable accessories and respective connectors

The design of our high voltage accessories is based on knowledge within electrical, mechanical and thermal performance. It is essential to understand the interaction between these physical parameters, since all of them have major impact on the reliability of high voltage cable accessories. We have extensive experience and use modern software that allows us to simulate the physical environments that our accessories would face. Furthermore, we are the only cable accessories manufacturer worldwide that has all existing stress control systems (geometrical, resistive, refractive and non-linear) in either heat shrink or cold applied technology in our portfolio.



Realize the importance of all other components being used in high voltage cable accessories on the performance

For the successful operation of high voltage cable accessories it is essential to understand the influence of other related components that are used in high voltage cable accessories, such as hollow core insulators and mechanical connectors. Based on this fact we design, produce and test all these components in-house and minimize negative influence on the performance of the final product. With this strategy we can ensure that the product will deliver what we promise.

Training and service on high voltage accessories



Training

TE as supplier of high voltage accessories has 5 Training centers around the world. In each training center, we conduct customized training courses. Experienced supervisors show the general handling of high voltage cable and assembly of high voltage accessories as well as the detailed installation of TE high voltage products. Depending on the level of prior knowledge of the participant, the content and scope training are adapted to enable effective and sustainable training.

Every training course includes:

- Theoretical product training.
- Individual HV cable preparation session.



Training facilities

The modern-day training center has been built to function as an educational hub. The classroom is designed and equipped for theoretical lessons and product training. During the session, the coaches can use the latest technology to convey the presentation in a clear and understandable way. The practical training room has been designed and equipped with the necessary tools to train the installers effectively. On-site trainings are also offered to customers by TE based on requirement.



Instruction

The Training Center worldwide offers qualitative training courses and seminars with the customer in mind. Our expert instructors provide sustained and intensive instruction for the application and use of our products tailored to the requirements of each customer. Our offerings are open to users, sales, network operators, and energy suppliers from all parts of the world. The training centers maintain a close connection with engineering and product specialists within TE to ensure a high level of product knowledge and current techniques. Courses can accommodate beginners and trainees are closely supervised during assembly and installation. Commitment to error-free installation and excellent network reliability is at the core of TE's training services.



Field training

In addition to trainings, TE also offers a possibility to supervise on-site installations for jointer's who have not had enough field experience in installing TE accessories. The service can also be used for critical installations. We recommend this service even for jointers who install TE accessories on site the first time. This service ensures the accessories are installed according to the installation instruction.



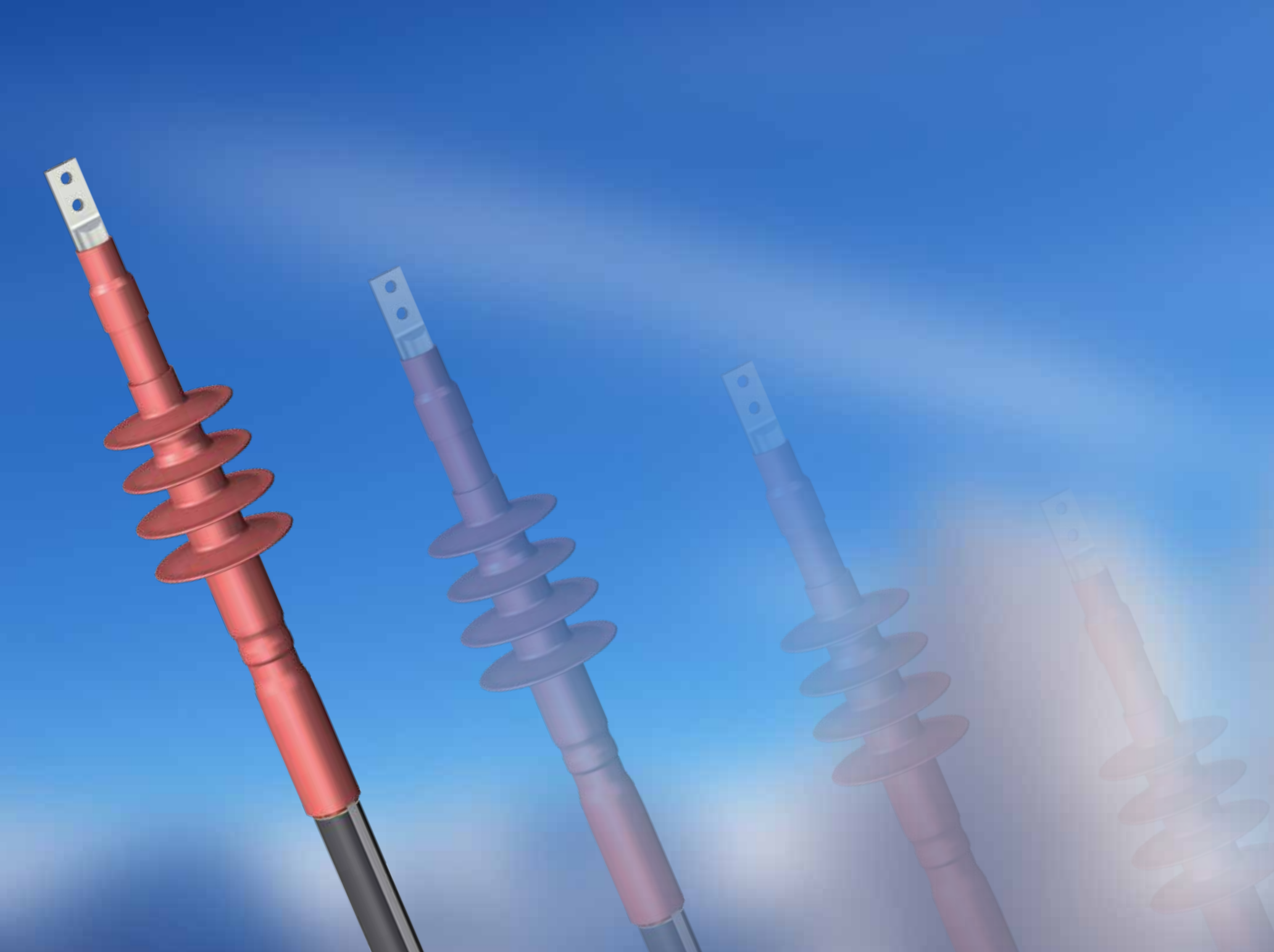
Installation

TE has well-trained and experienced jointers who can carry out installation at construction sites. Usually they are supported by local assistance provided by the contractor or the local utility. If there are no trained jointers available locally, ordering installation services from us is the first choice.



Equipment, auxiliaries and tools

TE ensures that the proper equipment and tools are provided during the training courses. All necessary auxiliaries to install the accessories are included in individual separate kits. Upon request, TE can also provide a full range of support for equipment and tools. A complete tool box with all the necessary installation tools, single tools, specialized equipment for a variety of installation conditions will be available. Having the product-specific tools at the disposal of each trainee is essential in acquiring the full scope of the skills needed for installation.



Chapter I High Voltage Terminations

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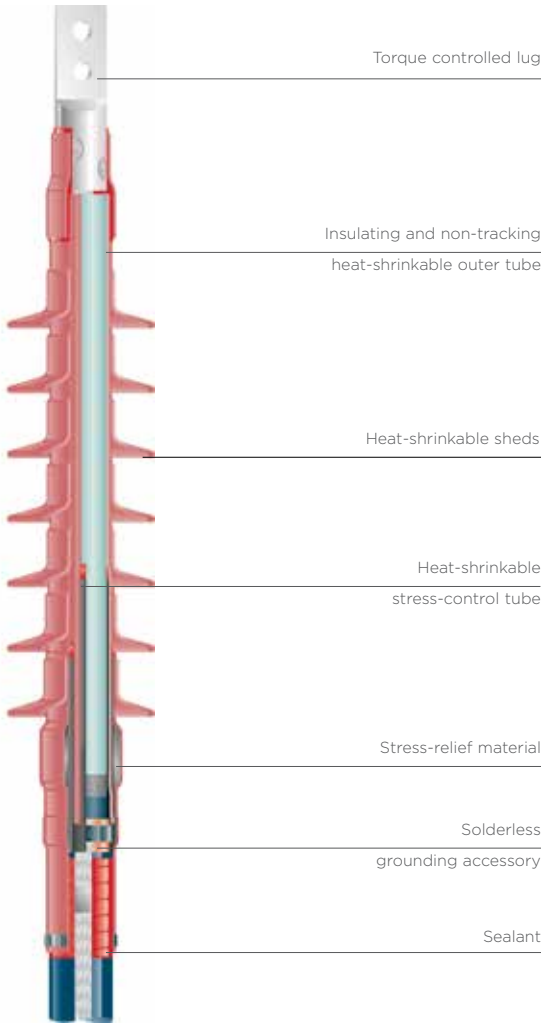
Heat-Shrinkable Terminations (IHVT-H/ OHVT-H/ LHVT-H)

APPLICATION

- The TE's Raychem heat-shrinkable terminations are suitable for all climates, areas, and environments, even severely polluted areas, as well as for all installation conditions, including top feed installation
- Our heat shrink accessories have been used by utilities and industrial companies around the world for more than 50 years

FEATURES

- Compact and modular design
- Heat-shrinkable stress control sleeves
- Non-tracking, heat-shrinkable outer insulation
- Water and corrosion-resistant
- Different creepage distances available
- Easy to install
- Suitable for compression and mechanical lugs
- No special or expensive tools
- Lightweight components
- Unlimited shelf life under normal storage conditions
- No oil or compound filling
- Reduced waste for disposal
- Standard storage conditions

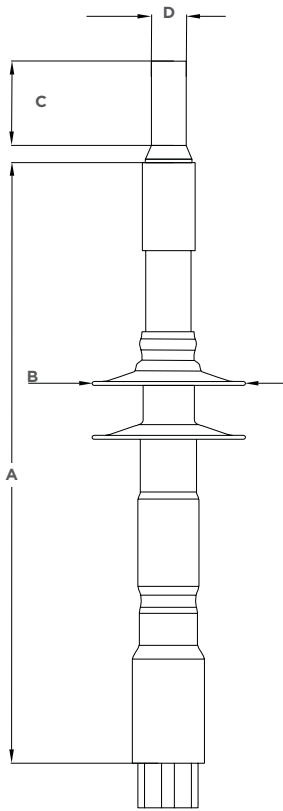


Max. operating voltage U _m (kV)	52	72.5	123
Standards	IEC 60840 IEC 60815	IEC 60840 IEC 60815	IEC 60840 IEC 60815
Rated voltage U (kV)	45 - 47	60 - 69	110 - 115
Rated lightning impulse withstand voltage (BIL) (kV)	250	325	325*

* Reduced level compared to IEC 60840



Heat-Shrinkable Terminations (IHVT-52H/ OHVT-52H)



Technical data

Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Creepage distance approx. (mm)
IHVT-52H	95 - 2500	30 - 77	100	1100
OHVT-52H	95 - 2500	30 - 77	100	1540

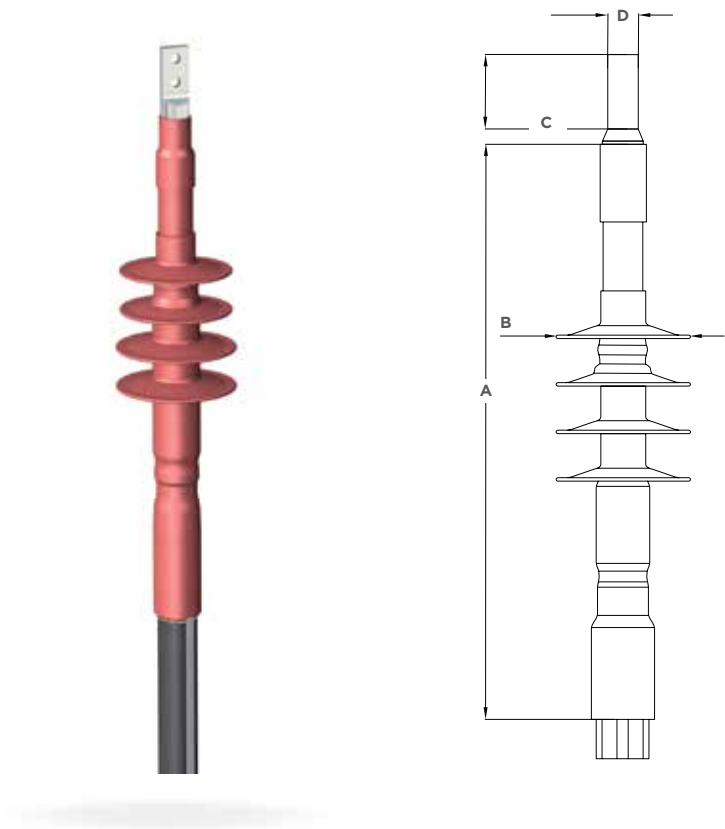
Dimensions

Product description	A (mm)	B (mm)	C (mm)	D* (mm)
IHVT-52H	800	220	125	30/40/50
OHVT-52H	920	220	125	30/40/50

* Different studs and pads are available on request



Heat-Shrinkable Terminations (IHVT-72H/ OHVT-72H/ LHVT-72H)



Technical data

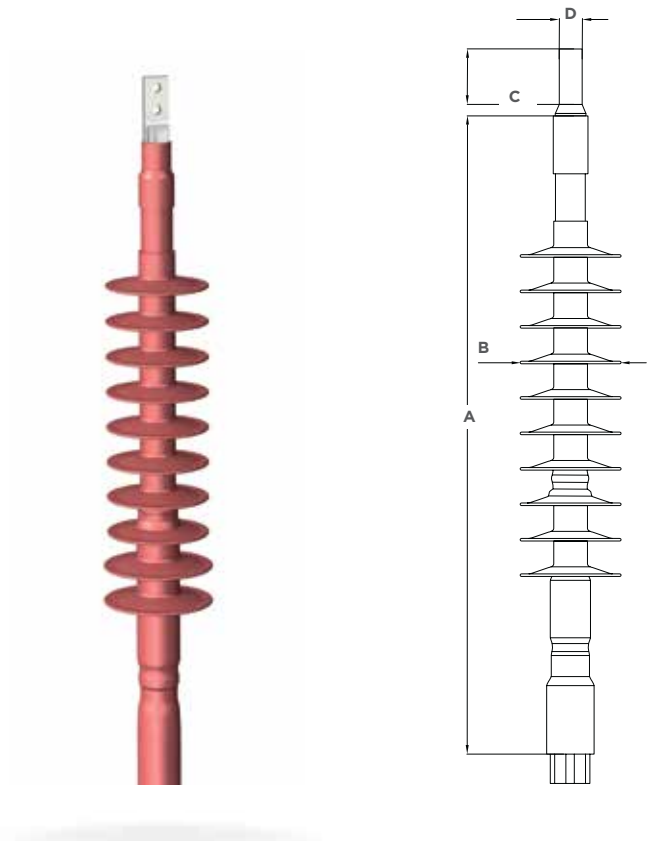
Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Creepage distance approx. (mm)
IHVT-72H	95 - 2500	30 - 86	110	1600
OHVT-72H	95 - 2500	30 - 86	110	2300
LHVT-72H	300 - 2500	38 - 86	110	3100

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D* (mm)
IHVT-72H	960	220	125	30/40/50
OHVT-72H	1200	220	125	30/40/50
LHVT-72H	1560	220	125	30/40/50

* Different studs and pads are available on request

Heat-Shrinkable Terminations (OHVT-123H)



Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Creepage distance approx. (mm)
OHVT-123H	95 - 1600	30 - 86	110	3100

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D* (mm)
OHVT-123H	1560	220	125	30/40/50

* Different studs and pads are available on request

NOTE To be used as a temporary solution only



Self-supporting Heat-Shrinkable Terminations (OHVT-HS)

APPLICATION

- The TE's Raychem heat-shrinkable terminations are suitable for all climates, areas, and environments, even severely polluted areas, as well as for all installation conditions, including top feed installation

FEATURES

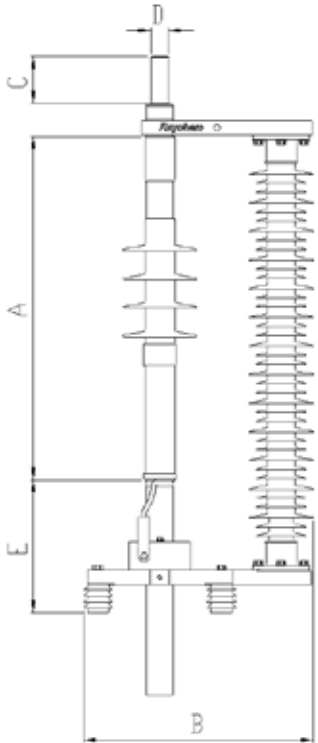
- Our heat shrink accessories have been used by utilities and industrial companies around the world for more than 50 years
- Compact and modular design
- Heat-shrinkable stress control sleeves
- Non-tracking, heat-shrinkable outer insulation
- Water and corrosion-resistant
- Different creepage distances available
- Easy to install
- Suitable for compression and mechanical lugs
- No special or expensive tools
- Lightweight components
- Unlimited shelf life under normal storage conditions
- No oil or compound filling
- Reduced waste for disposal
- Standard storage conditions



Max. operating voltage U _m (kV)	52	72,5
Standards	IEC 60840 IEC 60815	IEC 60840 IEC 60815
Rated voltage U (kV)	45 - 47	60 - 69
Rated lightning impulse withstand voltage (BIL) (kV)	250	325



Self-supporting Heat-Shrinkable Terminations (OHVT-52HS)



Technical data

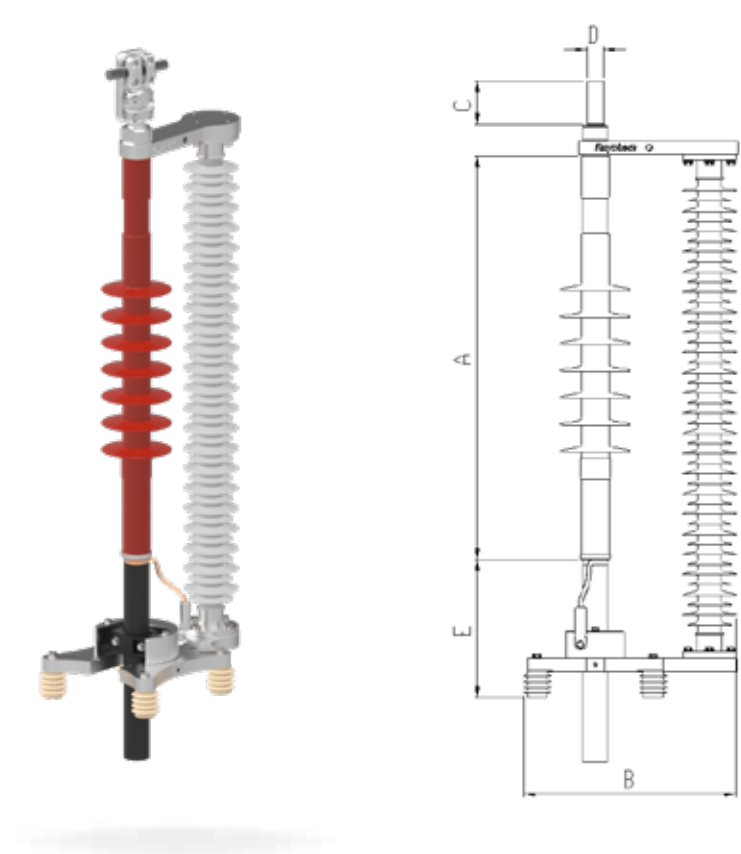
Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Creepage distance approx. (mm)
OHVT-52HS-2A	95 - 2500	30 - 77	100	1100
OHVT-52HS-3A	95 - 2500	30 - 77	100	1540

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D* (mm)
IHVT-52H	800	220	125	30/40/50
OHVT-52H	920	220	125	30/40/50



Self-Supporting Heat-Shrinkable Terminations (OHVT-72HS)



Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Creepage distance approx. (mm)
IHVT-72HS -2A	95 - 2500	30 - 86	110	1600
OHVT-72HS -4A	95 - 2500	30 - 86	110	2300

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D* (mm)
IHVT-72HS -2A	960	220	125	30/40/50
OHVT-72HS -4A	1200	220	125	30/40/50

Heat-Shrinkable Terminations for DC Filter Cables (FCEV)

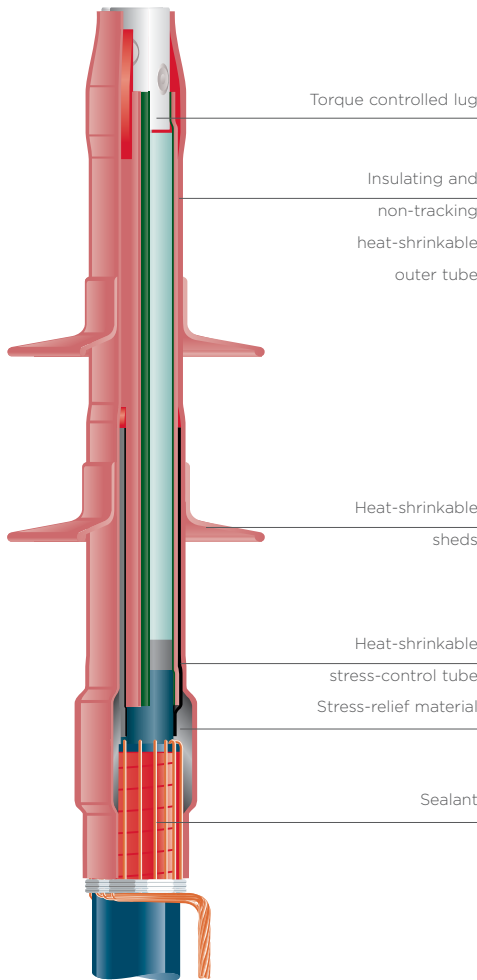


APPLICATION

- Filter terminations are used in applications where both impedance and non-linear stress control is necessary. The application of the above termination would be in HVDC cables which has an operating voltage up to 200 kV and in the cables used for Very Low Frequency (VLF) testing. The exterior design such as shielding, creepage and protection are developed based on the cable construction and ambient conditions where this termination will be used. The filter cable termination consists of a staggered layer of stress control tubings and patches. A heat-shrinkable non-tracking insulation tubing and shed are shrunk over the stress control system and ensure a reliable seal to the lug and the overshield.

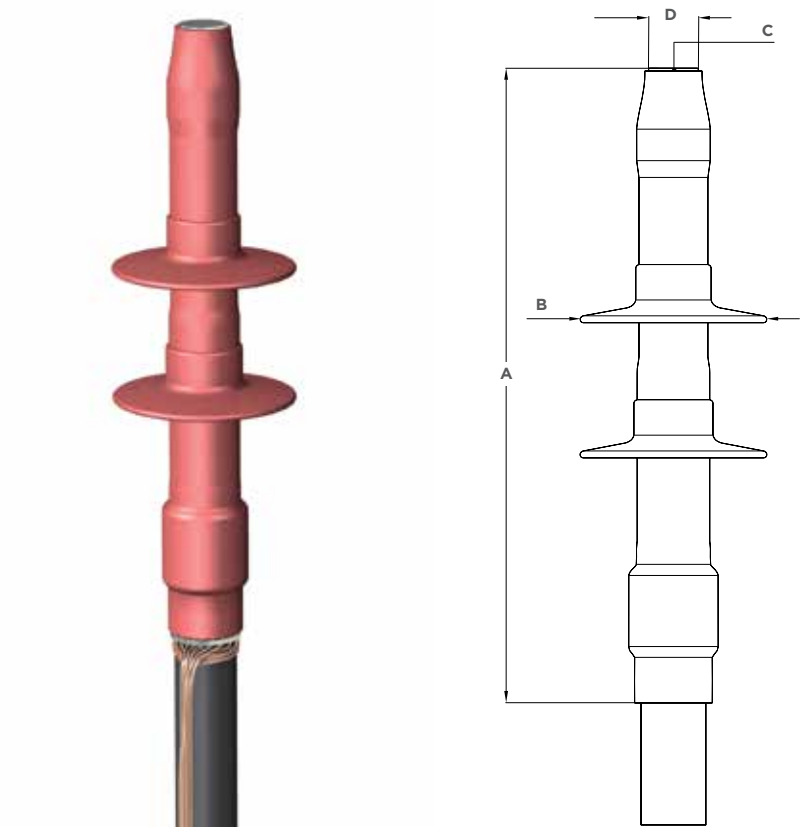
FEATURES

- Compact and modular design
- Heat-shrinkable stress control sleeves
- Non-tracking, heat-shrinkable outer insulation
- Easy to install
- No special or expensive tools
- Lightweight components
- Unlimited shelf life under normal storage conditions
- No oil or compound filling
- Reduced waste for disposal



Max. operating voltage U _m (kV)	111	150	200
DC withstand test (kV)	200	300	365 kV
Rated lightning impulse withstand voltage (BIL) (kV)	240	325	425 kV

Heat-Shrinkable Terminations for DC Filter Cables (FCEV)



Technical data

Product description	No Load voltage U _L	Conductor cross section (mm²)	Diameter over cable insulation (mm)
FCEV-111	111	35 - 95	26 - 38
FCEV-150	150	35 - 95	26 - 38
FCEV-150-1	150	95 - 240	38 - 52
FCEV-200	200	35 - 95	26 - 38

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)
FCEV-111	500	155	M10	32
FCEV-150	700	155	M10	32
FCEV-150-1	700	155	M10	32
FCEV-200	900	155	M10	32



Outdoor Terminations Composite (OHVT-C)

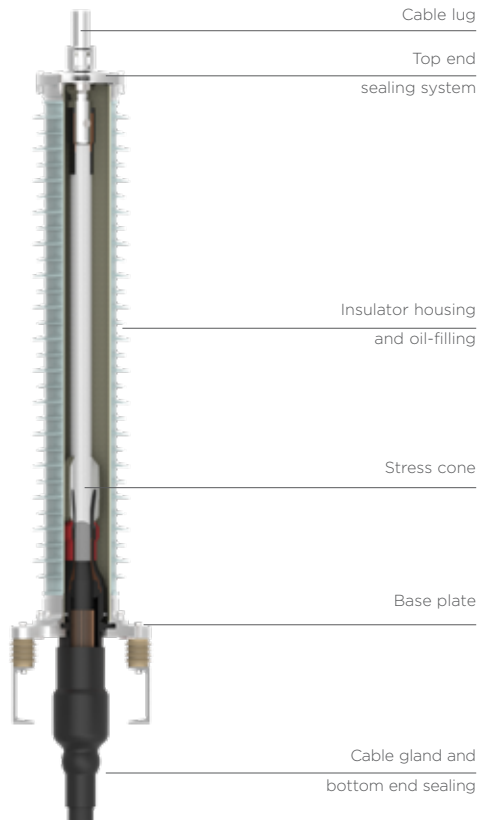


APPLICATION

- The termination is designed for voltage classes up to 245 kV and to operate under severe environmental conditions. Polymeric insulated cables of various designs can be adopted with respect to shielding and metal sheath. Composite housings with different creepage lengths up to 50 mm/kV are available for the most common and also extreme pollution levels according to IEC 60071-1 and IEC 60071-2

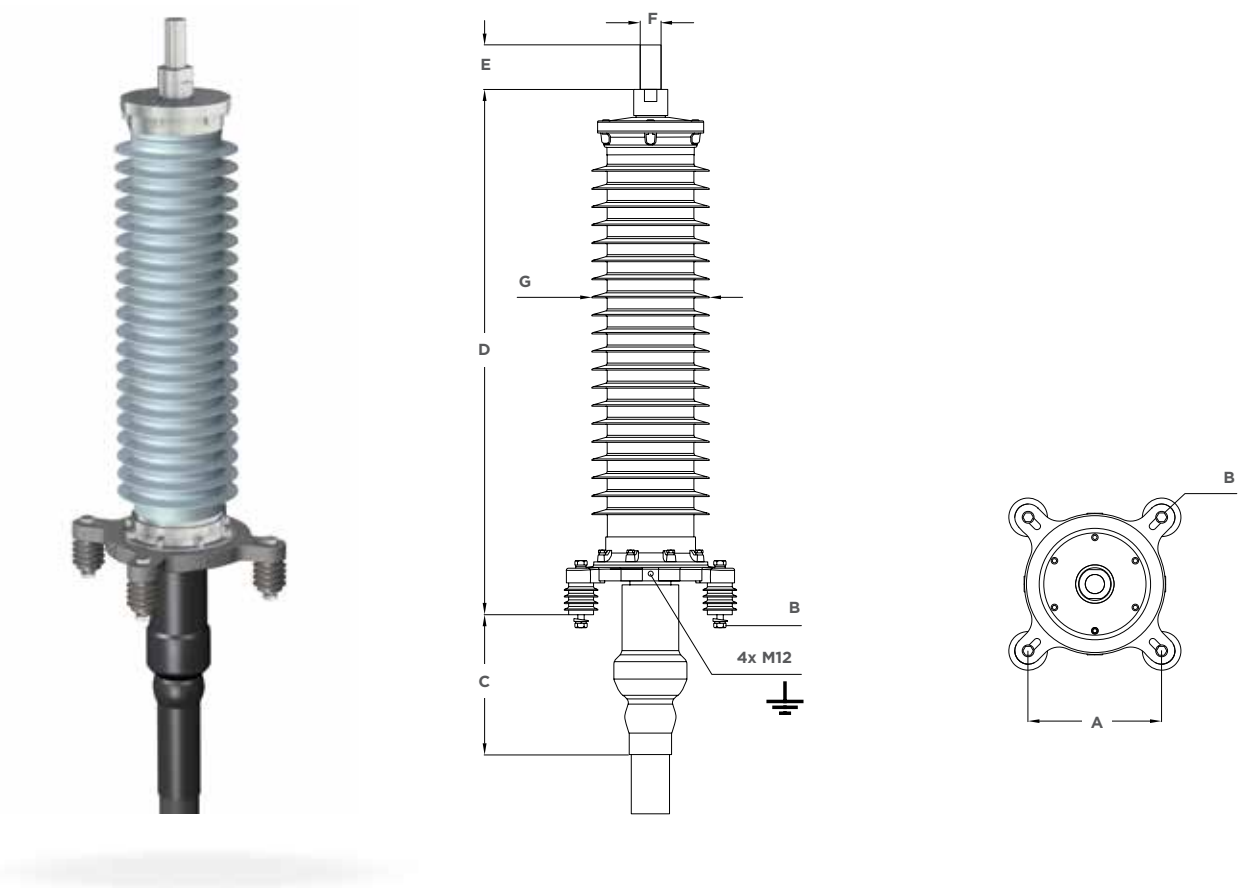
FEATURES

- Pressure-tight and light weight composite housing
- Pre-fabricated and factory-tested Silicone-rubber stress cone
- Torque-controlled conductor bolt
- No special tools required to install the termination
- Silicone-oil filling without preheating
- Insulated base plate for sectionalization
- Fittings made of corrosion-resistant alloy
- Type tested according to IEC 60840 and IEC 62067 standards



Max. operating voltage U _m (kV)	72.5	123	145	170	245
Standards	IEC 60840 IEC 60815	IEC 60840 IEC 60815	IEC 60840 IEC 60815	IEC 60840 IEC 60815	IEC 62067 IEC 60815
Rated voltage U (kV)	60 - 69	110 - 115	132 - 138	150 - 161	220 - 230
Rated lightning impulse withstand voltage (BIL) (kV)	325	550	650	750	1050

Outdoor Terminations (OHVT-72C)



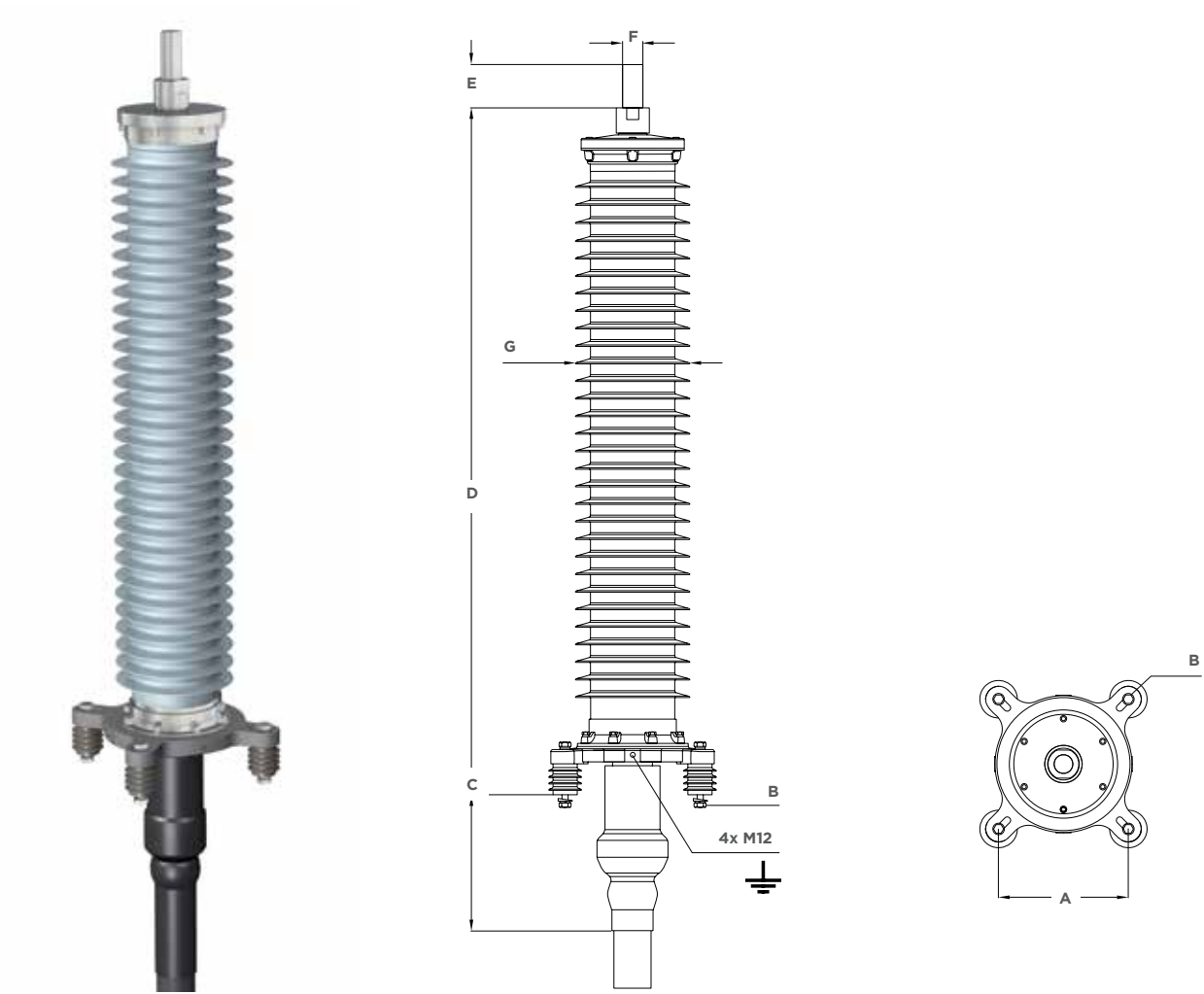
Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm²)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-72C (-2A)	95 - 2500	34 - 97	110	2164
OHVT-72C (-2B)	95 - 2500	34 - 97	110	2383
OHVT-72C (-2C)	95 - 2500	34 - 97	110	3089

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-72C (-2A)	300 - 345	M16	350	1276	100/130	30/40/50	294
OHVT-72C (-2B)	300 - 345	M16	350	1072	100/130	30/40/50	304
OHVT-72C (-2C)	300 - 345	M16	350	1262	100/130	30/40/50	308

Outdoor Terminations (OHVT-145C)



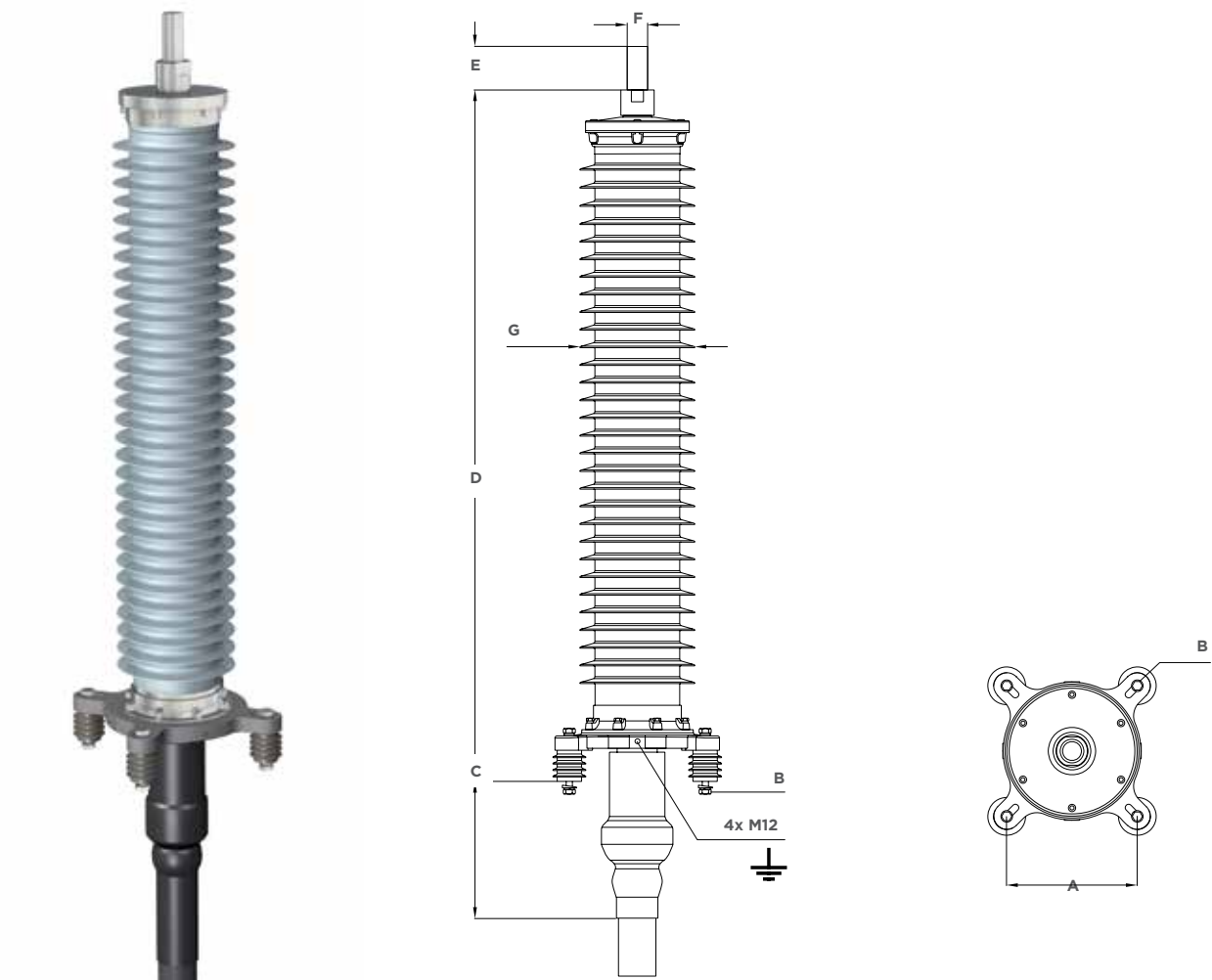
Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-145C (-2A)	95 - 2500	34 - 97	110	3392
OHVT-145C (-3A)	95 - 2500	34 - 97	110	3829
OHVT-145C (-4A)	95 - 2500	34 - 97	110	4684
OHVT-145C (-4B)	95 - 2500	34 - 97	110	6100
OHVT-145C (-4C)	95 - 2500	34 - 97	110	8047

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-145C (-2A)	300 - 345	M16	350	1771	100/130	30/40/50	294
OHVT-145C (-3A)	300 - 345	M16	350	1951	100/130	30/40/50	294
OHVT-145C (-4A)	300 - 345	M16	350	1696	100/130	30/40/50	304
OHVT-145C (-4B)	300 - 345	M16	350	2080	100/130	30/40/50	304
OHVT-145C (-4C)	300 - 345	M16	350	2608	100/130	30/40/50	304

Outdoor Terminations (OHVT-170C)



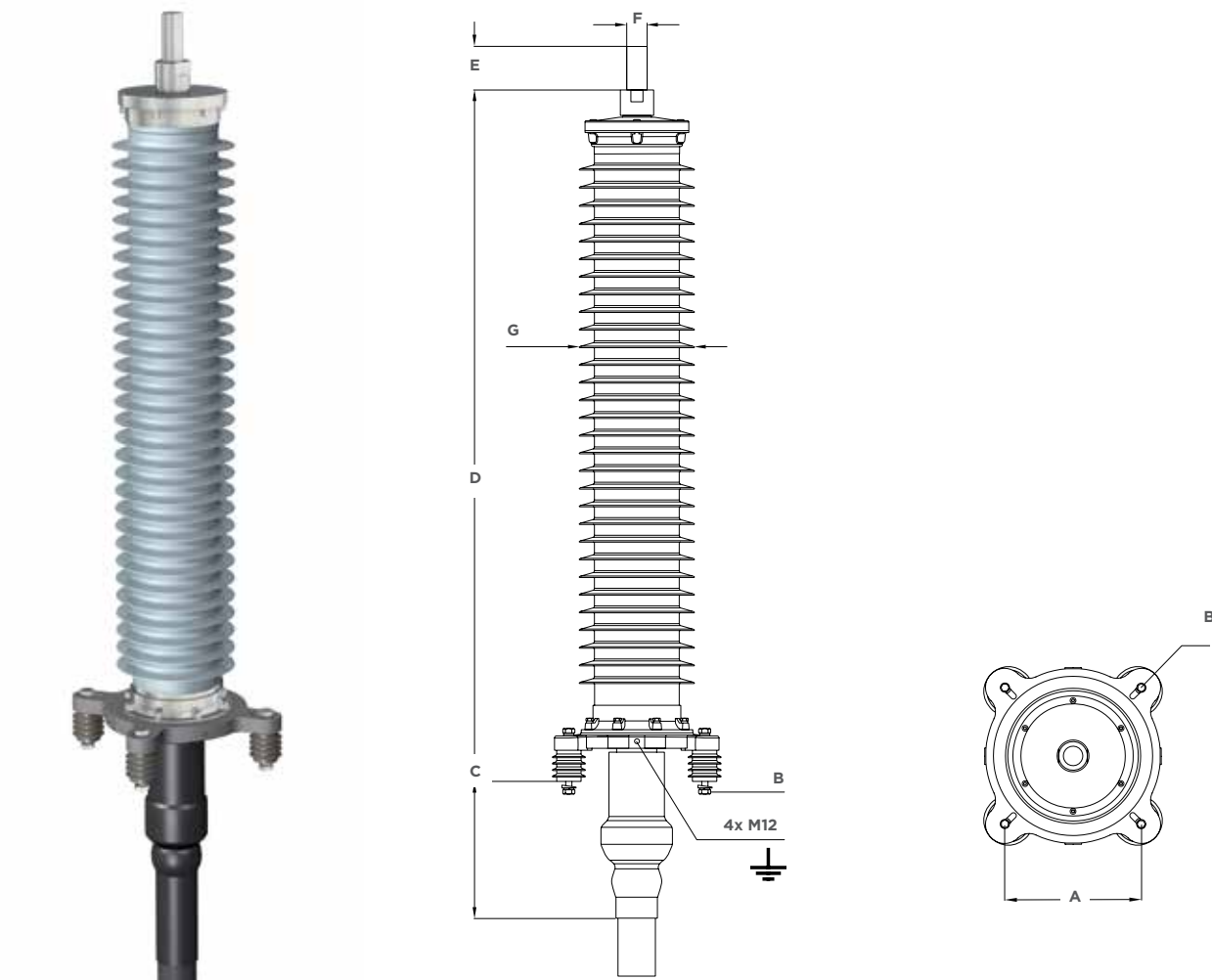
Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-170C (-1A)	95 - 2500	43 - 108	135	3829
OHVT-170C (-3A)	95 - 2500	43 - 108	135	4273
OHVT-170C (-4A)	95 - 2500	43 - 108	135	5373
OHVT-170C (-4B)	95 - 2500	43 - 108	135	5746
OHVT-170C (-4C)	95 - 2500	43 - 108	135	9436

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-170C (-1A)	300 - 345	M16	350	2028	100/130	30/40/50	345
OHVT-170C (-3A)	300 - 345	M16	350	2224	100/130	30/40/50	345
OHVT-170C (-4A)	300 - 345	M16	350	2614	100/130	30/40/50	345
OHVT-170C (-4B)	300 - 345	M16	350	2056	100/130	30/40/50	345
OHVT-170C (-4C)	300 - 345	M16	350	2856	100/130	30/40/50	345

Outdoor Terminations (OHVT-245C)



Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-245C (-2A)	300 - 2500	77 - 119	150	5161
OHVT-245C (-3A)	300 - 2500	77 - 119	150	5605
OHVT-245C (-4A)	300 - 2500	77 - 119	150	6160
OHVT-245C (-4B)	300 - 2500	77 - 119	150	8401
OHVT-245C (-4C)	300 - 2500	77 - 119	150	10171

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-245C (-2A)	430 - 550	M16	350	2564	100/130	50/60	402
OHVT-245C (-3A)	430 - 550	M16	350	2744	100/130	50/60	402
OHVT-245C (-4A)	430 - 550	M16	350	2969	100/130	50/60	402
OHVT-245C (-4B)	430 - 550	M16	350	2777	100/130	50/60	402
OHVT-245C (-4C)	430 - 550	M16	350	3257	100/130	50/60	402



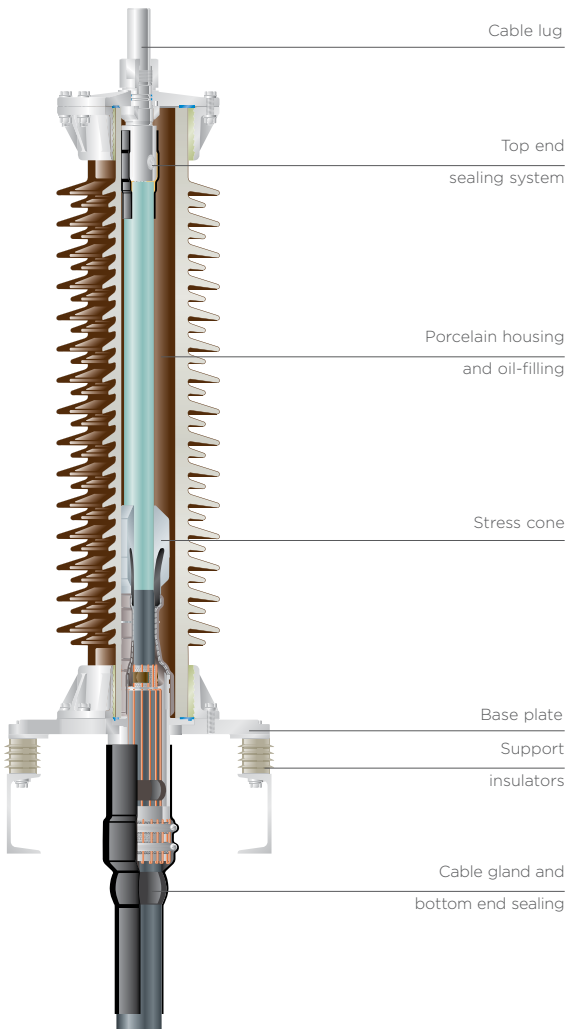
Outdoor Terminations Porcelain (OHVT-P)

APPLICATION

- The termination is designed for voltage classes up to 245 kV and to operate under severe environmental conditions. Polymeric insulated cables of various designs can be adopted with respect to shielding and metal sheath

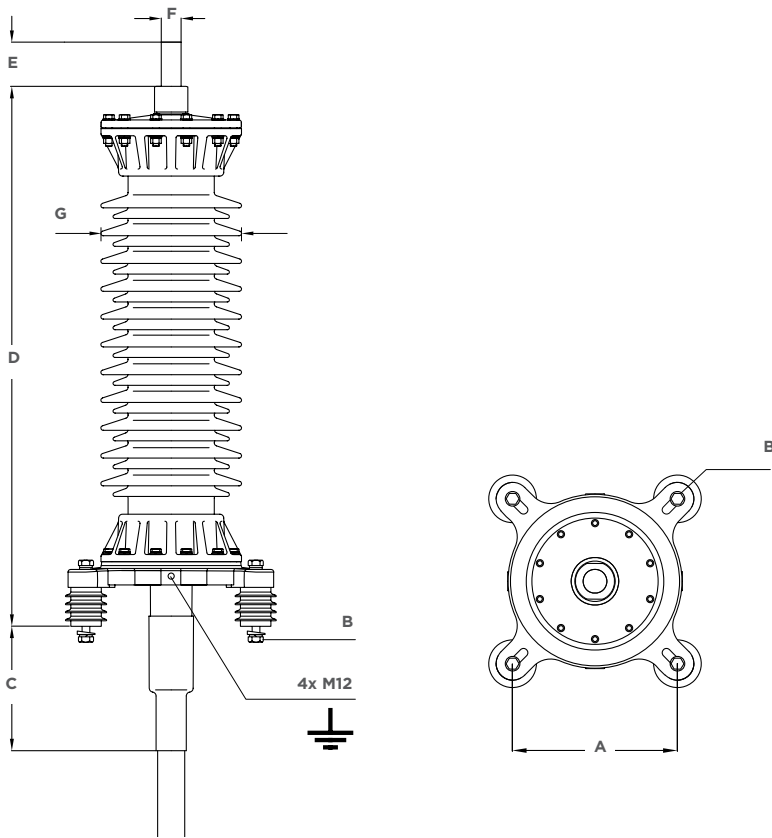
FEATURES

- Well-proven porcelain housing
- Pre-fabricated and factory-tested Silicone-rubber stress cone
- Torque-controlled conductor bolt
- H/S components used for sealing
- No special tools required to install the termination
- Silicone-oil filling without preheating
- Insulated base plate for sectionalization
- Fittings made of corrosion resistant alloy
- Type tested according to IEC 60840 and IEC 62067 standards



Max. operating voltage U_m (kV)	72.5	123	145	245
Standards	IEC 60840 IEC 60815	IEC 60840 IEC 60815	IEC 60840 IEC 60815	IEC 62067 IEC 60815
Rated voltage U (kV)	60 - 69	110 - 115	132 - 138	220 - 230
Rated lightning impulse withstand voltage (BIL) (kV)	325	550	650	1050

Outdoor Terminations (OHVT-72P)



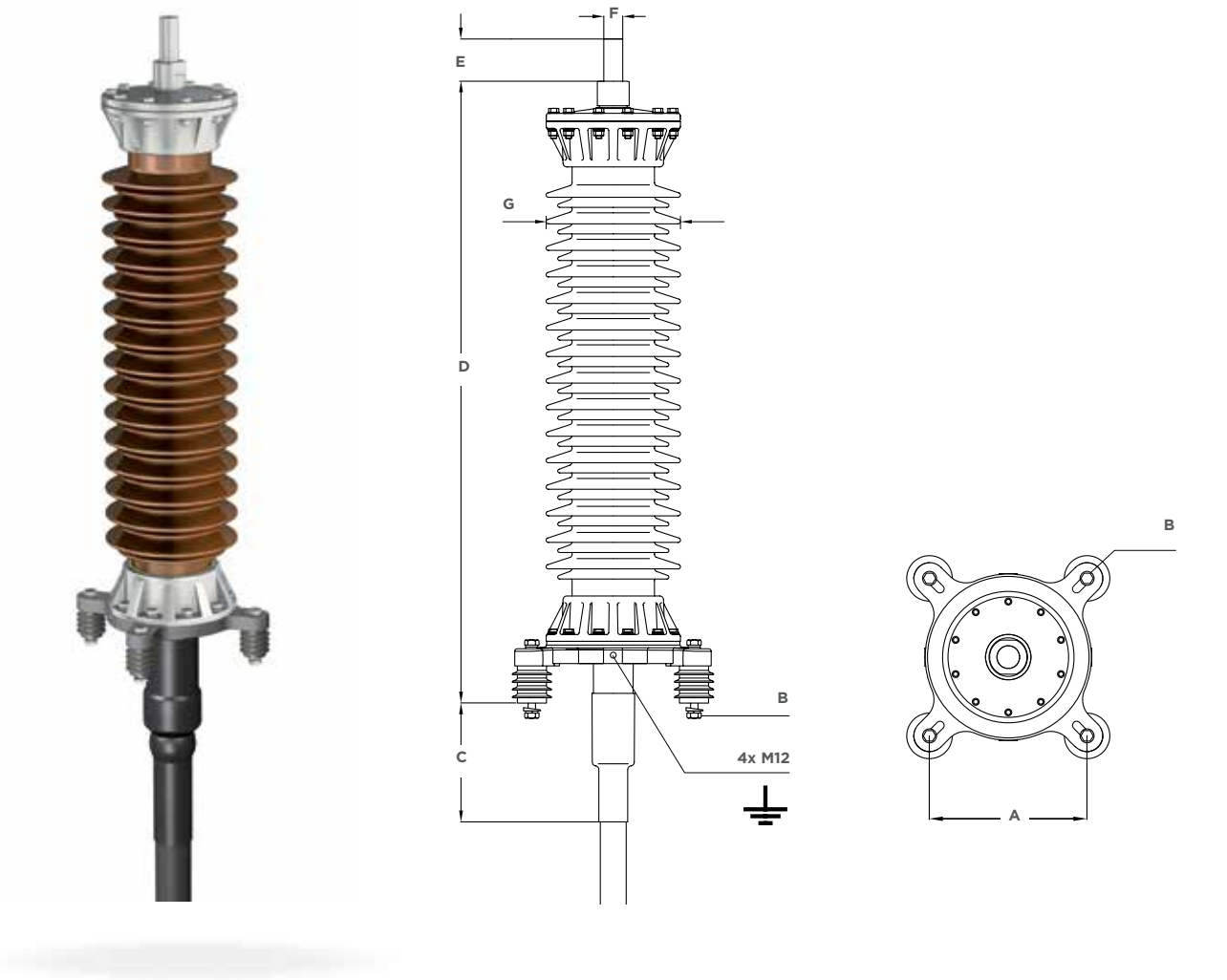
Technical data

Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-72P (-2A)	95 - 1200	34 - 74	110	2350

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-72P (-2A)	300 - 345	M16	350	1245	100/130	30/40/50	360

Outdoor Terminations (OHVT-123P)



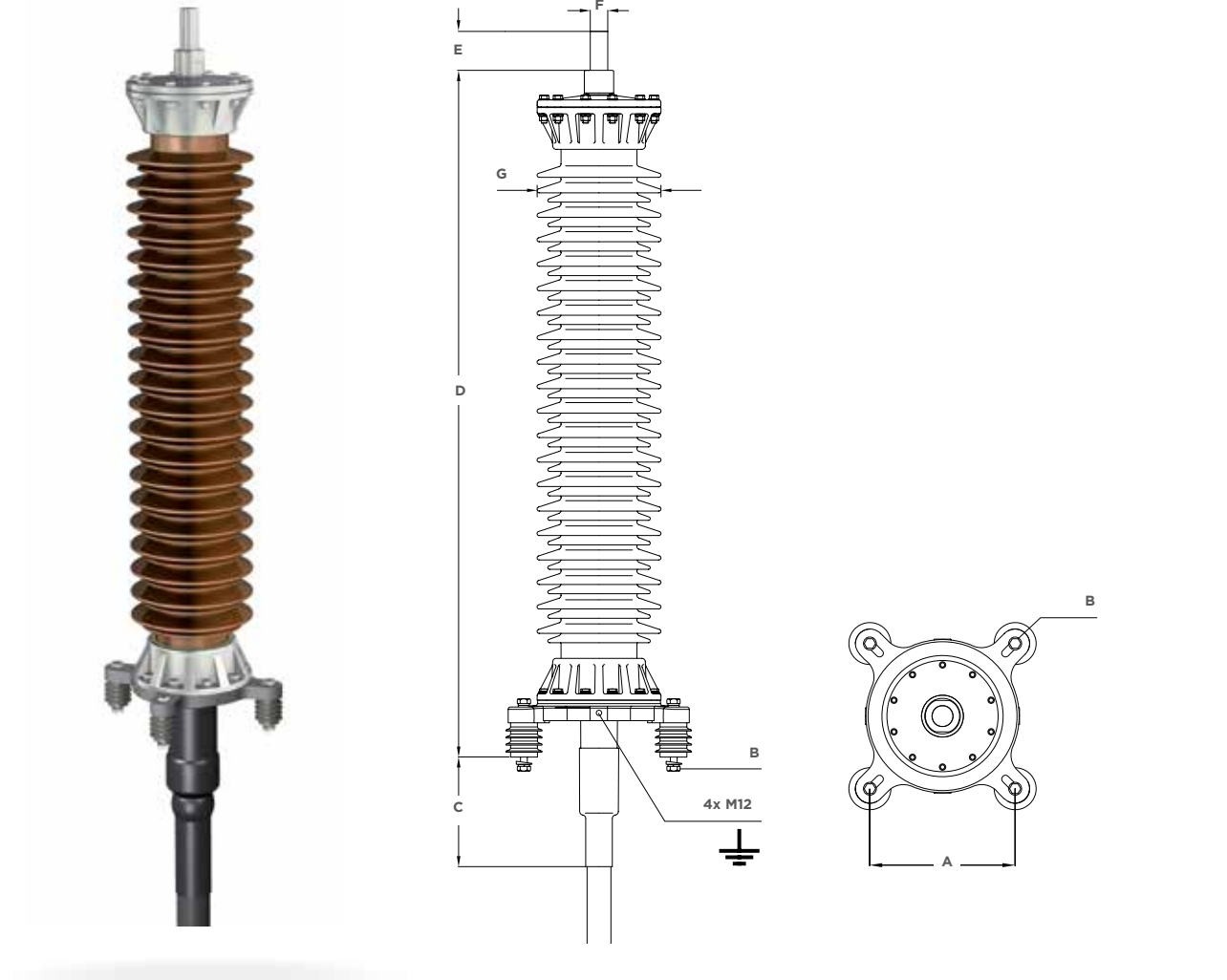
Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-123P (-4B)	95 - 1200	34 - 74	110	3910

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-123P (-4B)	300 - 345	M16	350	1615	100/130	30/40/50	360

Outdoor Terminations (OHVT-145P)



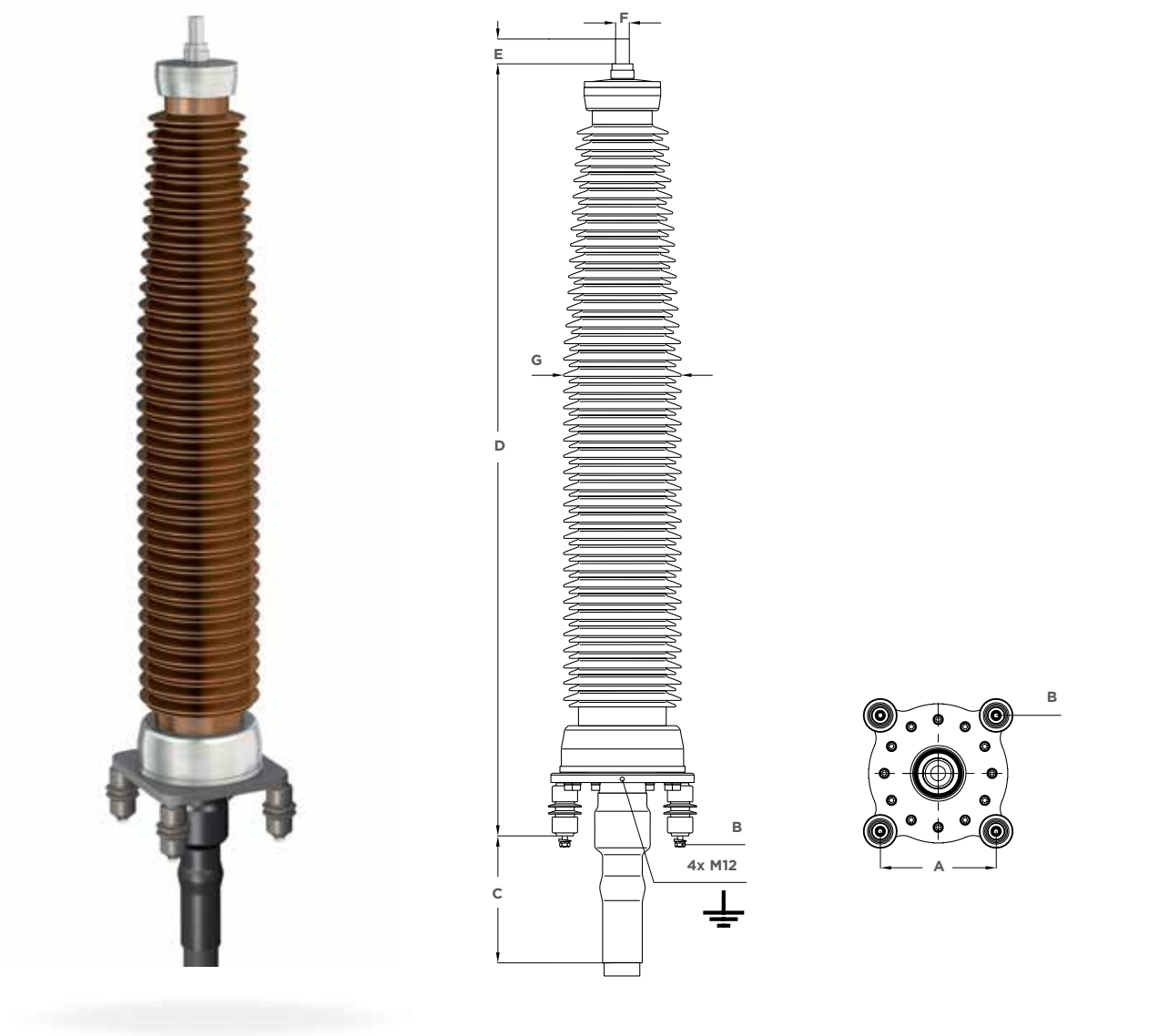
Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-145P (-4A)	95 - 1200	34 - 74	110	4300

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-145P (-4A)	300 - 345	M16	350	1785	100/130	30/40/50	360

Outdoor Terminations (OHVT-245P)



Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-245P (-4A)	300 - 2500	71 - 119	170	9100

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-245P (-4A)	500	M24	550	3356	100/130	50/60	514



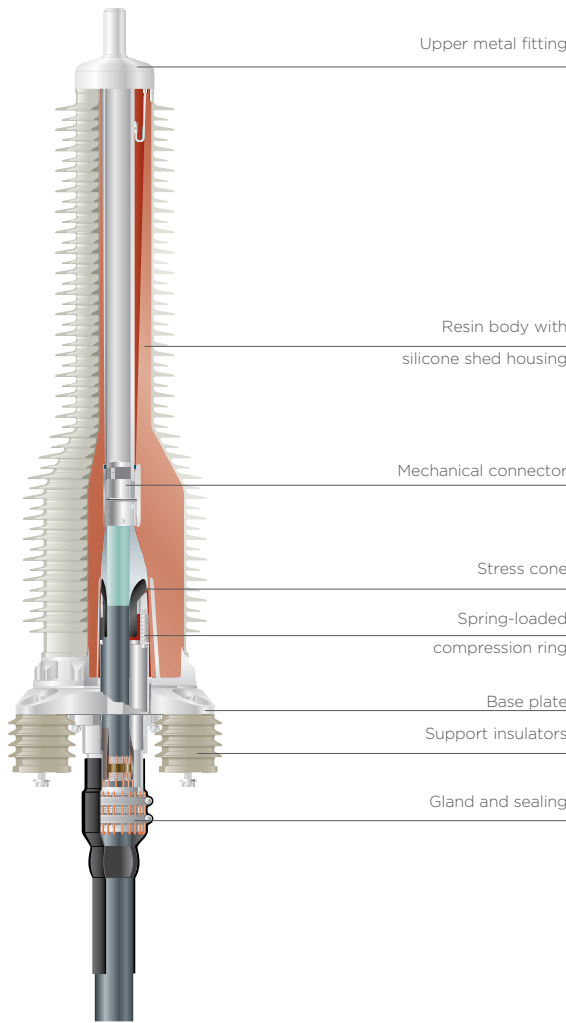
Outdoor Terminations Dry-type (OHVT-D)

APPLICATION

- The dry self-supporting termination is designed for voltage class 145 kV and operation under severe environmental conditions. It is free from any insulating liquid or gel. Polymeric insulated cables of various designs can be adopted with respect to shielding and metal sheath. The termination is easily separable and consists of a plug-in part and an epoxy resin insulator protected with a directly moulded silicone shed housing. Due to the short cable cut-back dimensions of the plug-in, the time required to install the termination is very short and can be further reduced by pre-installing the plug-in on the shop floor. The plug-in is similar to the plug-in used with our dry switchgear/transformer termination

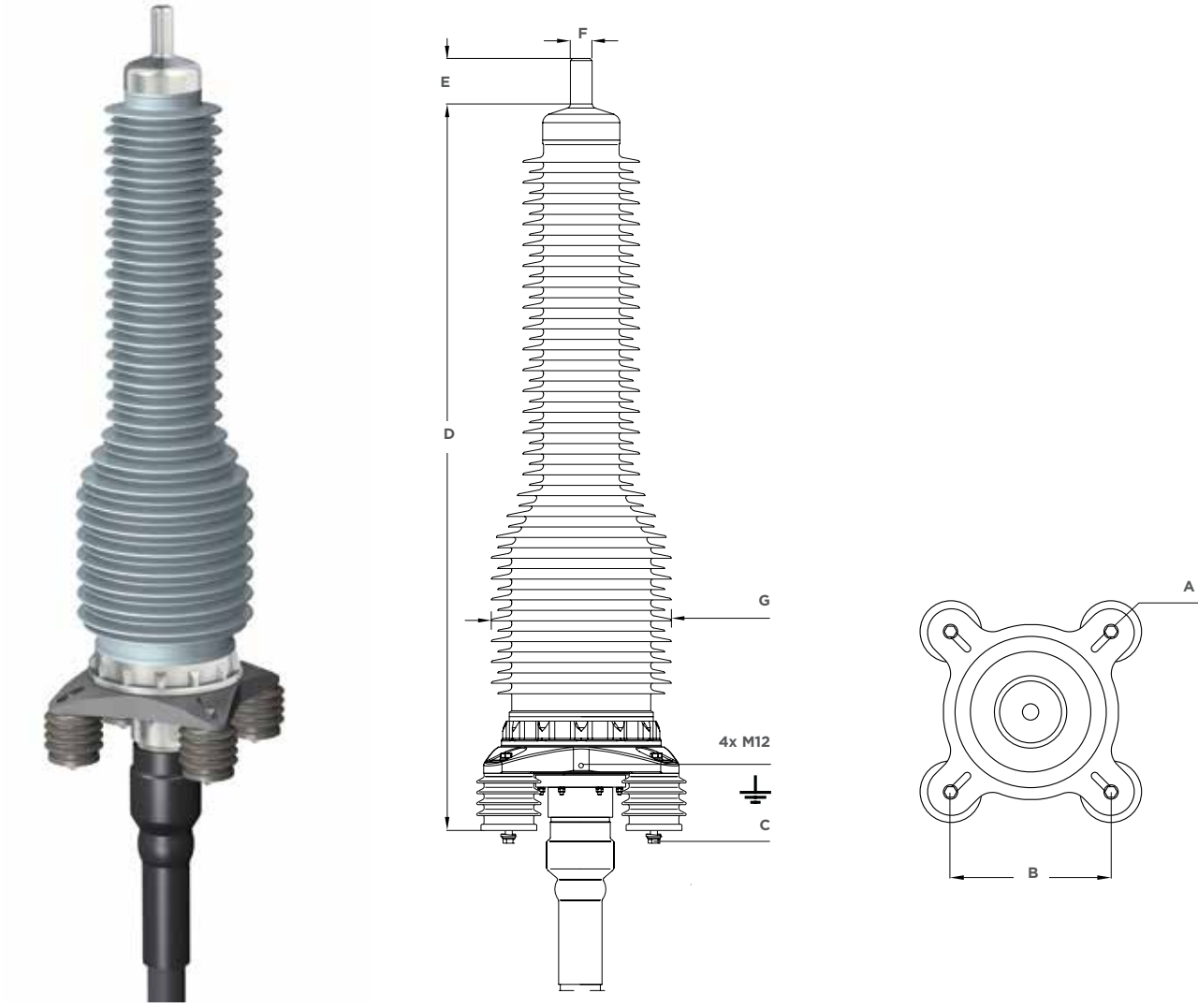
FEATURES

- Dry interface, no oil-filling
- Self-supporting
- Pre-fabricated and factory tested silicone-rubber stress cone
- Torque-controlled multi-contact conductor bolt
- Fast and simple installation combining GIS plug-in technology with polymeric insulators
- No special tools required to install the termination
- Insulated cable gland for sectionalization
- Type tested according to IEC 60840



Max. operating voltage U_m (kV)	123	145
Standards	IEC 60840 IEC 60815	IEC 60840 IEC 60815
Rated voltage U (kV)	110 - 115	132 - 138
Rated lightning impulse withstand voltage (BIL) (kV)	550	650

Outdoor Terminations Dry-type (OHVT-D)



Technical data

Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-145D	95 - 1200	34 - 78	120	4680

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-145D	450	345	M16	1783	100	50	410





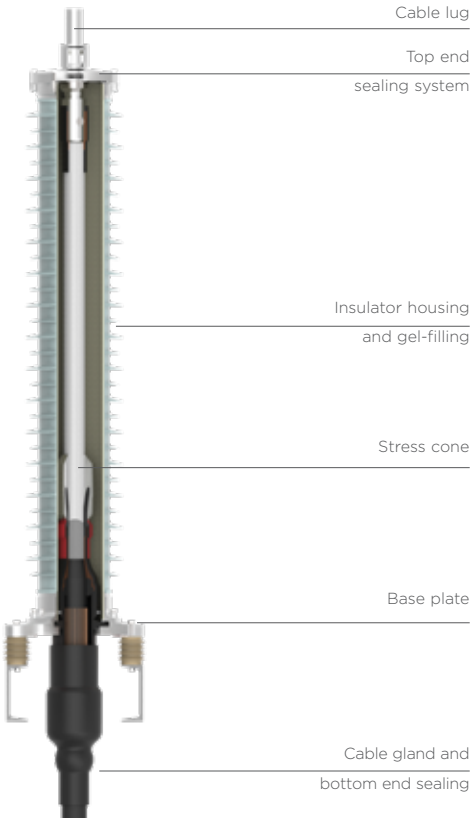
Outdoor Terminations Gel Type (OHVT-G)

APPLICATION

- The termination is designed for voltage classes up to 145 kV and to operate under severe environmental conditions. Polymeric insulated cables of various designs can be adopted with respect to shielding and metal sheath. Composite housings with different creepage lengths up to 50 mm/kV are available for the most common and also extreme pollution levels according to IEC 60071-1 and IEC 60071-2

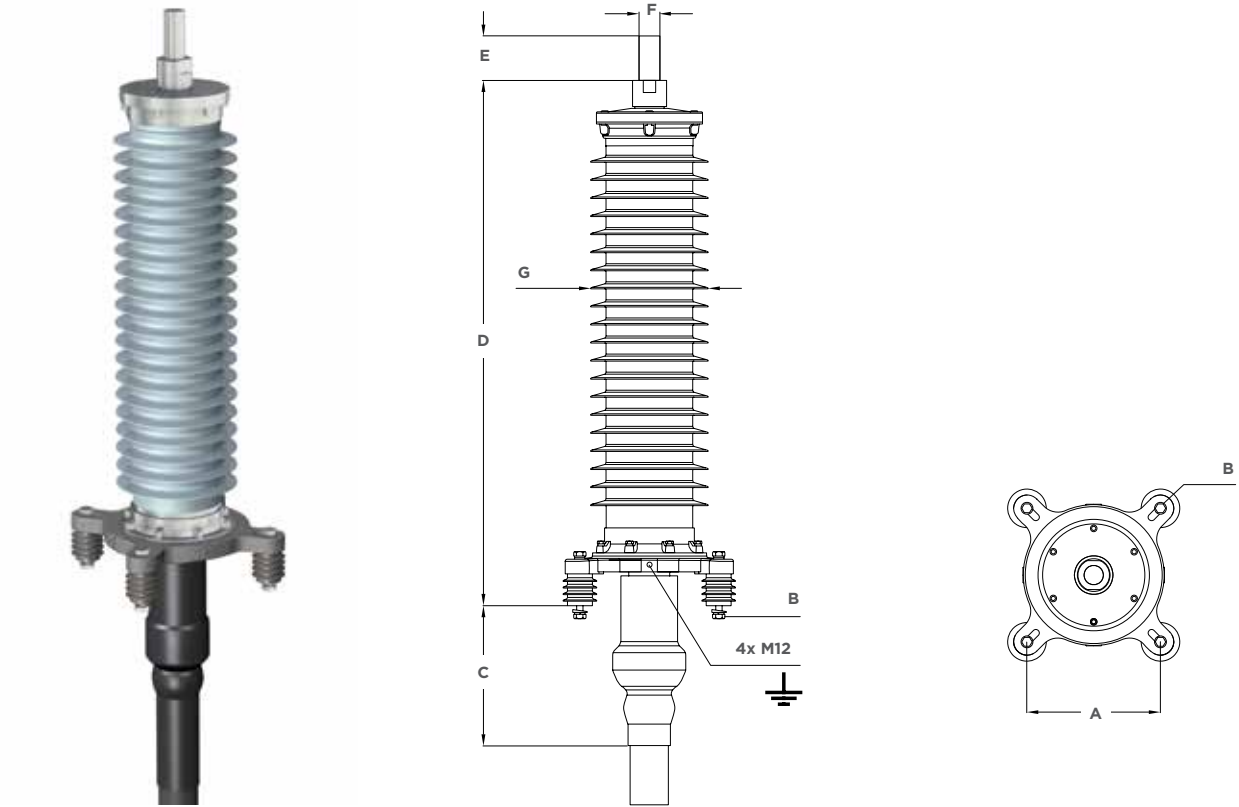
FEATURES

- The insulators are filled with a 2 part gel.
- Pressure-tight and light weight composite housing
- Pre-fabricated and factory-tested Silicone-rubber stress cone
- Torque-controlled conductor bolt
- No special tools required to install the termination
- Insulating medium Rayfil is a Gel which is ensuring no leakages
- Insulated base plate for sectionalization
- Fittings made of corrosion-resistant alloy
- Type tested according to IEC 60840



Max. operating voltage U _m (kV)	72.5	123	145	170	245
Standards	IEC 60840 IEC 60815	IEC 60840 IEC 60815	IEC 60840 IEC 60815	IEC 60840 IEC 60815	IEC 62067 IEC 60815
Rated voltage U (kV)	60 - 69	110 - 115	132 - 138	150 - 161	220 - 230
Rated lightning impulse withstand voltage (BIL) (kV)	325	550	650	750	1050

Outdoor Terminations (OHVT-72G)



Technical data

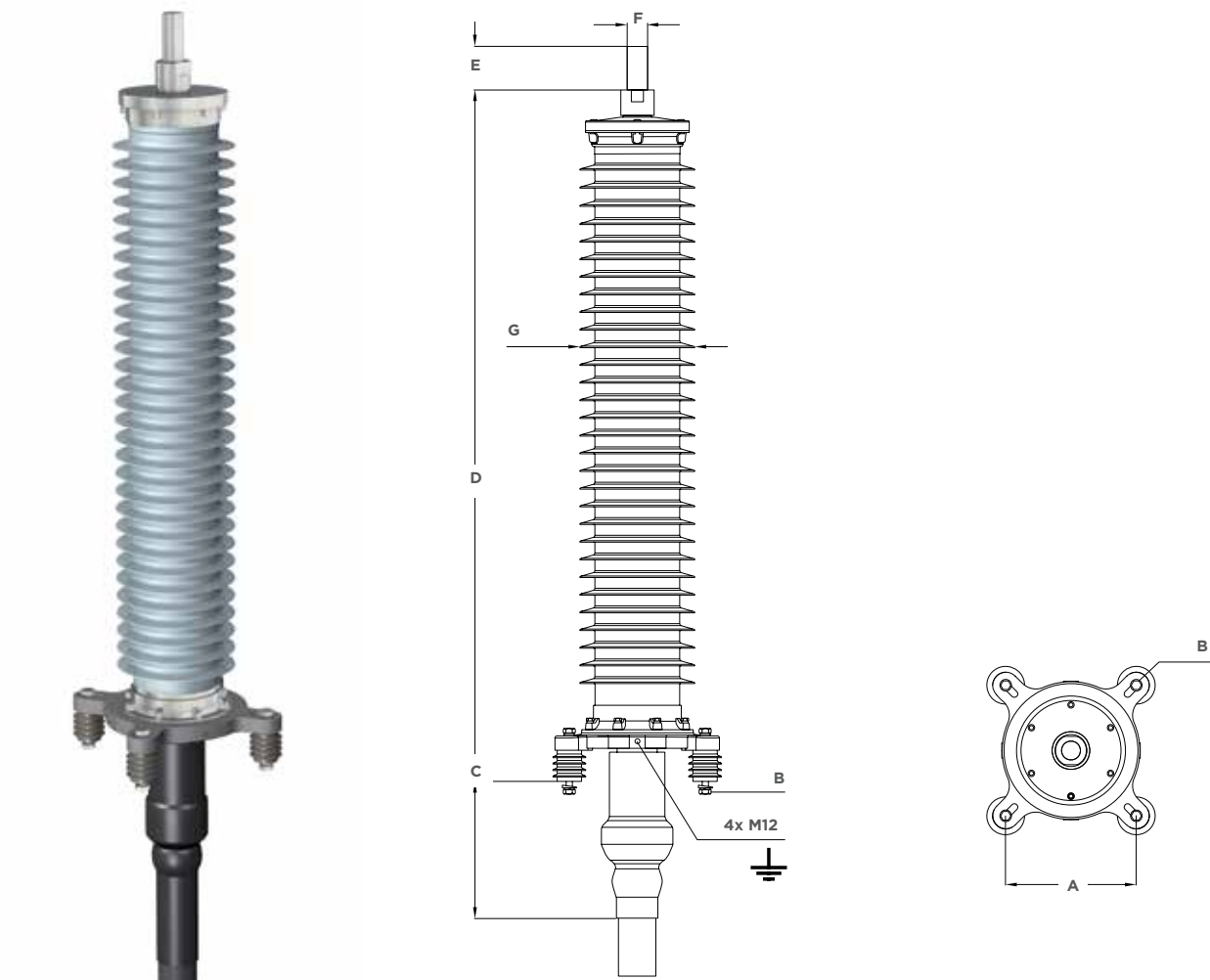
Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm²)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-72G (-2A)	95 - 2500	34 - 97	110	2164
OHVT-72G (-2B)	95 - 2500	34 - 97	110	2383
OHVT-72G (-2C)	95 - 2500	34 - 97	110	3089

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-72G (-2A)	300 - 345	M16	350	1276	100/130	30/40/50	294
OHVT-72G (-2B)	300 - 345	M16	350	1072	100/130	30/40/50	304
OHVT-72G (-2C)	300 - 345	M16	350	1262	100/130	30/40/50	308



Outdoor Terminations (OHVT-145G)

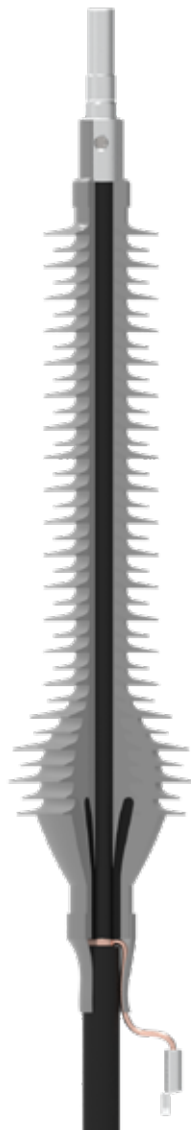


Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
OHVT-145G (-2A)	95 - 2500	34 - 97	110	3392
OHVT-145G (-3A)	95 - 2500	34 - 97	110	3829
OHVT-145G (-4A)	95 - 2500	34 - 97	110	4684
OHVT-145G (-4B)	95 - 2500	34 - 97	110	6100
OHVT-145C (-4C)	95 - 2500	34 - 97	110	8047

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
OHVT-145G (-2A)	300 - 345	M16	350	1771	100/130	30/40/50	294
OHVT-145G (-3A)	300 - 345	M16	350	1951	100/130	30/40/50	294
OHVT-145G (-4A)	300 - 345	M16	350	1696	100/130	30/40/50	304
OHVT-145G (-4B)	300 - 345	M16	350	2080	100/130	30/40/50	304
OHVT-145G (-4C)	300 - 345	M16	350	2608	100/130	30/40/50	304



Dry Flexible Terminations (OHVT-F)

APPLICATION

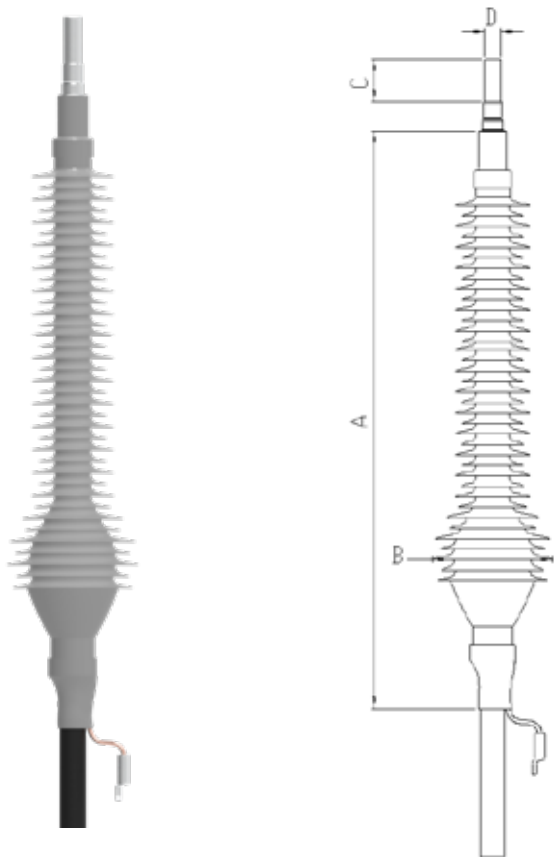
- The self supporting dry flexible termination is designed for voltage glass up to 145 kV and operating under severe enviromental condition, it is free from any insulating liquid or gel so it is no risk of leakage. Various polymeric cable with different shielding and metal sheath can be adapted based on customized design.

FEATURES

- Dry interface, no leakage risk
- Pre-fabricated and 100% factory tested
- Light weight
- Solderless grounding system, eliminate the risk of overheated cable
- Flexible on the installation angle.

Max. operating voltage U _m (kV)	123	145
Standards	IEC 60840 IEC 60815	IEC 60840 IEC 60815
Rated voltage U (kV)	110 - 115	132 - 138
Rated lightning impulse withstand voltage (BIL) (kV)	550	650

Dry-Flexible Terminations (OHVT-145F)



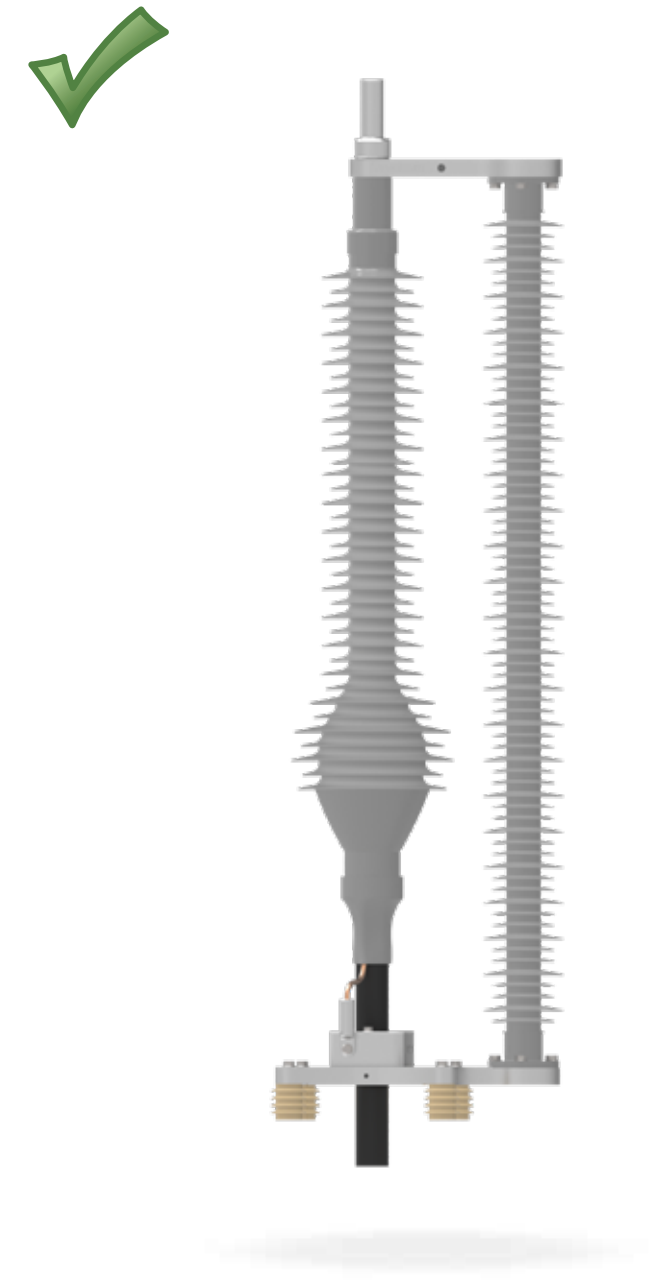
Technical data

Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Creepage distance approx. (mm)
OHVT-145F	240 - 1200	49,5 - 78	130	4590

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D* (mm)
OHVT-145F	1560	220	125	30/40/50

* Different studs and pads are available on request

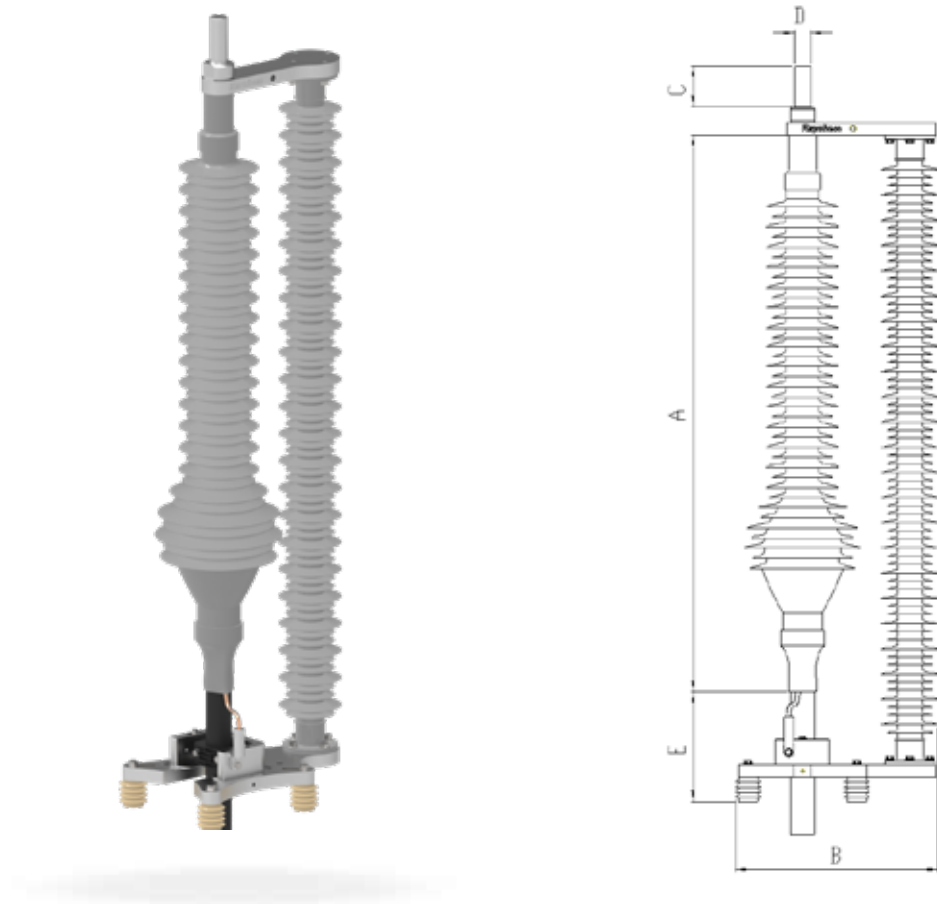


Self-Supporting Dry Flexible Terminations (OHVT-FS)

- APPLICATION
- FEATURES
- The self supporting dry flexible termination is designed for voltage glass up to 145 kV and operating under severe enviromental condition, it is free from any insulating liquid or gel so it is no risk of leakage. Various polymeric cable with different shielding and metal sheath can be adapted based on customized design.
 - Dry interface, no leakage risk
 - Pre-fabricated and 100% factory tested
 - Light weight
 - Solderless grounding system, eliminate the risk of overheated cable
 - Self-support to enhance mechanical performance

Max. operating voltage U _m (kV)	123	145
Standards	IEC 60840 IEC 60815	IEC 60840 IEC 60815
Rated voltage U (kV)	110 - 115	132 - 138
Rated lightning impulse withstand voltage (BIL) (kV)	550	650

Self-Supporting Dry-Flexible Terminations (OHVT-145FS)



Technical data

Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Creepage distance approx. (mm)
OHVT-145TS	240 - 1200	49,5 - 78	130	4590

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D* (mm)	E (mm)
OHVT-145FS	1560	220	125	30/40/50	350

* Different studs and pads are available on request



Arcing Horn for Outdoor Terminations (OHVT)

- APPLICATION
- FEATURES
- The arcing horns are made to protect the insulators from damage during a flashover. In case of overvoltages, the horns provide a separate breakdown path through the air and keep the flash over away from the insulator surface. As a result of this, the probability of insulator damage by overvoltage is reduced dramatically. The gap length can be adjusted so that the overvoltage withstand-level is variable
 - Easy installation
 - Various flashover lengths available
 - No contact to the grounding system of the termination and power cable for isolated operation
 - May be used for porcelain and composite insulators
 - Special designs on request



Lifting Device for Outdoor Terminations (OHVT)

- APPLICATION
- FEATURES
- This lifting device is designed for lifting the installed termination, including the cable, to high positioned installation sites
 - Comfortable and safe installation of the termination on the ground
 - Designed to lift the complete installed and oil filled termination with cable
 - Easy placement and mounting onto the rack on the pylon
 - Applicable for all TE Connectivity terminations up to 170 kV
 - Adjustable to all common cable sizes up to a diameter over cable sheath of 110 mm
 - Easy assembling and handling
 - Entire pulling force is applied to the cable only; no mechanical stress is applied to the termination
 - Lifting slings and shackles are not included in the kit, because of their yearly safety check regulations
 - Maximum lifting weight 500 kg



Grounding kits for Outdoor terminations for Dry Plug-in Switchgear and Transformer Terminations

- APPLICATION
- FEATURES
- Suitable for the proper connection of the ground to the high voltage cable accessories
 - Either for direct grounding or via sheath voltage arrester (SVL)
 - Usable for outdoor terminations
 - Usable for Plug for Dry Plug-in Switchgear and Transformer Terminations,
 - Different SVL levels available
 - Different cross-sections available

Voltage Class	Device Height	Indoor Application		Outdoor Application	
		Part Number	Description	Part Number	Description
Without SVL	95 mm²	EN8080-000	HVCA-GND-LEAD-95	EN8080-000	HVCA-GND-LEAD-95
	240 mm²	EN8081-000	HVCA-GND-LEAD-240	EN8081-000	HVCA-GND-LEAD-240
1 kV	95 mm²	EN8082-000	HVCA-GND-LEAD-I-1-95	EN8081-000	HVCA-GND-LEAD-O-1-95
	240 mm²	EN8083-000	HVCA-GND-LEAD-I-1-240	EN8082-000	HVCA-GND-LEAD-O-1-240
3 kV	95 mm²	EN8084-000	HVCA-GND-LEAD-I-3-95	EN8083-000	HVCA-GND-LEAD-O-3-95
	240 mm²	EN8085-000	HVCA-GND-LEAD-I-3-240	EN8084-000	HVCA-GND-LEAD-O-3-240
6 kV	95 mm²	EN8086-000	HVCA-GND-LEAD-I-6-95	EN8085-000	HVCA-GND-LEAD-O-6-95
	240 mm²	EN8087-000	HVCA-GND-LEAD-I-6-240	EN8086-000	HVCA-GND-LEAD-O-6-240



Fibre-Optic Add-On Kit for Outdoor Terminations

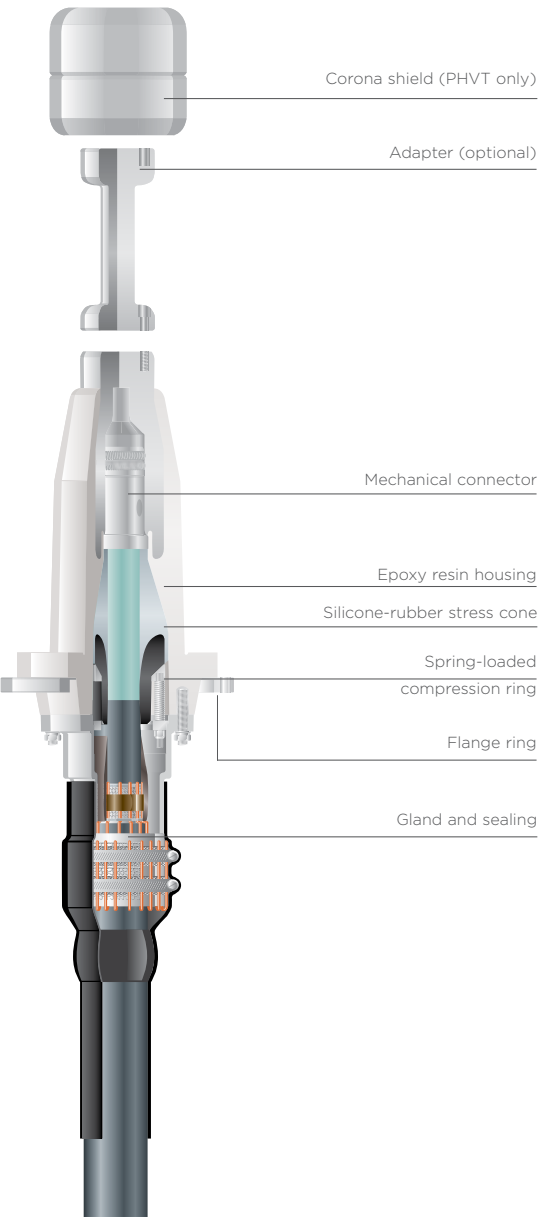
- APPLICATION
- FEATURES
- The TE's Raychem fibre-optic add-on kit is designed to connect the glass fibres integrated in HV cables. The kit includes all components required to seal the cable jacket and the fibre-optic outlet securely and to protect the sensitive optical fibres that are housed inside the steel pipes
 - The standard add-on kit is suitable for connecting two individual steel pipes each with a maximum of 24 optical fibres
 - Gel-sealing technology ensures reliable outdoor operation
 - Enhanced fibre management
 - The splice box is easy to open and close without the use of special tools
 - The kits are available for TE's Raychem outdoor terminations





Chapter II High Voltage Dry Plug-In Terminations

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Add-On Kits for Dry Plug-In Switchgear and Transformer Terminations.....	55



Dry Plug-In Switchgear and Transformer Terminations (PHVS & PHVT)

APPLICATION

- The dry compact switchgear termination for voltage classes up to 245 kV is designed to be installed in cable entry housings of gas-insulated switchgear (GIS). It complies with IEC 62271-209 standard, which essentially specifies the interfaces between the termination and the switchgear. Therefore, the termination will fit into all GIS that comply with IEC 62271-209. Adapters are available to match the dimensions of wet (oil-filled) type terminations, and older designs specified in IEC 60859. The termination operates in SF6 but also in insulating liquids like transformer oil. A corona shield at the top of the termination then provides the necessary shielding for the terminal. The termination is easily separable and consists of a plug-in part and an epoxy resin insulator. The insulator can be installed by the GIS or transformer manufacturer directly at the factory, saving installation time on-site and reducing the risk of contamination of the cable entry housing

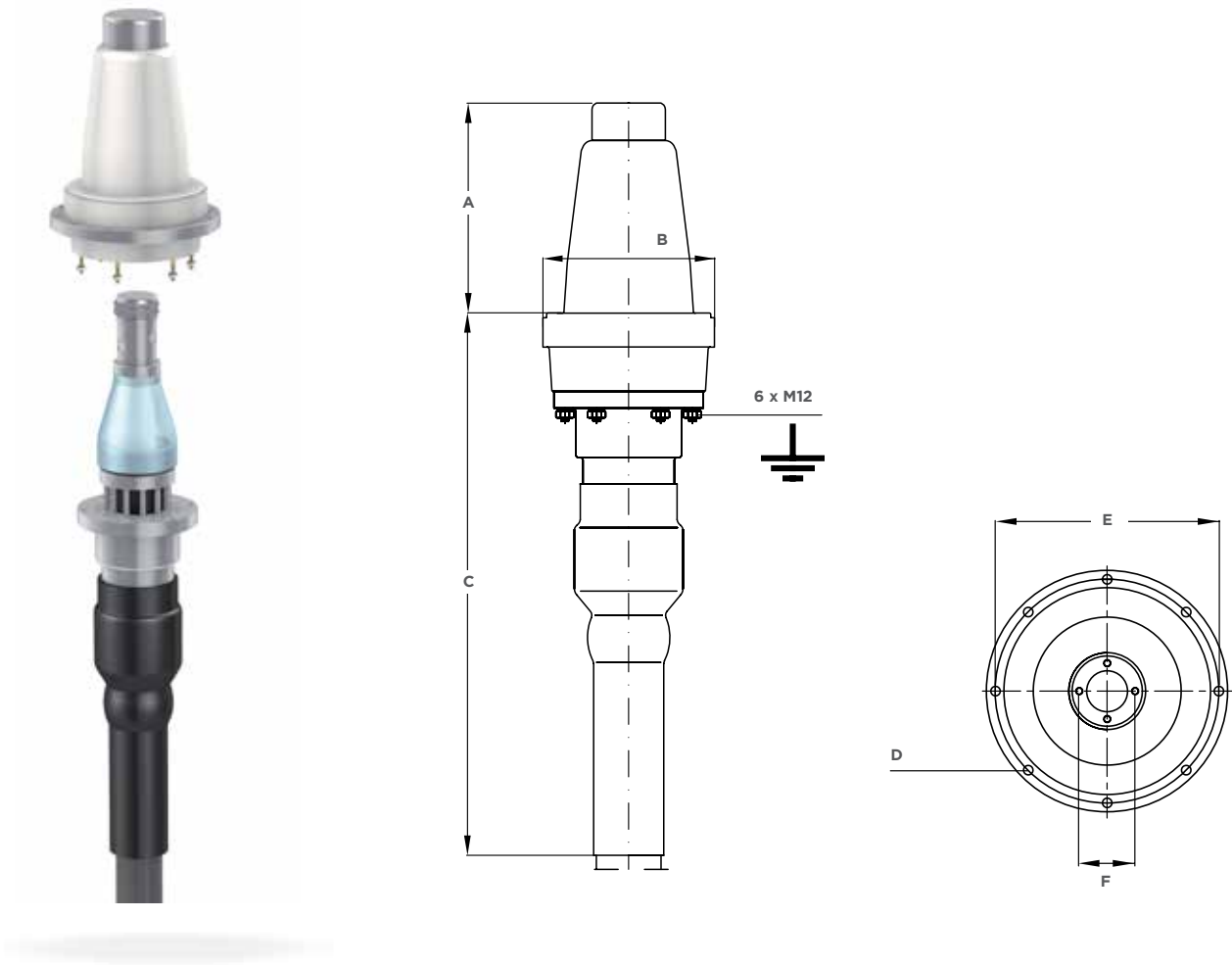
FEATURES

- Dry interfaces, no oil-filling
- Dimensions comply with IEC 62271-209
- Pressure-tight resin housing
- Operates in SF6 and insulating liquids
- Pre-fabricated and factory-tested silicone-rubber stress cone
- Torque-controlled or wedge-type multi-contact conductor bolt
- No special tools required to install the termination
- Insulated cable gland for sectionalization
- Type tested according to IEC 60840, IEC 62067 and IEC 62271-209 standards

Max. operating voltage U _m (kV)	72.5	123	145	170	245
Standards	IEC 60840 IEC 62271-209	IEC 60840 IEC 62271-209	IEC 60840 IEC 62271-209	IEC 60840 IEC 62271-209	IEC 62067 IEC 62271-209
Rated voltage U (kV)	60 - 69	110 - 115	132 - 138	150 - 161	220 - 230
Rated lightning impulse withstand voltage (BIL) (kV)	325	550	650	750	1050



Dry Plug-In Switchgear Terminations (PHVS-72)



Technical data

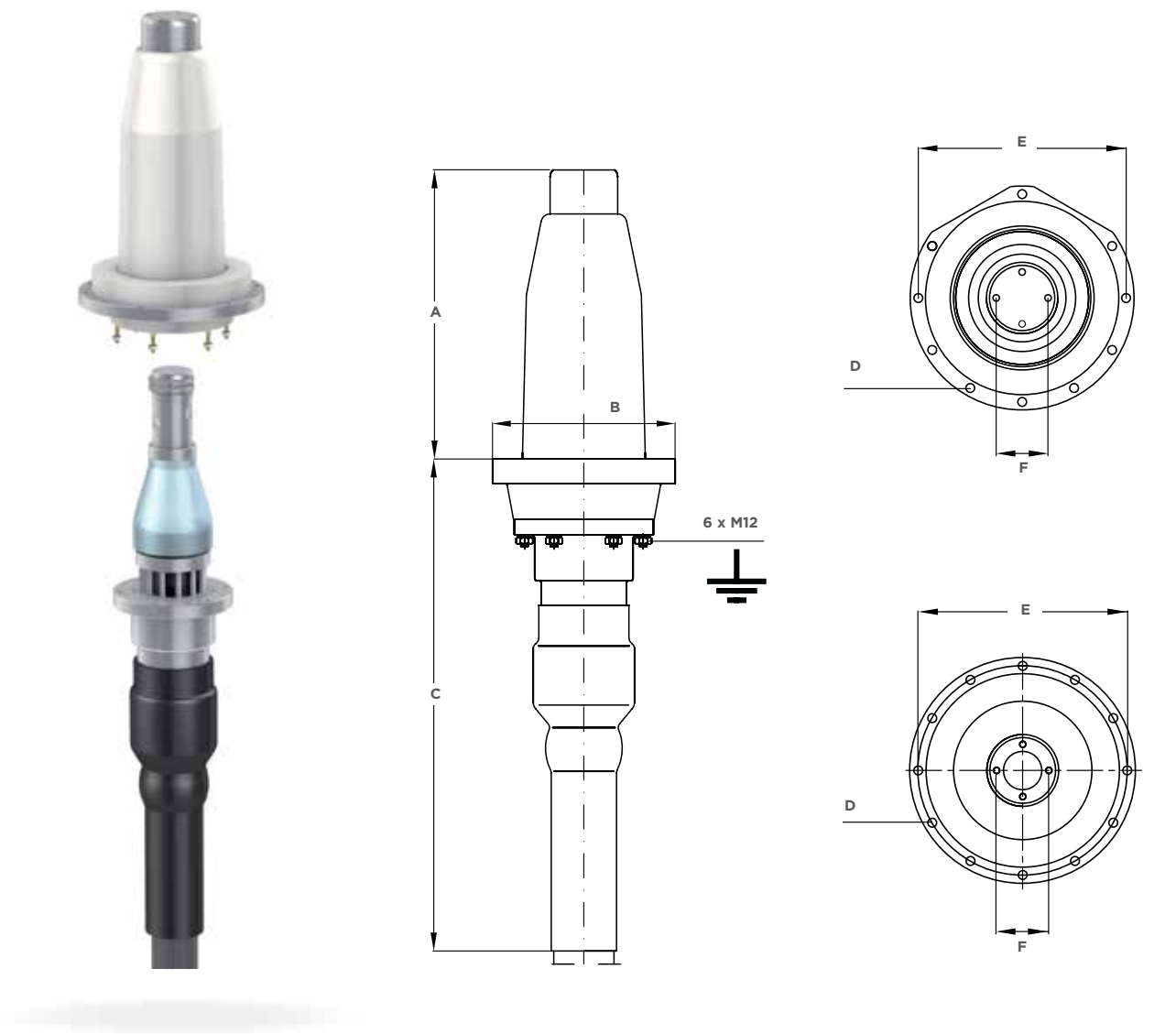
Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
PHVS-72	95 - 2000	34 - 78	120	255

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
PHVS-72	310	255	800	8 x 12	270	80



Dry Plug-In Switchgear Terminations (PHVS-145)



Technical data

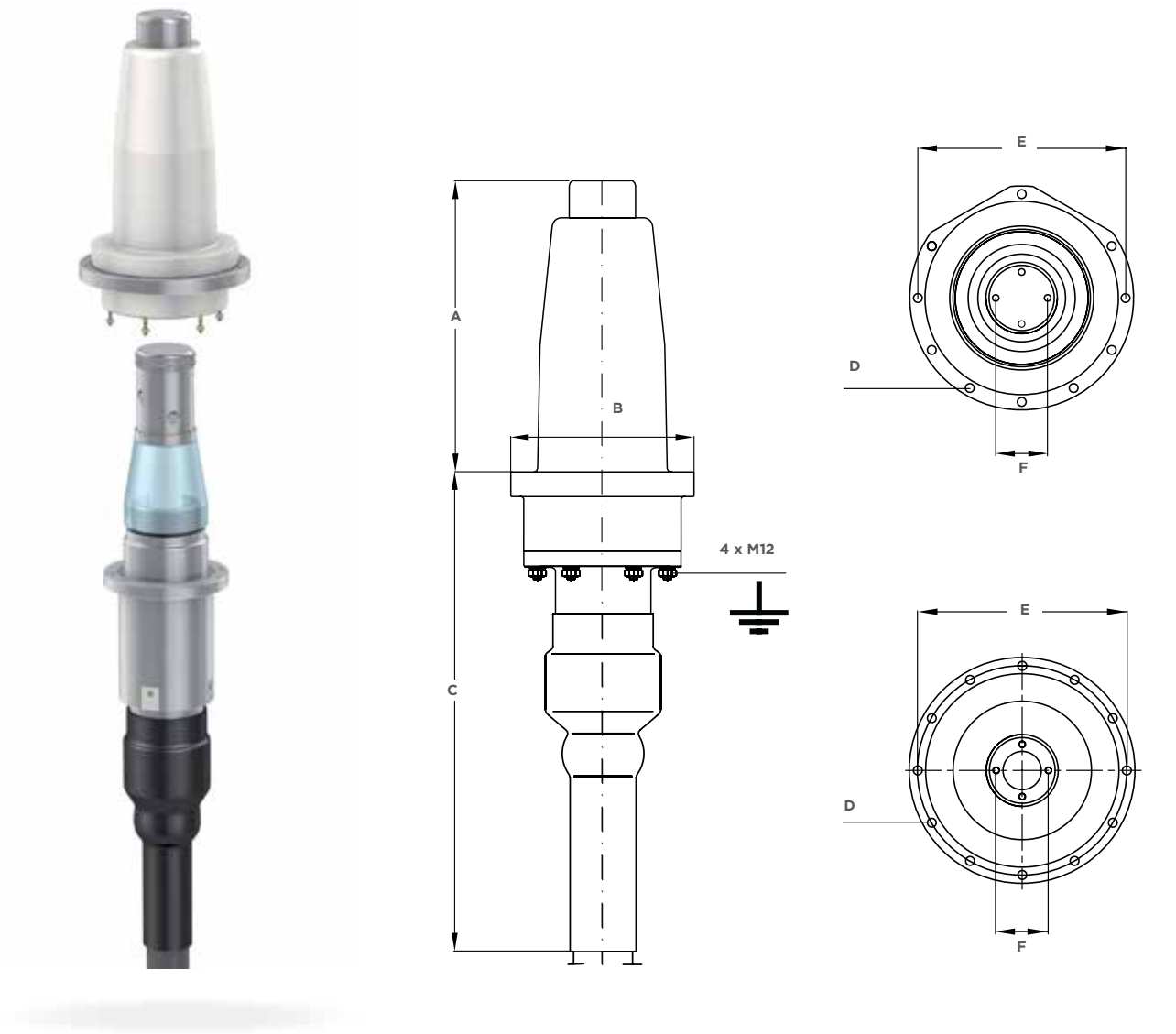
Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
PHVS-145 (size 1)	95 - 1200	34 - 78	120	414
PHVS-145 (size 2)	1200 - 2500	73 - 108	135	414

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
PHVS-145	470	297	800	12 x 13.5	320	80

* Voltage tap available on request

Dry Plug-In Switchgear Terminations (PHVS-170)



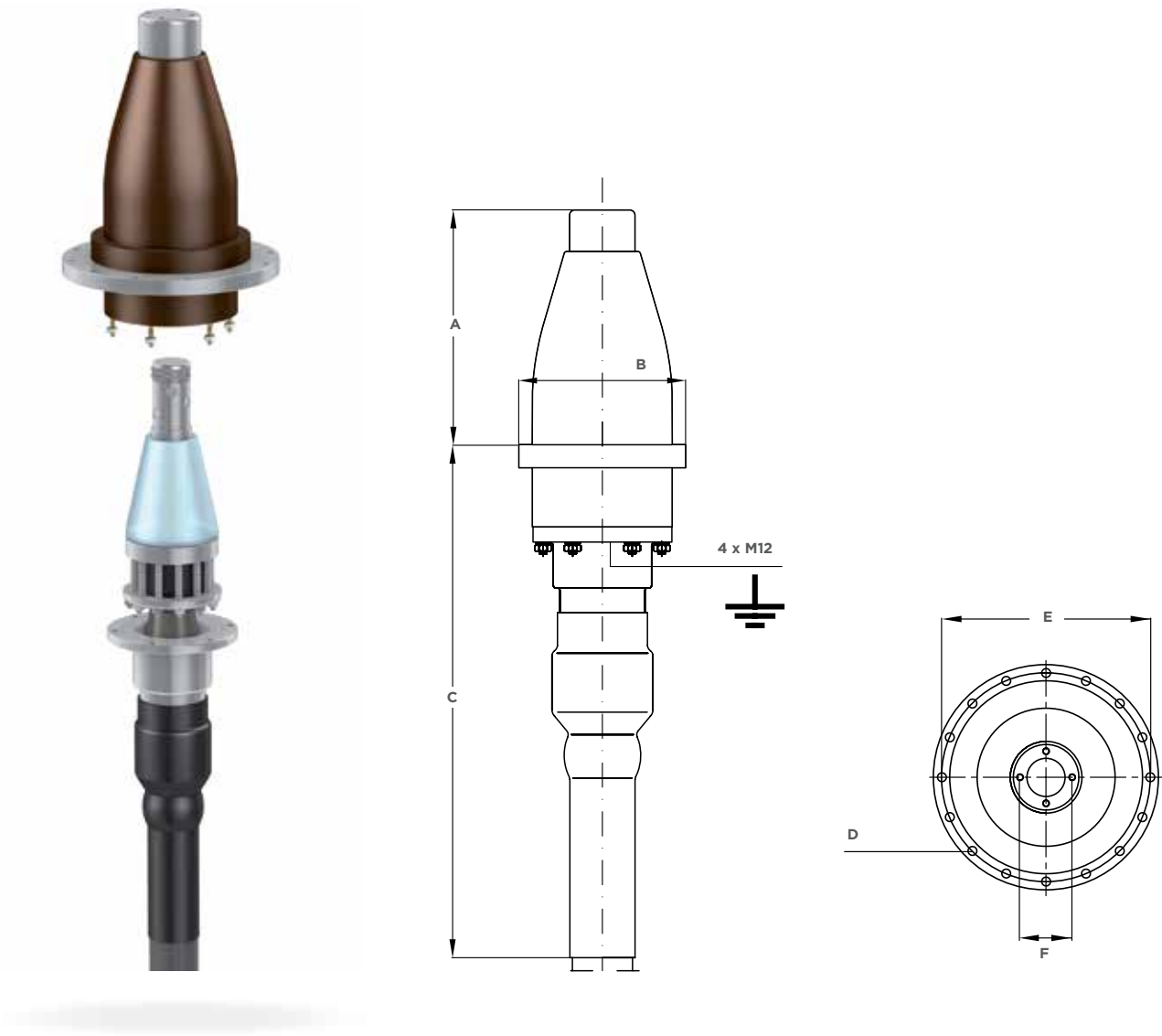
Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
PHVS-170 (size 1)	95 - 1200	34 - 78	120	414
PHVS-170 (size 2)	1000 - 2500	73 - 108	135	414

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
PHVS-170	470	298	800	12 x 13.5	320	80

Dry Plug-In Switchgear Terminations (PHVS-245)



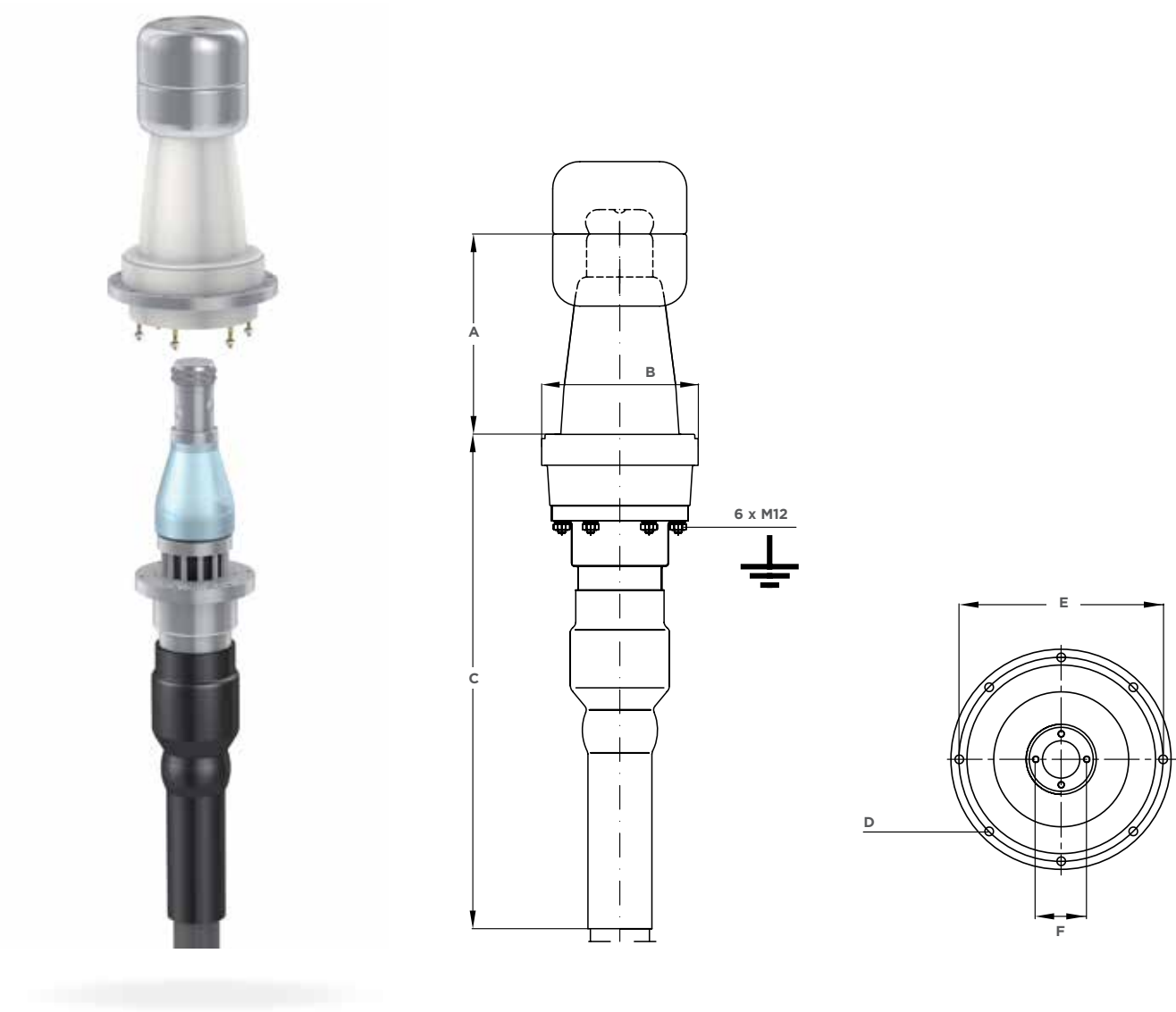
Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
PHVS-245	300 - 2500	77 - 119	150	519

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
PHVS-245	620	454	860	16 x 13.5	475	110

Dry Plug-In Switchgear Terminations (PHVT-72)



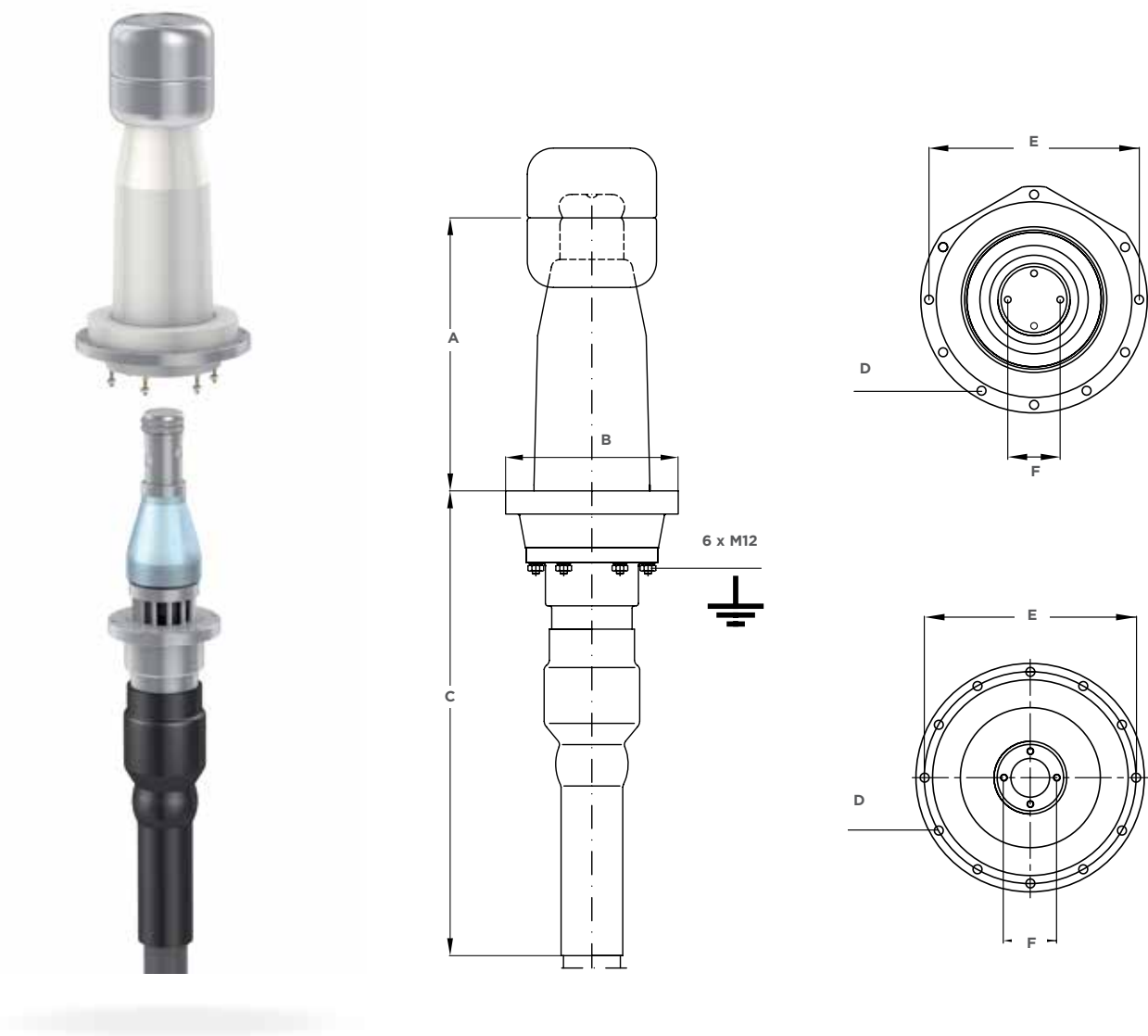
Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
PHVT-72	95 - 2000	34 - 78	120	255

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
PHVT-72	310	255	800	8 x 12	270	80

Dry Plug-In Switchgear Terminations (PHVT-145)



Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
PHVT-145 (size 1)	95 - 1200	34 - 78	120	414
PHVT-145 (size 2)	1200 - 2500	73 - 108	135	414

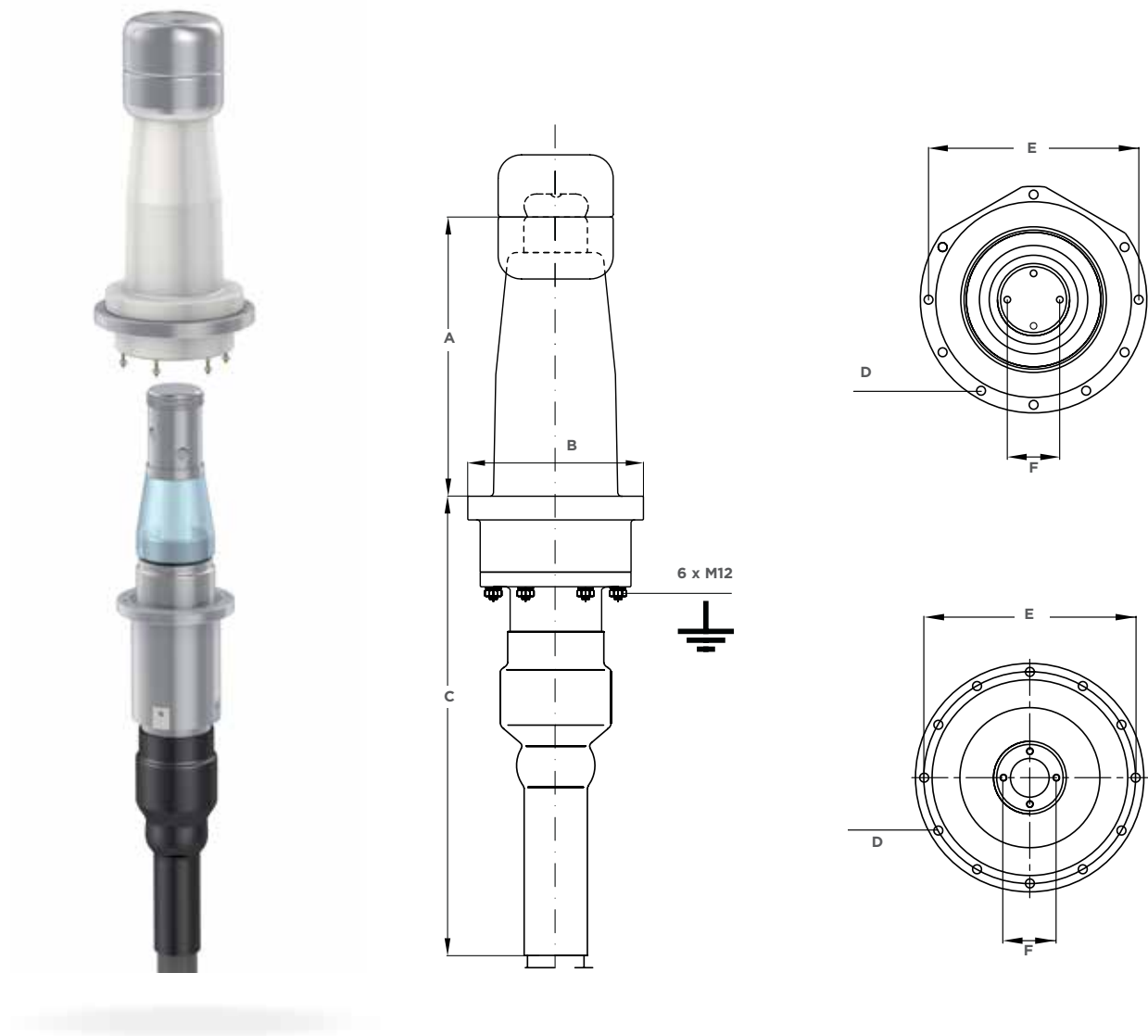
Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
PHVT-145*	470	297	800	12 x 13.5	320	80

* Voltage tap available on request



Dry Plug-In Switchgear Terminations (PHVT-170)



Technical data

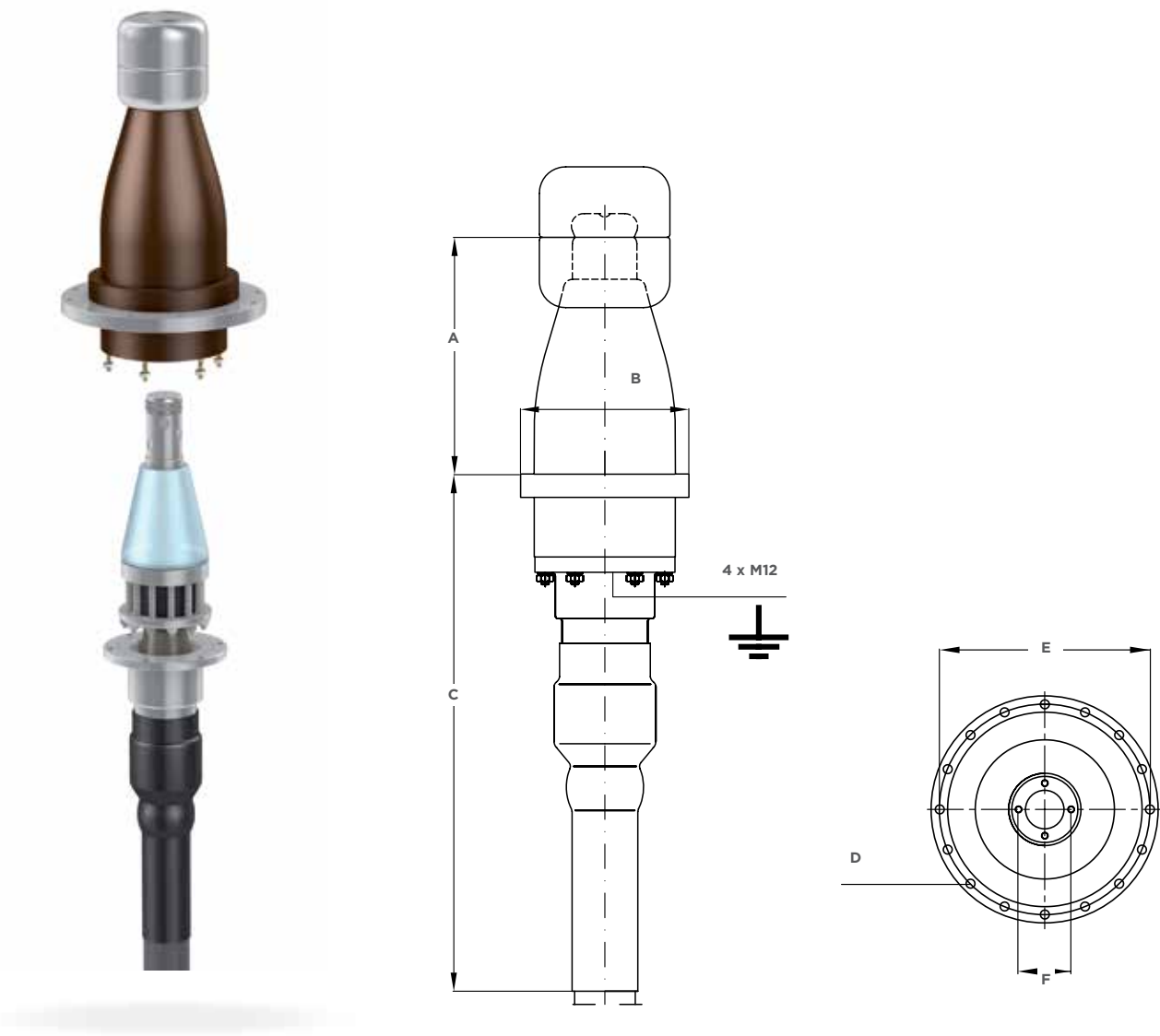
Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
PHVT-170 (size 1)	1000 - 2500	73 - 108	135	414
PHVT-170 (size 2)	95 - 1200	34 - 78	120	414

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
PHVT-170	470	298	800	12 x 13.5	320	80



Dry Plug-In Switchgear Terminations (PHVT-245)



Technical data

Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Minimal creepage distance (mm)
PHVT-245	300 - 2500	77 - 119	150	519

Dimensions

Product description	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
PHVT-245	620	454	860	16 x 13.5	475	110



Blind Plug for Dry Plug-In Switchgear and Transformer Terminations



APPLICATION

- Suitable for use when the switchgear is under operation without a cable connection. The blind plug (also known as dead end plug or dummy plug) is used to close the socket of the cable entry housing

FEATURES

- Voltage proof and can be used for continuous operation at nominal voltage
- Easy installation - similar to standard plug in
- Blind plug is removable and can be used as a temporary solution until the cable is connected
- Blind plug is re-usable
- Type tested according to the IEC 60840 standard

Part Number	Product Description	Comments
CV2954-000	PHVX-72-BLIND-PLUG	Blind plug for PHVX-72 series
CV7128-000	PHVX-145-BLIND-PLUG	Blind plug for PHVX-145 (size 1) and PHVX-170 (size 1)
BM7977-000	PHVX-170-BLIND-PLUG	Blind plug for PHVX-145 (size 2) and PHVX-170 (size 2)



Test Plate for Dry Plug-In Switchgear and Transformer Terminations

APPLICATION

- Suitable for use where the switchgear needs to be tested. The plate is an adapter to pressurize the inner part of the insulator with SF6.

FEATURES

- Pressure tested
- Suitable manometer available
- Reuseable

Part Number	Part Description	Comments
CN0832-000	PHVX-193-TEST-CLOSURE	Test plate for PHVX-72 , PHVX-145 (size 1) and PHVX-170 (size 1)
BM5750-000	PHVX-223-TEST-CLOSURE	Test plate for PHVX-145 (size 2) and PHVX-170 (size 2)
BM7070-000	PHVX-330-TEST-CLOSURE	Test plate for PHVX-245



Current Test Plug for Dry Plug-in Switchgear and Transformer Terminations

- APPLICATION**
- Suitable for carrying out current tests on equipment fitted with bushings PHVS/PHVT
- FEATURES**
- Re-usable
 - Usable for transformer current tests
 - Usable for GIS current tests

Part Number	Part Description	Comments
EN5949-000	PHVX-72-CURRENT-TEST-PLUG	Current test plug for PHVX-72 series
EN5950-000	PHVX-145-CURRENT-TEST-PLUG	Current test plug for PHVX-145 (size 1) and PHVX-170 (size 1)
EN5951-000	PHVX-170-CURRENT-TEST-PLUG	Current test plug for PHVX-145 (size 2) and PHVX-170 (size 2)
EN5952-000	PHVX-245-CURRENT-TEST-PLUG	Current test plug for PHVX-245 series



Cable fixing device for Dry Plug-in Switchgear and Transformer Terminations

- APPLICATION**
- Suitable for fixing power cables with bushings PHVS/PHVT
- FEATURES**
- Re-usable
 - Fits on supplied standard flanges
 - Avoids cable bending
 - Non magnetic

Part Number	Part Description	Flange Diameter (mm)	Diameter Over Cable Sheath (mm)	Comments
EN8059-000	PHVX-CABLE-FIX-270-26/38	270	26...38	Fits on PHVX-72 series
EN8060-000	PHVX-CABLE-FIX-270-36/52	270	36...52	Fits on PHVX-72 series
EN8061-000	PHVX-CABLE-FIX-270-46/75	270	46...75	Fits on PHVX-72 series
EN8062-000	PHVX-CABLE-FIX-270-72/100	270	72...100	Fits on PHVX-72 series
EN8063-000	PHVX-CABLE-FIX-320-26/38	320	26...38	Fits on PHVX-145 series and PHVX-170 series
EN8064-000	PHVX-CABLE-FIX-320-36/52	320	36...52	Fits on PHVX-145 series and PHVX-170 series
EN8065-000	PHVX-CABLE-FIX-320-46/75	320	46...75	Fits on PHVX-145 series and PHVX-170 series
EN8066-000	PHVX-CABLE-FIX-320-72/100	320	72...100	Fits on PHVX-145 series and PHVX-170 series
EN8067-000	PHVX-CABLE-FIX-320-100/130	320	100...130	Fits on PHVX-145 series and PHVX-170 series



Chapter III High Voltage Cable Joints

Heat-Shrinkable Joints (EHVS-H)	60
One Piece Joints (EHVS-S)	62
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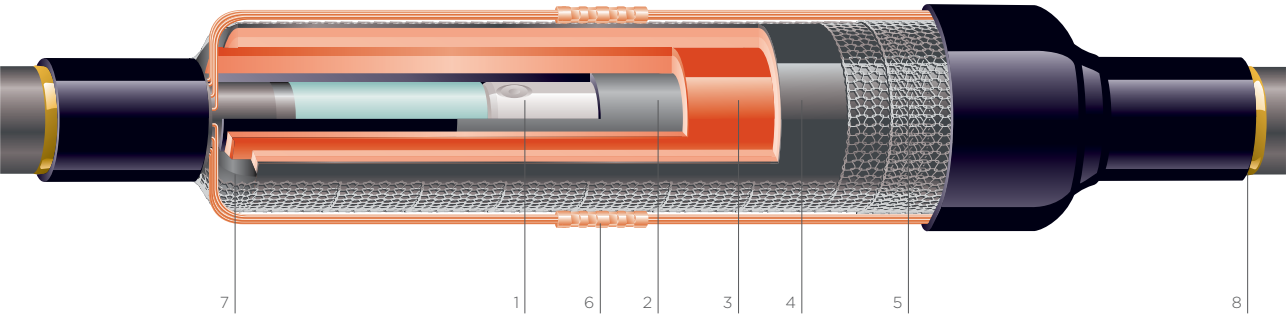
Heat-Shrinkable Joints (EHVS-H)

APPLICATION

- Polymeric insulated cables of various designs can be adapted with respect to shielding and metal sheath. Our heat shrink accessories have been used by utilities and industrial companies around the world for more than 50 years. This ongoing field experience has us a leader in materials science and technology for high voltage applications. Our materials technology is at the core of the development of our heat-shrinkable joints. The materials, used in TE Connectivity TE's Raychem cable accessories, have been extensively optimized with respect to product design and function, manufacturing, and expected service environments

FEATURES

- Compact and modular design
- Heat-shrinkable stress control sleeves
- Torque-controlled connector
- Joint fits on all polymeric cable constructions
- Proven shield continuity concept
- Short cut-back dimension
- Cable size transition possible
- Water and corrosion-resistant
- Easy and fast to install
- No special or expensive tools required
- Lightweight components
- Unlimited storage life-time under normal conditions
- Reduced waste for disposal
- Wide installed base at international customers



- 1 Mechanical connector
- 2 Electrical stress control tube
- 3 Insulating tubing
- 4 Screened insulating tubing
- 5 Copper mesh
- 6 Solderless shield connection
- 7 Sealant/mastic
- 8 Outer protection with integrated moisture barrier

Max. operating voltage U _m (kV)	52	72.5
Standards	IEC 60840	IEC 60840
Rated voltage U (kV)	45 - 47	60 - 69
Rated lightning impulse withstand voltage (BIL) (kV)	250	325



EHVS-52H



EHVS-72H

Technical data

Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-52H	95 - 2500	30 - 86	100	1350	130	Inline / shield break / grounded
EHVS-72H	95 - 2500	30 - 86	100	1350	130	Inline / shield break / grounded





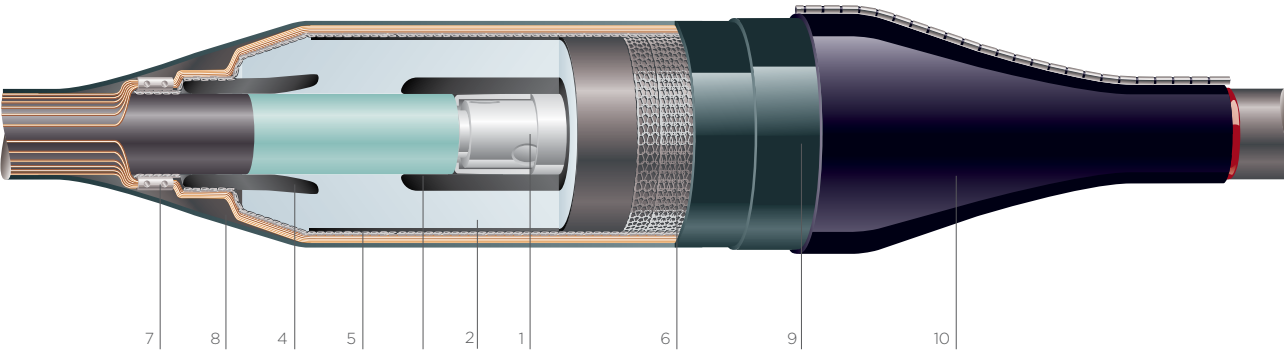
One Piece Joints (EHVS-S)

APPLICATION

- The joint is a pre-fabricated one-piece design for voltage classes up to 245 kV. Polymeric insulated cables of various designs can be adapted with respect to shielding and metal sheath. The silicone rubber joint body with integrated geometrical stress control, provides proven electrical function. The joint components combine electrical performance, stress control and moisture sealing to provide the important functions required for all high voltage products

FEATURES

- Premoulded one-piece joint body
- Torque-controlled connector
- Choice of outer sealing and protection systems
- Joint fits on all polymeric cable constructions
- Proven shield continuity concept
- Factory-tested silicone-rubber body
- Special silicone rubber provides perfect compression force for optimised electrical performance
- Simple assembly
- No tension set of joint body
- Moulded thick outer conductive screen
- Geometrical electrical stress control by moulded conductive deflectors
- Type tested according to IEC 60840, IEC 62067 standards



- 1 Mechanical connector
- 2 Silicone rubber body
- 3 Inner electrode/Faraday cage
- 4 Deflector
- 5 Outer screen
- 6 Copper mesh
- 7 Solderless shield connection
- 8 Sealant/mastic
- 9 Insulating tubes
- 10 Outer protection with integrated moisture barrier

Max. operating voltage U _m (kV)	145	245
Standards	IEC 60840	IEC 62067
Rated voltage U (kV)	132 - 138	220 - 230
Rated lightning impulse withstand voltage (BIL) (kV)	650	1050



One Piece Joints 145 kV

Heat-shrink Rejacketing



Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-145SW	500 - 2500	60 - 112	130	2400	220	Inline / shield break / grounded

Copper Casing



Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-145SC	500 - 2500	60 - 112	130	2400	280	Inline / shield break / grounded

Coffin Box



Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-145SB	500 - 2500	60 - 112	130	3000	350	Inline / shield break / grounded

Heavy Duty (Copper Casing and Coffin Box)



Product description	Conductor cross section (mm ²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-145SH	500 - 2500	60 - 112	130	3000	350	Inline / shield break / grounded





One Piece Joints 245 kV

Heat-shrink Rejacketing



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-245SW	300 - 2500	71 - 119	150	2500	310	Inline / shield break / grounded

Copper Casing



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-245SC	300 - 2500	71 - 119	150	2500	350	Inline / shield break / grounded

Coffin Box



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-245SB	300 - 2500	71 - 119	150	3500	550	Inline / shield break / grounded

Heavy Duty (Copper Casing and Coffin Box)



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-245SH	300 - 2500	71 - 119	150	3500	550	Inline / shield break / grounded



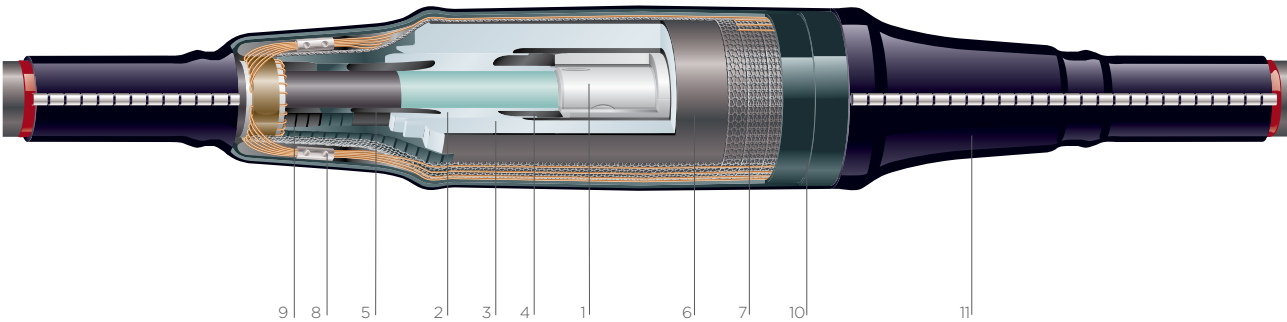
Three Piece Joints (EHVS-T)

APPLICATION

- The joint is a pre-fabricated three piece design for voltage classes up to 170 kV. Polymeric insulated cables of various designs can be adapted with respect to shielding and metal sheath. The silicone rubber joint parts with integrated geometrical stress control provides proven electrical function. The joint components combine electrical performance, stress control, and moisture sealing to provide the important functions required for all high voltage products

FEATURES

- Premoulded three piece joint design
- Torque-controlled connector
- Joint fits on all polymeric cable constructions
- Proven shield continuity concept
- Factory-tested silicone rubber bodies
- Special silicone rubber provides perfect compression force for optimized electrical performance
- Short cut-back dimensions
- No special tools required to install the joint
- Cable size transition possible
- No tension set of joint body
- Moulded outer conductive screen
- Geometrical electrical stress control by moulded conductive deflectors
- Type tested according to IEC 60840 standards



- Mechanical connector
- Silicone rubber adapter body
- Silicone rubber main body
- Inner electrode/Faraday cage
- Deflector
- Outer screen (moulded)
- Copper mesh
- Solderless shield continuity
- Sealant/mastic
- Insulating tubes
- Outer protection with integrated moisture barrier

Max. operating voltage U _m (kV)	145	170
Standards	IEC 60840	IEC 60840
Rated voltage U (kV)	132 - 138	150 - 161
Rated lightning impulse withstand voltage (BIL) (kV)	650	750



Three Piece Joints 145 kV

Heat-shrink Rejacketing



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-145TW	185 -1600	43 - 83	105	2000	200	Inline / shield break / grounded
EHVS-145TW	1600 - 2500	60 - 112	130	2000	250	Inline / shield break / grounded

Copper Casing



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-145TC	185 - 1600	43 - 83	105	2500	250	Inline / shield break / grounded
EHVS-145TC	1600 - 2500	60 - 112	130	2500	250	Inline / shield break / grounded

Coffin Box



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-145TB	185 - 1600	43 - 83	105	3000	350	Inline / shield break / grounded
EHVS-145TB	1600 - 2500	60 - 112	130	3000	450	Inline / shield break / grounded

Heavy Duty (Copper Casing and Coffin Box)



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-145TH	185 - 1600	43 - 83	105	3000	350	Inline / shield break / grounded
EHVS-145TH	1600 - 2500	60 - 112	130	3000	450	Inline / shield break / grounded



Three Piece Joints 170 kV

Heat-shrink Rejacketing



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-170TW	240 - 2500	60 - 112	130	2000	250	Inline / shield break / grounded

Copper Casing



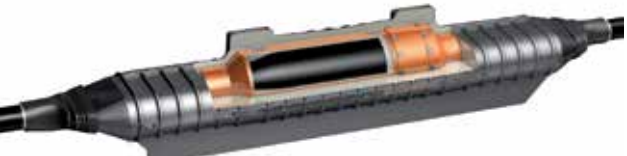
Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-170TC	240 - 2500	60 - 112	130	2500	300	Inline / shield break / grounded

Coffin Box



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-170TB	240 - 2500	60 - 112	130	3000	450	Inline / shield break / grounded

Heavy Duty (Copper Casing and Coffin Box)



Product description	Conductor cross section (mm²)	Diameter over cable insulation (prepared) (mm)	Max. diameter over outer cable sheath (mm)	Length (mm)	Diameter (mm)	Screen treatment
EHVS-170TH	240 - 2500	60 - 112	130	3000	450	Inline / shield break / grounded



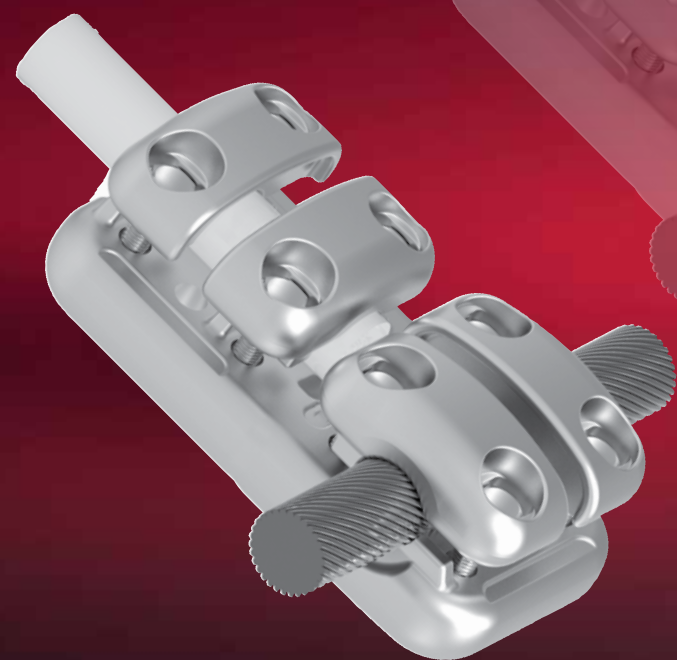
Fibre-Optic Add-On Kit for HV Cable Joints

APPLICATION

- The TE's Raychem fibre-optic add-on kit is designed to connect the glass fibres integrated in HV cables. The kit includes all components required to seal the cable jacket and the fibre-optic outlet securely and to protect the sensitive optical fibres that are housed inside the steel pipes
- The standard add-on kit is suitable for connecting two individual steel pipes each with a maximum of 24 optical fibres

FEATURES

- The splice box is suitable for cross-bonding and straight-through joints
- Gel-sealing technology ensures reliable operation even when buried joints are used
- Enhanced fibre management
- The splice box is easy to open and close without the use of special tools
- The kits are available for all TE's Raychem joints



Chapter IV High Voltage Connectors

High Voltage Connectors for Outdoor Terminations 73

High Voltage Connectors for Outdoor Terminations

APPLICATION

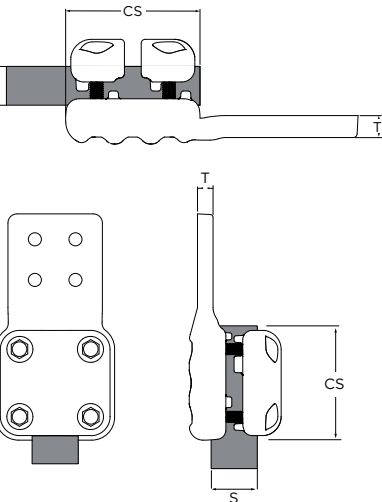
- Our full line of connectors and accessories for high voltage cable accessories covers most applications in an electrical network. These connectors are typically used for the connection of outdoor terminations to bus bars or overhead lines. Industry leading TE's Raychem high voltage cable accessories are combined with in-house engineered high voltage connectors to make assemblies that are easy to install and completely reliable in the energy environment.

FEATURES

- Reduced lead-time. Make to order solutions in 4 to 6 weeks thanks to a rationalized range of casting components kept in stock.
- Extended lifetime. High electrical performances with in-house machining combined with waxed bolts. Strengthen mechanical behaviors with electrical contact grooves machined as per each conductor.
- Carbon foot print. Cut environmental impact through lower shipping volumes and reduced on-site waste.
- Services & support. Laser marking done systematically on each connector for permanent traceability and identification.
- Double special keeper designed to fit the 50 mm DIA studs of the 145kV termination having a length of 100mm. Reference contains "LB505".

PRODUCT SELECTION INFORMATION: DIMENSIONS IN MM

Straight Terminal Pad (NEMA)

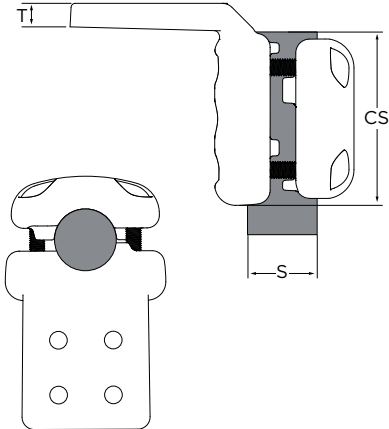


TCPN	Description	S	CS	T
2332300-1	5 PD 82 S305 100 C290	30	80	12
2331949-1	5 PD 82 M405 100 C290	40	104	16
2327166-1	5 PD 82 LB505 100 C290	50	125	16
2331948-1	5 PD 82 L605 100 C290	60	125	16

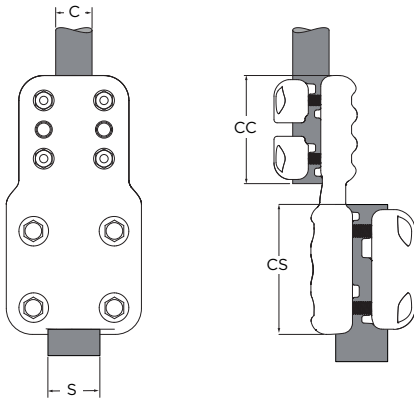
Transition from terminal stud to pad



L Terminal Pad (NEMA)

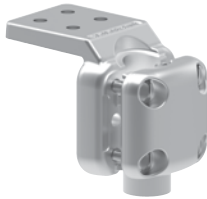


Straight Transition Rod



TCPN	Description	S	CS	T
2332301-1	5 PE 82 S305 100 C290	30	80	12
2332302-1	5 PE 82 M405 100 C290	40	104	16
2327179-1	5 PE 82 LB505 100 C290	50	125	16
2331094-1	5 PE 82 L605 100 C290	60	125	16

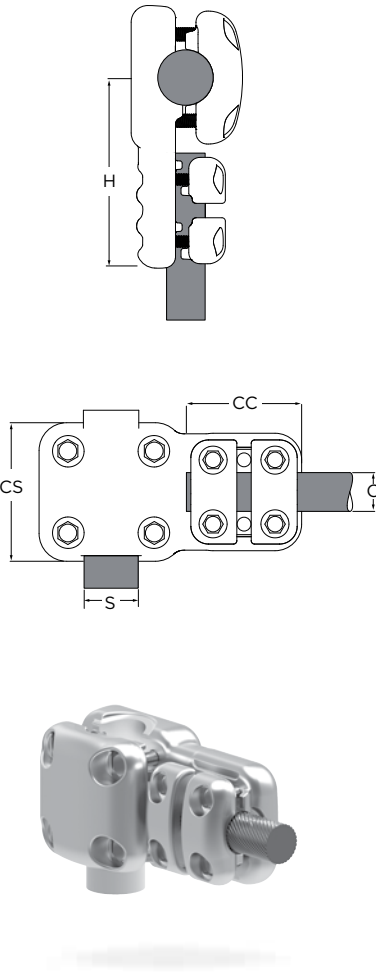
Transition from terminal stud to pad



TCPN	Description	S	C	CS	CC
2332303-1	5 CJ 82 S305 S205	30	15,0 - 20,5	80	80
2332006-1	5 CJ 82 S305 S225	30	20,6 - 22,5	80	80
2331099-1	5 CJ 82 S305 S245	30	22,6 - 24,5	80	80
2332304-1	5 CJ 82 S305 S265	30	24,6 - 26,5	80	80
2332305-1	5 CJ 82 S305 S285	30	26,6 - 28,5	80	80
2332306-1	5 CJ 82 S305	30	28,6 - 30,5	80	80
2332307-1	5 CJ 82 M325 S305	30	30,6 - 32,5	80	104
2327680-1	5 CJ 82 M345 S305	30	32,6 - 34,5	80	104
2332308-1	5 CJ 82 M365 S305	30	34,6 - 36,5	80	104
2332309-1	5 CJ 82 M385 S305	30	36,6 - 38,5	80	104
2332310-1	5 CJ 82 M405 S205	40	15,0 - 20,5	104	80
2332311-1	5 CJ 82 M405 S225	40	20,6 - 22,5	104	80
2331097-1	5 CJ 82 M405 S245	40	22,6 - 24,5	104	80
2332312-1	5 CJ 82 M405 S265	40	24,6 - 26,5	104	80
2332313-1	5 CJ 82 M405 S285	40	26,6 - 28,5	104	80
2332314-1	5 CJ 82 M405 S305	40	28,6 - 30,5	104	80
2332315-1	5 CJ 82 M405 M325	40	30,6 - 32,5	104	104
2325945-1	5 CJ 82 M405 M345	40	32,6 - 34,5	104	104
2332316-1	5 CJ 82 M405 M365	40	34,6 - 36,5	104	104
2332317-1	5 CJ 82 M405 M385	40	36,6 - 38,5	104	104
2332318-1	5 CJ 82 M405	40	38,6 - 40,5	104	104
2332319-1	5 CJ 82 LB505 S205	50	15,0 - 20,5	125	80
2332320-1	5 CJ 82 LB505 S225	50	20,6 - 22,5	125	80
2332321-1	5 CJ 82 LB505 S245	50	22,6 - 24,5	125	80
2332322-1	5 CJ 82 LB505 S265	50	24,6 - 26,5	125	80
2332323-1	5 CJ 82 LB505 S285	50	26,6 - 28,5	125	80
2332324-1	5 CJ 82 LB505 S305	50	28,6 - 30,5	125	80
2332325-1	5 CJ 82 LB505 M325	50	30,6 - 32,5	125	104
2332326-1	5 CJ 82 LB505 M345	50	32,6 - 34,5	125	104
2327183-1	5 CJ 82 LB505 M365	50	34,6 - 36,5	125	104
2332327-1	5 CJ 82 LB505 M385	50	36,6 - 38,5	125	104
2332328-1	5 CJ 82 LB505 M405	50	38,6 - 40,5	125	104
2334647-1	5 CJ 82 L605 S205	60	15,0 - 20,5	125	80
2334649-1	5 CJ 82 L605 S225	60	20,6 - 22,5	125	80
2334650-1	5 CJ 82 L605 S245	60	22,6 - 24,5	125	80
2334652-1	5 CJ 82 L605 S265	60	24,6 - 26,5	125	80
2334653-1	5 CJ 82 L605 S285	60	26,6 - 28,5	125	80
2334654-1	5 CJ 82 L605 S305	60	28,6 - 30,5	125	80
2334655-1	5 CJ 82 L605 M325	60	30,6 - 32,5	125	104
2334657-1	5 CJ 82 L605 M345	60	32,6 - 34,5	125	104
2334658-1	5 CJ 82 L605 M365	60	34,6 - 36,5	125	104
2334659-1	5 CJ 82 L605 M385	60	36,6 - 38,5	125	104
2334660-1	5 CJ 82 L605 M405	60	38,6 - 40,5	125	104

Straight connection from terminal stud to cable

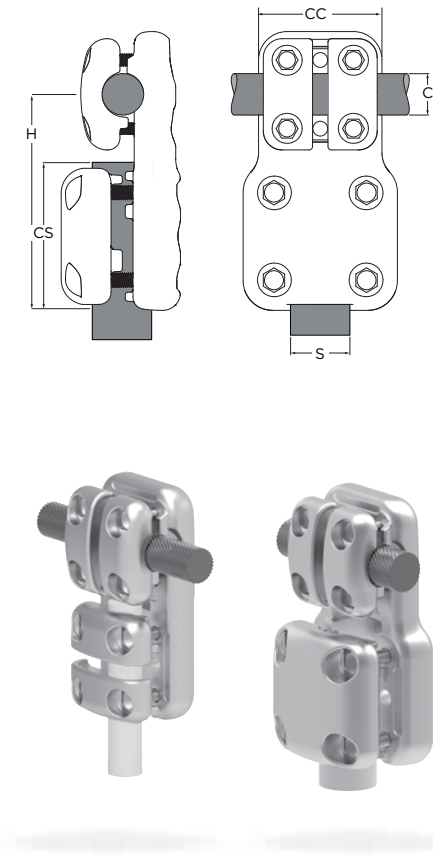
Tee Stud / Cable



TCPN	Description	S	C	CS	CC	H
2332329-1	5 CT 82 S305 S205	30	15,0 - 20,5	80	80	130
2332330-1	5 CT 82 S305 S225	30	20,6 - 22,5	80	80	130
2331110-1	5 CT 82 S305 S245	30	22,6 - 24,5	80	80	130
2332331-1	5 CT 82 S305 S265	30	24,6 - 26,5	80	80	130
2332332-1	5 CT 82 S305 S285	30	26,6 - 28,5	80	80	130
2312834-1	5 CT 82 S305	30	28,6 - 30,5	80	80	130
2332333-1	5 CT 82 S305 M325	30	30,6 - 32,5	80	104	152
2325950-1	5 CT 82 S305 M345	30	32,6 - 34,5	80	104	152
2332334-1	5 CT 82 S305 M365	30	34,6 - 36,5	80	104	152
2332336-1	5 CT 82 M405 S205	40	15,0 - 20,5	104	80	133
2332337-1	5 CT 82 M405 S225	40	20,6 - 22,5	104	80	133
2331101-1	5 CT 82 M405 S245	40	22,6 - 24,5	104	80	133
2332338-1	5 CT 82 M405 S265	40	24,6 - 26,5	104	80	133
2332339-1	5 CT 82 M405 S285	40	26,6 - 28,5	104	80	133
2332340-1	5 CT 82 M405 S305	40	28,6 - 30,5	104	80	133
2332341-1	5 CT 82 M405 M325	40	30,6 - 32,5	104	104	157
2325948-1	5 CT 82 M405 M345	40	32,6 - 34,5	104	104	157
2332342-1	5 CT 82 M405 M365	40	34,6 - 36,5	104	104	157
2332343-1	5 CT 82 M405 M385	40	36,6 - 38,5	104	104	157
2324550-1	5 CT 82 M405	40	38,6 - 40,5	104	104	157
2332344-1	5 CT 82 LB505 S205	50	15,0 - 20,5	125	80	148
2332345-1	5 CT 82 LB505 S225	50	20,6 - 22,5	125	80	148
2332346-1	5 CT 82 LB505 S245	50	22,6 - 24,5	125	80	148
2332347-1	5 CT 82 LB505 S265	50	24,6 - 26,5	125	80	148
2332348-1	5 CT 82 LB505 S285	50	26,6 - 28,5	125	80	148
2332349-1	5 CT 82 LB505 S305	50	28,6 - 30,5	125	80	148
2332350-1	5 CT 82 LB505 M325	50	30,6 - 32,5	125	104	172
2332351-1	5 CT 82 LB505 M345	50	32,6 - 34,5	125	104	172
2327177-1	5 CT 82 LB505 M365	50	34,6 - 36,5	125	104	172
2332352-1	5 CT 82 LB505 M385	50	36,6 - 38,5	125	104	172
2332353-1	5 CT 82 LB505 M405	50	38,6 - 40,5	125	104	172
2334661-1	5 CT 82 L605 S205	60	15,0 - 20,5	125	80	148
2334669-1	5 CT 82 L605 S225	60	20,6 - 22,5	125	80	148
2334670-1	5 CT 82 L605 S245	60	22,6 - 24,5	125	80	148
2334671-1	5 CT 82 L605 S265	60	24,6 - 26,5	125	80	148
2334673-1	5 CT 82 L605 S285	60	26,6 - 28,5	125	80	148
2334677-1	5 CT 82 L605 S305	60	28,6 - 30,5	125	80	148
2334756-1	5 CT 82 L605 M325	60	30,6 - 32,5	125	104	172
2334757-1	5 CT 82 L605 M345	60	32,6 - 34,5	125	104	172
2334765-1	5 CT 82 L605 M365	60	34,6 - 36,5	125	104	172
2334766-1	5 CT 82 L605 M385	60	36,6 - 38,5	125	104	172
2334767-1	5 CT 82 L605 M405	60	38,6 - 40,5	125	104	172

Straight connection from terminal stud to cable

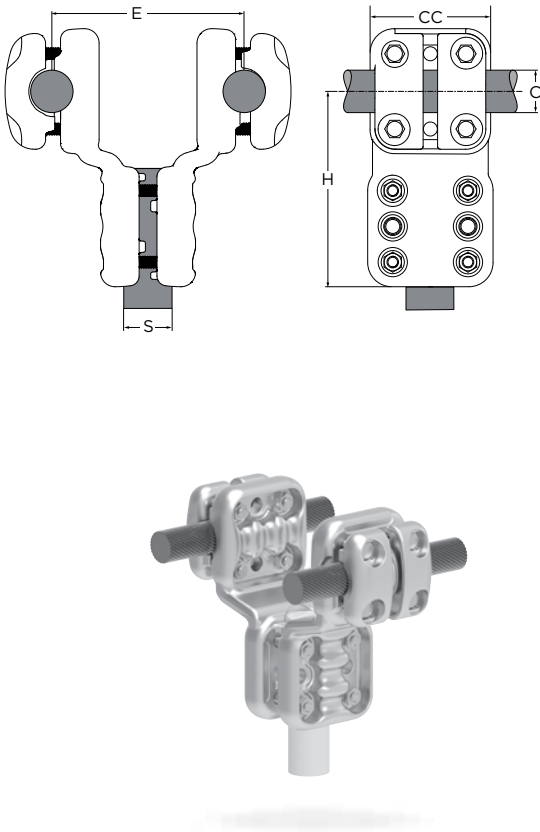
Tee Cable / Stud



TCPN	Description	S	C	CS	CC	H
2332354-1	5 CT 82 S205 S305	30	15,0 - 20,5	80	80	130
2327937-1	5 CT 82 S225 S305	30	20,6 - 22,5	80	80	130
2332355-1	5 CT 82 S245 S305	30	22,6 - 24,5	80	80	130
2331111-1	5 CT 82 S265 S305	30	24,6 - 26,5	80	80	130
2332356-1	5 CT 82 S285 S305	30	26,6 - 28,5	80	80	130
2327329-1	5 CT 82 M325 S305	30	30,6 - 32,5	104	80	133
2326624-1	5 CT 82 M345 S305	30	32,6 - 34,5	104	80	133
2332357-1	5 CT 82 M365 S305	30	34,6 - 36,5	104	80	133
2332358-1	5 CT 82 S205 M405	40	15,0 - 20,5	80	104	152
2332359-1	5 CT 82 S225 M405	40	20,6 - 22,5	80	104	152
2332360-1	5 CT 82 S245 M405	40	22,6 - 24,5	80	104	152
2332361-1	5 CT 82 S265 M405	40	24,6 - 26,5	80	104	152
2332362-1	5 CT 82 S285 M405	40	26,6 - 28,5	80	104	152
2332363-1	5 CT 82 S305 M405	40	28,6 - 30,5	80	104	152
2332364-1	5 CT 82 M325 M405	40	30,6 - 32,5	104	104	157
2326123-1	5 CT 82 M345 M405	40	32,6 - 34,5	104	104	157
2332365-1	5 CT 82 M365 M405	40	34,6 - 36,5	104	104	157
2332366-1	5 CT 82 M385 M405	40	36,6 - 38,5	104	104	157
2332367-1	5 CT 82 S205 LB505	50	15,0 - 20,5	80	125	180
2332368-1	5 CT 82 S225 LB505	50	20,6 - 22,5	80	125	180
2332369-1	5 CT 82 S245 LB505	50	22,6 - 24,5	80	125	180
2332370-1	5 CT 82 S265 LB505	50	24,6 - 26,5	80	125	180
2332371-1	5 CT 82 S285 LB505	50	26,6 - 28,5	80	125	180
2332372-1	5 CT 82 S305 LB505	50	28,6 - 30,5	80	125	180
2332373-1	5 CT 82 M325 LB505	50	30,6 - 32,5	104	125	182
2332374-1	5 CT 82 M345 LB505	50	32,6 - 34,5	104	125	182
2327170-1	5 CT 82 M365 LB505	50	34,6 - 36,5	104	125	182
2332375-1	5 CT 82 M385 LB505	50	36,6 - 36,5	104	125	182
2332376-1	5 CT 82 M405 LB505	50	38,6 - 40,5	104	125	182
2334769-1	5 CT 82 S205 L605	60	15,0 - 20,5	80	125	182
2334771-1	5 CT 82 S225 L605	60	20,6 - 22,5	80	125	182
2334772-1	5 CT 82 S245 L605	60	22,6 - 24,5	80	125	182
2334773-1	5 CT 82 S265 L605	60	24,6 - 26,5	80	125	182
2334774-1	5 CT 82 S285 L605	60	26,6 - 28,5	80	125	182
2334776-1	5 CT 82 S305 L605	60	28,6 - 30,5	80	125	182
2334777-1	5 CT 82 M325 L605	60	30,6 - 32,5	104	125	182
2325949-1	5 CT 82 M345 L605	60	32,6 - 34,5	104	125	182
2334778-1	5 CT 82 M365 L605	60	34,6 - 36,5	104	125	182
2334779-1	5 CT 82 M385 L605	60	36,6 - 36,5	104	125	182
2334780-1	5 CT 82 M405 L605	60	38,6 - 40,5	104	125	182

Straight connection from terminal stud to cable

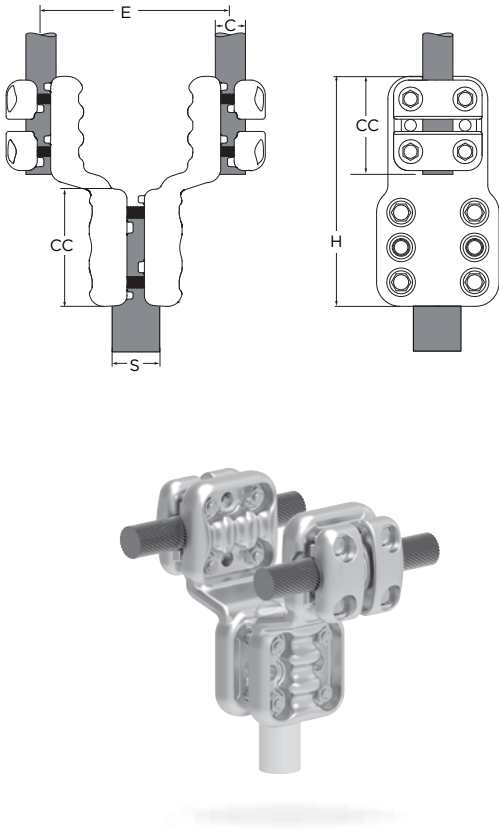
Twin Tee / Stud



TCPN	Description	S	C	E	CC	CS	H
2332377-1	5 CT 82 F S205 E100 L505	50	15,0 - 20,5	100	80	125	180
2331592-1	5 CT 82 F S225 E100 L505	50	20,6 - 22,5	100	80	125	180
2332378-1	5 CT 82 F S245 E100 L505	50	22,6 - 24,5	100	80	125	180
2332379-1	5 CT 82 F S265 E100 L505	50	48,6 - 50,5	100	80	125	180
2332380-1	5 CT 82 F S285 E100 L505	50	48,6 - 50,5	100	80	125	180
2332381-1	5 CT 82 F S305 E100 L505	50	48,6 - 50,5	100	80	125	180
2333300-1	5 CT 82 F M325 E100 L505	50	48,6 - 50,5	100	104	125	182
2333301-1	5 CT 82 F M345 E100 L505	50	48,6 - 50,5	100	104	125	182
2333302-1	5 CT 82 F M365 E100 L505	50	48,6 - 50,5	100	104	125	182
2333303-1	5 CT 82 F M385 E100 L505	50	48,6 - 50,5	100	104	125	182
2333304-1	5 CT 82 F M405 E100 L505	50	48,6 - 50,5	100	104	125	182
2332382-1	5 CT 82 F S205 E200 L505	50	15,0 - 20,5	200	80	125	180
2332383-1	5 CT 82 F S225 E200 L505	50	20,6 - 22,5	200	80	125	180
2332384-1	5 CT 82 F S245 E200 L505	50	22,6 - 24,5	200	80	125	180
2332385-1	5 CT 82 F S265 E200 L505	50	24,6 - 26,5	200	80	125	180
2332386-1	5 CT 82 F S285 E200 L505	50	48,6 - 50,5	200	80	125	180
2332387-1	5 CT 82 F S305 E200 L505	50	48,6 - 50,5	200	80	125	180
2333305-1	5 CT 82 F M325 E200 L505	50	48,6 - 50,5	200	104	125	182
2333306-1	5 CT 82 F M345 E200 L505	50	48,6 - 50,5	200	104	125	182
2333307-1	5 CT 82 F M365 E200 L505	50	48,6 - 50,5	200	104	125	182
2333308-1	5 CT 82 F M385 E200 L505	50	48,6 - 50,5	200	104	125	182
2333309-1	5 CT 82 F M405 E200 L505	50	48,6 - 50,5	200	104	125	182
2332388-1	5 CT 82 F S205 E200 L605	60	15,0 - 20,5	200	80	125	180
2332389-1	5 CT 82 F S225 E200 L605	60	20,6 - 22,5	200	80	125	180
2332390-1	5 CT 82 F S245 E200 L605	60	22,6 - 24,5	200	80	125	180
2332391-1	5 CT 82 F S265 E200 L605	60	24,6 - 26,5	200	80	125	180
2332392-1	5 CT 82 F S285 E200 L605	60	26,6 - 28,5	200	80	125	180
2332393-1	5 CT 82 F S305 E200 L605	60	28,6 - 30,5	200	80	125	180
2332394-1	5 CT 82 F M325 E200 L605	60	30,6 - 32,5	200	104	125	182
2332395-1	5 CT 82 F M345 E200 L605	60	32,6 - 34,5	200	104	125	182
2332396-1	5 CT 82 F M365 E200 L605	60	34,6 - 36,5	200	104	125	182
2325496-1	5 CT 82 F M385 E200 L605	60	36,6 - 38,5	200	104	125	182
2332397-1	5 CT 82 F M405 E200 L605	60	38,6 - 40,5	200	104	125	182

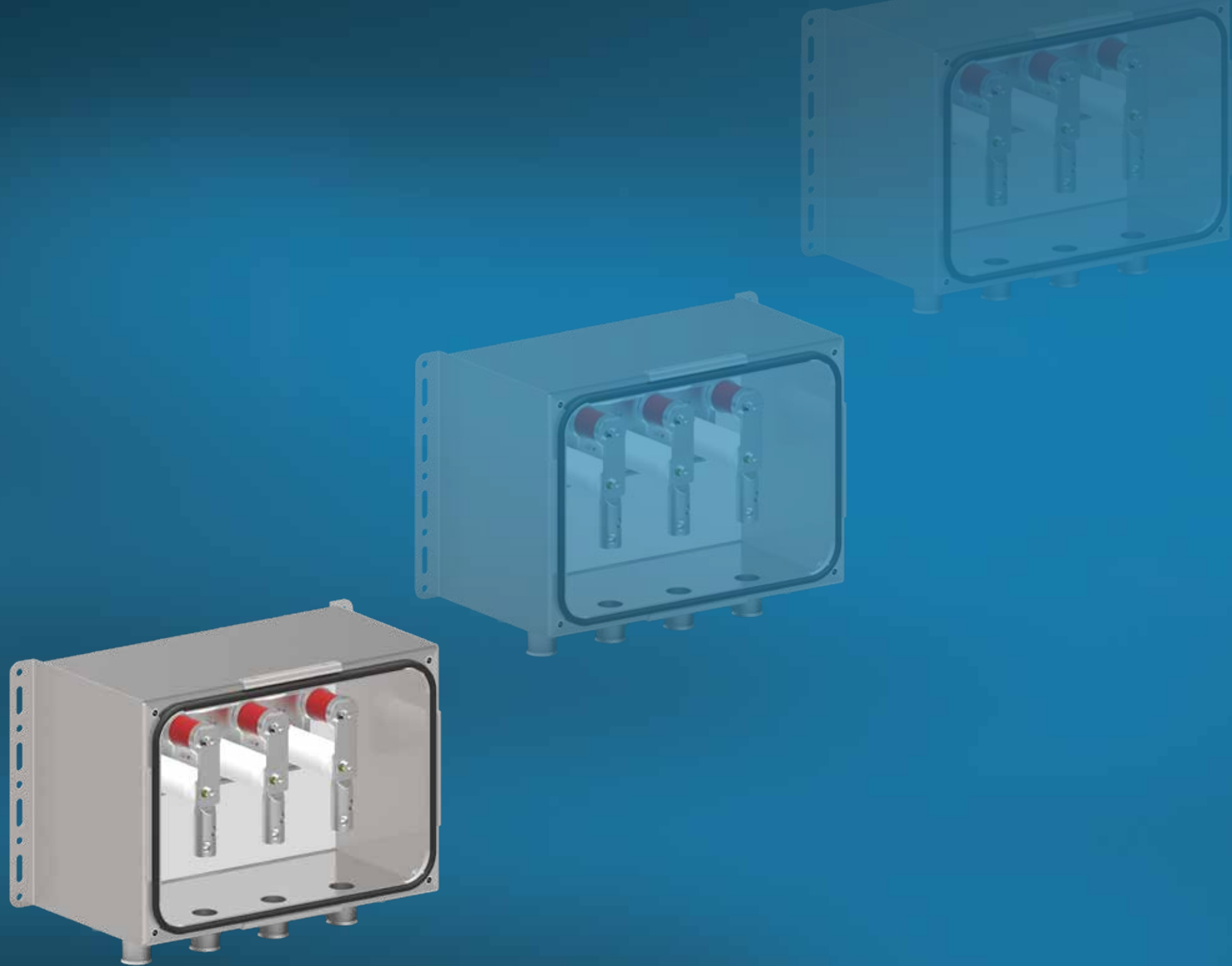
Tee connection from twin cables to terminal stud

Twin Straight / Stud



TCPN	Description	S	C	E	CC	CS	H
2332398-1	5 CJ 82 F S205 E100 L505	50	15,0 - 20,5	100	125	80	180
2332399-1	5 CJ 82 F S225 E100 L505	50	20,6 - 22,5	100	125	80	180
2332400-1	5 CJ 82 F S245 E100 L505	50	22,6 - 24,5	100	125	80	180
2332401-1	5 CJ 82 F S265 E100 L505	50	24,6 - 26,5	100	125	80	180
2332402-1	5 CJ 82 F S285 E100 L505	50	26,6 - 28,5	100	125	80	180
2332403-1	5 CJ 82 F S305 E100 L505	50	28,6 - 30,5	100	125	80	180
2332404-1	5 CJ 82 F M325 E100 L505	50	30,6 - 32,5	100	125	104	182
2332405-1	5 CJ 82 F M345 E100 L505	50	32,6 - 34,5	100	125	104	182
2332406-1	5 CJ 82 F M365 E100 L505	50	34,6 - 36,5	100	125	104	182
2332407-1	5 CJ 82 F M385 E100 L505	50	36,6 - 38,5	100	125	104	182
2332408-1	5 CJ 82 F M405 E100 L505	50	38,6 - 40,5	100	125	104	182
2332409-1	5 CJ 82 F S205 E200 L505	50	15,0 - 20,5	200	125	80	180
2332410-1	5 CJ 82 F S225 E200 L505	50	20,6 - 22,5	200	125	80	180
2332411-1	5 CJ 82 F S245 E200 L505	50	22,6 - 24,5	200	125	80	180
2332412-1	5 CJ 82 F S265 E200 L505	50	24,6 - 26,5	200	125	80	180
2332413-1	5 CJ 82 F S285 E200 L505	50	26,6 - 28,5	200	125	80	180
2332414-1	5 CJ 82 F S305 E200 L505	50	28,6 - 30,5	200	125	80	180
2332415-1	5 CJ 82 F M325 E200 L505	50	30,6 - 32,5	200	125	104	182
2332416-1	5 CJ 82 F M345 E200 L505	50	32,6 - 34,5	200	125	104	182
2332417-1	5 CJ 82 F M365 E200 L505	50	34,6 - 36,5	200	125	104	182
2332418-1	5 CJ 82 F M385 E200 L505	50	36,6 - 38,5	200	125	104	182
2332419-1	5 CJ 82 F M405 E200 L505	50	38,6 - 40,5	200	125	104	182
2332420-1	5 CJ 82 F S205 E200 L605	60	15,0 - 20,5	200	125	80	180
2332421-1	5 CJ 82 F S225 E200 L605	60	20,6 - 22,5	200	125	80	180
2332422-1	5 CJ 82 F S245 E200 L605	60	22,6 - 24,5	200	125	80	180
2332423-1	5 CJ 82 F S265 E200 L605	60	24,6 - 26,5	200	125	80	180
2332424-1	5 CJ 82 F S285 E200 L605	60	26,6 - 28,5	200	125	80	180
2332425-1	5 CJ 82 F S305 E200 L605	60	28,6 - 30,5	200	125	80	180
2332426-1	5 CJ 82 F M325 E200 L605	60	30,6 - 32,5	200	125	104	182
2332427-1	5 CJ 82 F M345 E200 L605	60	32,6 - 34,5	200	125	104	182
2332428-1	5 CJ 82 F M365 E200 L605	60	34,6 - 36,5	200	125	104	182
2332429-1	5 CJ 82 F M385 E200 L605	60	36,6 - 38,5	200	125	104	182
2332430-1	5 CJ 82 F M405 E200 L605	60	38,6 - 40,5	200	125	104	182

Tee connection from twin cables to terminal stud



Chapter V Link Boxes

HV Link Boxes - HVLB series.....	83
HV Link Boxes - EPPA-055 series.....	88



Link boxes

TE's high voltage linkboxes HVLB provides a sealed and dry environment for high voltage cable sheath earthing connection. It eliminates or reduces voltages and circulating currents.

Through our modular system we can provide any technical marketable configuration. A well-arranged best-in-class configuration ensures upmost reliability.

Homogeneous distances between the electrical path, trustworthy electrical connections and a special developed short-circuit-yoke ensure the very best impulse-voltage 65 kV and short-circuit [63 kA/1sec.] withstand.

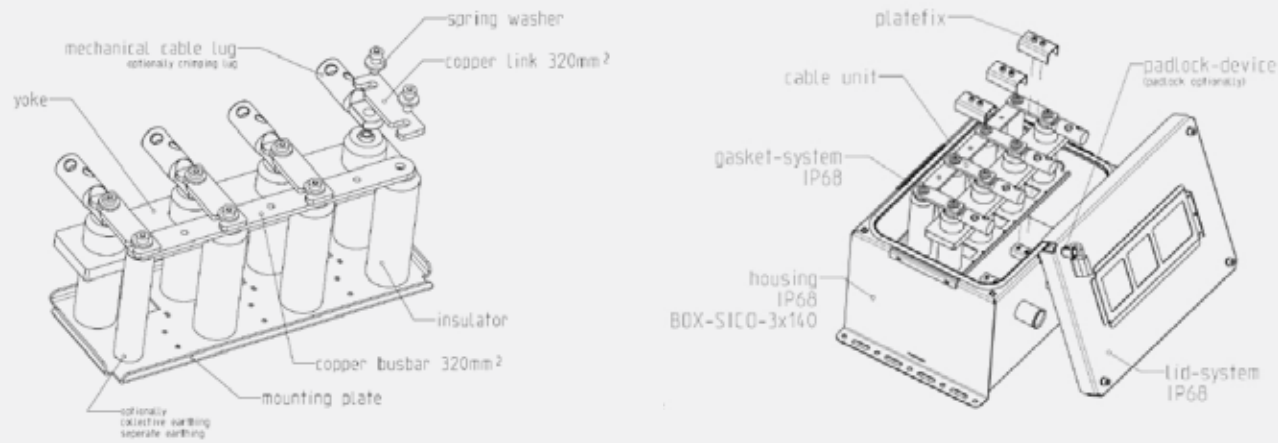
For safety in an unexpected case, our box is tested to absorb the power of an internal arc with 25 kA for 0.1 sec.

To get an easy access to the cable sheath for inspections, TE developed a reliable gasket-lid-system, which is absolutely-tight (IP68) against water and dust. The lid system is equipped with a proof device for padlocks to prevent unauthorized access.

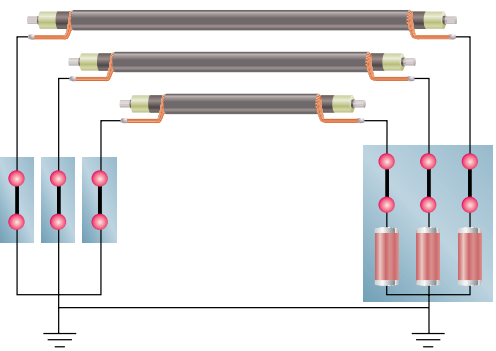
Gland sealing with WCSM heat shrinking tube is the very reliable basic design. On demand we supply also screw cable glands (IP68) and for additional safety a new developed cable gland sealwall.

Additional Devices:

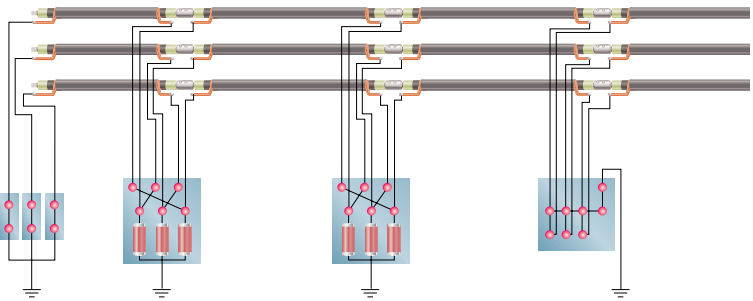
- Pedestrian device
- Plexi-Cover (Protection against electrical contact)



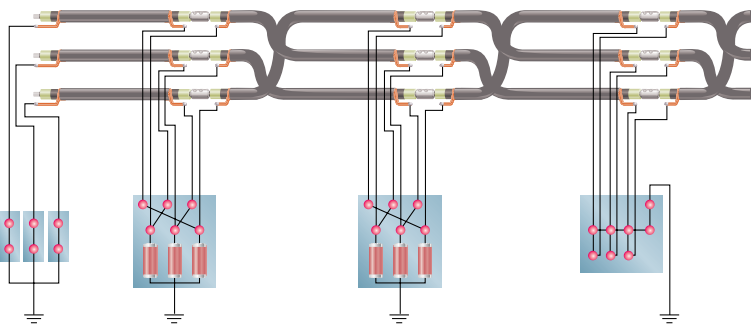
Most Popular Cable Sheath Grounding Options



Single point earthing
On relatively short cable sections, the cable sheaths are solidly bonded together and earthed at one position. The sheaths of the three cable sections are connected and grounded at one point only. At all other points, there is a voltage between sheath and ground that is at its maximum at the farthest point from the ground bond. Since there is no closed sheath circuit, current does not flow along the sheaths and no sheath circulation current loss occurs.

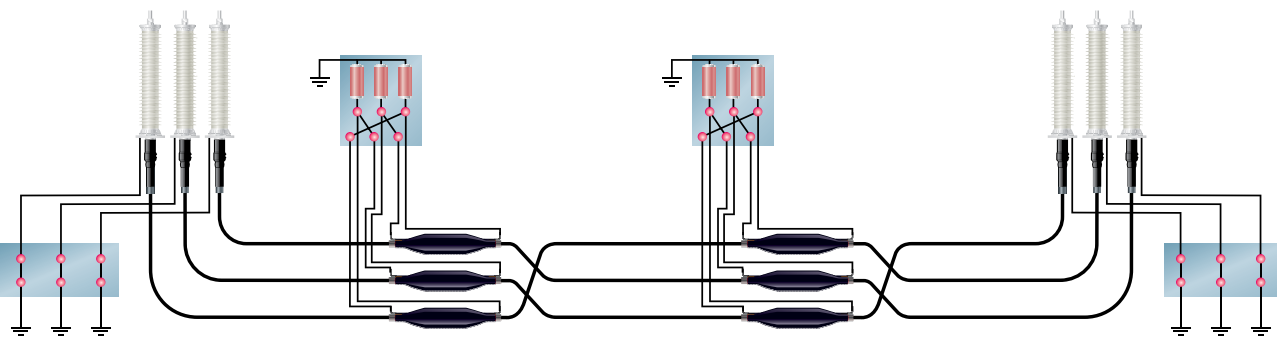


Cross bonding
The cable route is sectionalized into equal lengths. The sections are cross-connected to neutralize the induced voltages. The phase sum of the introduced voltages is zero and, therefore, there is no circulating currents when the cable laying is symmetrical.



Cross bonding and transposition
For cable laying in unsymmetrical formations, the induced voltages are not equal at each phase and, therefore, the phase sum of the voltages is not zero despite cross-bonding. The cables are transposed at each joint position and the cable sheaths are cross-connected, with each cable occupying the same relative position in the cable formation. By this means, the phase sum of the induced voltage sheaths is the same over three sections.

Typical application example



Description HVLB

HVLB: High Voltage Linkbox

SICO: single core cable

COAX: concentric cable

SVL: grounding via Sheath Voltage Limiter

GND: direct grounding without SVL

SPL: split, two parts; SVL and GND combined

CRO: cross bonding

UNI = universal; SVL or GND or CRO

entry: number of entries (earthing outlet not included!) housing ID

h-type:

SEP: separate = busbar not connected with the housing
COL: collective = busbar connected with the housing

cable:

cc = cross-section in mm²
dd = core-diameter in mm
DD = sheath-diameter in mm

mod:

M01=Standardmodification, Material A2 / SS304 / 4301 / X5CrNi18-10, Surface RAL 70350 0.08mm fine structure outdoor, IP68. Mxx=further modifications SS316, A4 3layer painting C5M DIN EN ISO 12944 offshore, Protection against electrical contact.

HVLB-SICO Link Boxes

Single core cables



Basic-description	Entry	Split	Svl	H-type	Cable	Mod
HVLB-SICO-SVL	1E	-	xkV	hhh	cc	Mxx
	3E	-	xkV	hhh	cc	Mxx
	4E	-	xkV	hhh	cc	Mxx
	6E	-	xkV	hhh	cc	Mxx
HVLB-SICO-GND	1E	-	-	hhh	cc	Mxx
	3E	-	-	hhh	cc	Mxx
	4E	-	-	hhh	cc	Mxx
	6E	-	-	hhh	cc	Mxx
	4iiE	-	-	hhh	cc	Mxx
	6iiE	-	-	hhh	cc	Mxx
HVLB-SICO-SPL	4E	GND	xkV	hhh	cc	Mxx
		xkV	xkV	hhh	cc	Mxx
	6E	GND	xkV	hhh	cc	Mxx
		xkV	xkV	hhh	cc	Mxx
HVLB-SICO-CRO-OUT	-	-	xkV	hhh	cc	Mxx
HVLB-SICO-CRO	-	-	xkV	hhh	cc	Mxx
HVLB-SICO-UNI	2E	-	xkV	hhh	cc	Mxx

For Example: HVLB-SICO-SVL-3E-3KV-SEP-S3-M01

HVLB-COAX Link Boxes

Concentric cables



Basic-description	Entry	Split	Svl	H-type	Cable	Mod
HVLB-COAX-SVL	-	-	xkV	hhh	dd-DD-cc	Mxx
HVLB-COAX-GND	-	-	-	hhh	dd-DD-cc	Mxx
HVLB-COAX-SPL	-	GND	xkV	hhh	dd-DD-cc	Mxx
HVLB-COAX-SPL	-	xkV	xkV	hhh	dd-DD-cc	Mxx
HVLB-COAX-CRO-MIN	-	-	xkV	hhh	dd-DD-cc	Mxx

For Example: HVLB-SICO-SVL-3E-3KV-SEP-S3-M01

HVLB-Linkboxes

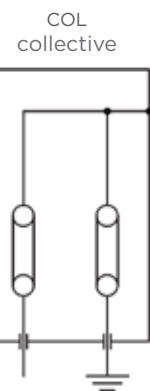
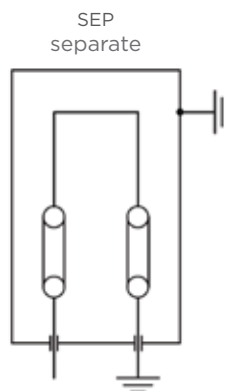
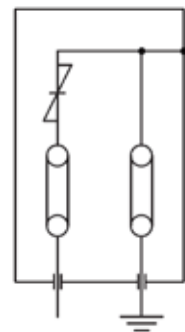
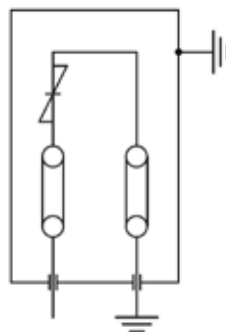
Family	Type	Mechanical dimensions		Electrical dimensions		
		Busbar crossection (mm²)	Distance phases (mm)	Impulse voltage (kV)	Short circuit current	Power arc internal
HVLB	SICO	320	90	65	63kA / 1sec	25kA / 0,1sec
HVLB	COAX	320	180	75	63kA / 1sec	25kA / 0,1sec

Available Material			
A2	SS304 / 4301	X5CrNi18-10	Drinking water resistance
A4	SS316 / 4401	X5CrNiMo17-12-2	Salt water resistance
A5	SS904 / 4539	X1NiCrMoCu25-20-5	Sea water resistance

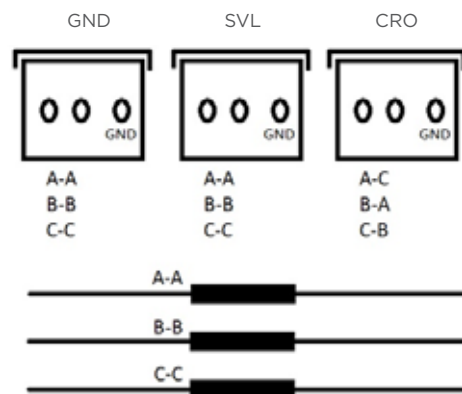
Available Painting				
Standard		1layer RAL7035	0,08 mm	fine structure outdoor
Offshore		3layer C5M	0,225 mm	DIN EN ISO 12944
	layer1:	Hempathane HS 55610	0,05 mm	zinc free epoxy
	layer1:	Hempadur 15570	0,125 mm	MIO pigmented epoxy
	layer1:	Hempathane HS 55610	0,05 mm	polyurethane enamel

HVLB-SICO-1E

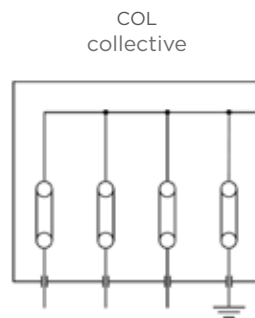
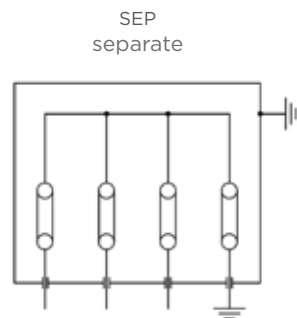
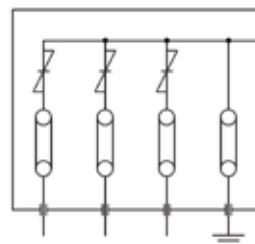
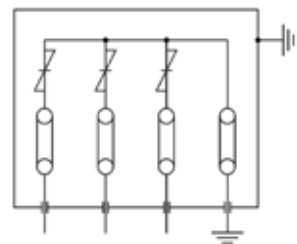
- Dimension 326 x 431 x 320
- Single core cable
- Protection class IP68
- Removable links

SICO-GND**SICO-SVL****HVLB-SICO-2E
HVLB-SICO-UNI**

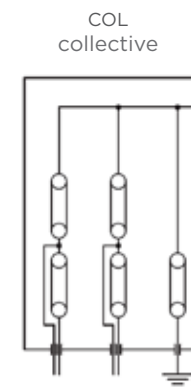
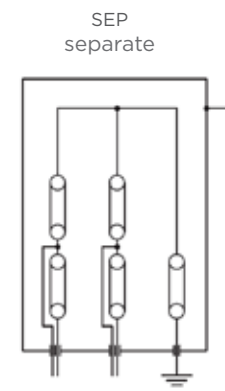
- Dimension 466 x 431 x 320
- For universal usage (Grounding, SVL and Cross-bonding)
- Single core cable
- Protection class IP68
- Removable links

**HVLB-SICO-3E**

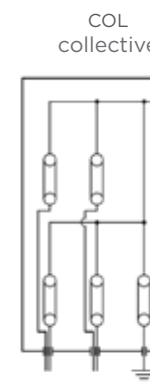
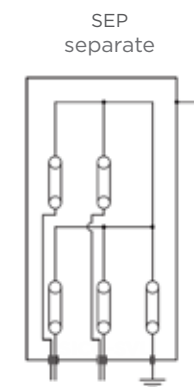
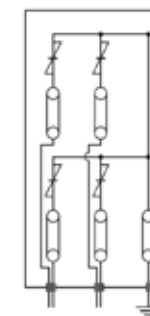
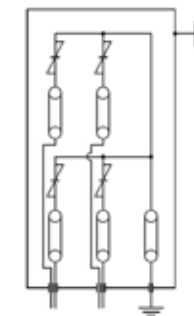
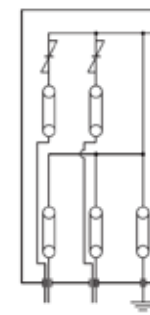
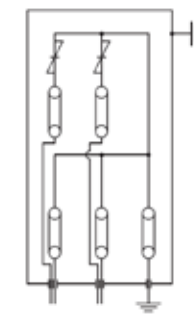
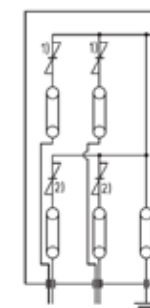
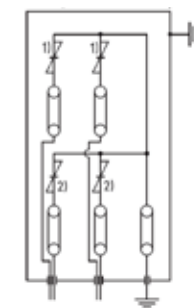
- Dimension 606 x 431 x 320
- Single core cable
- Protection class IP68
- Removable links

SICO-GND**SICO-SVL****HVLB-SICO-4E**

- Dimension 466 x 431 x 460
- For grounding
- Single core cable
- Protection class IP68
- Removable links

SICO-GND**HVLB-SICO-4iIE**

- Dimension 466 x 601 x 460
- Single core cable
- Protection class IP68
- Removable links

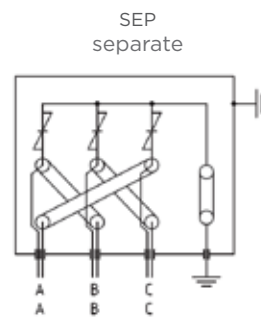
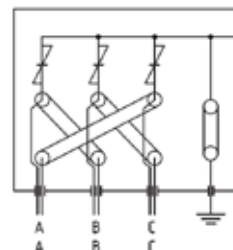
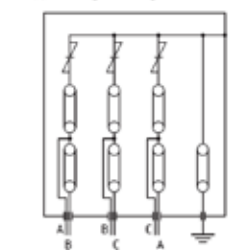
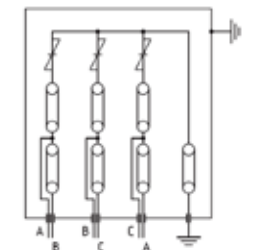
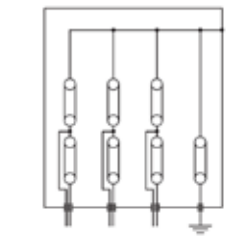
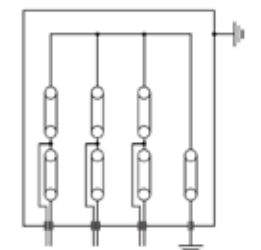
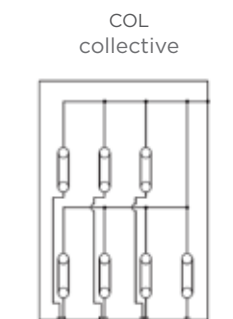
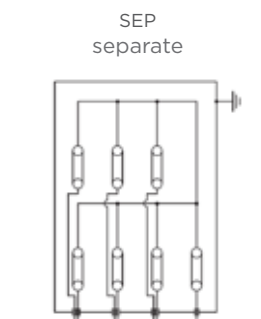
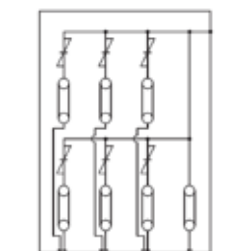
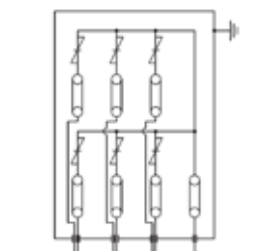
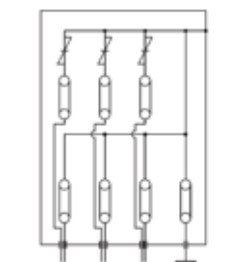
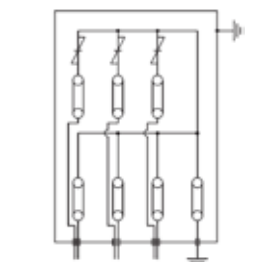
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gnd-xkv****SICO-SPL
xkv-xkv**

HVLB-SICO-6E

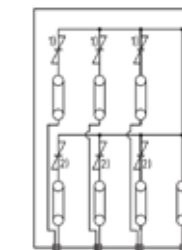
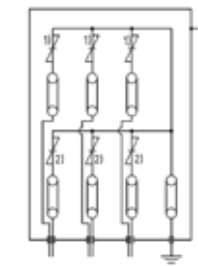
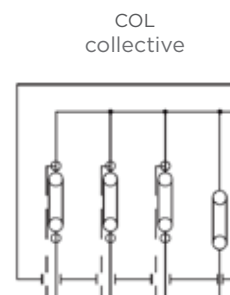
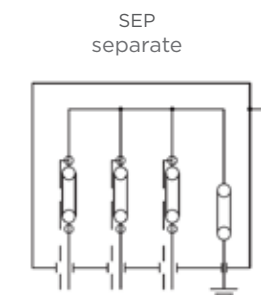
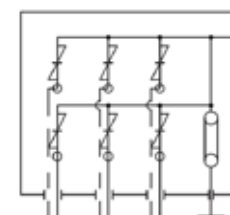
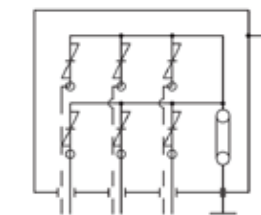
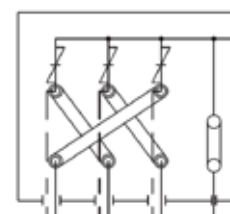
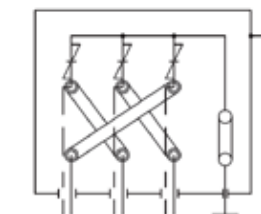
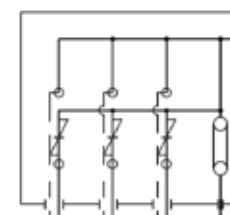
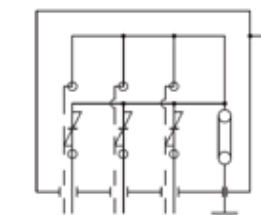
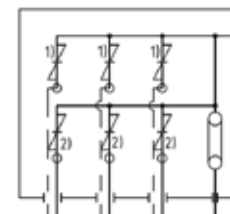
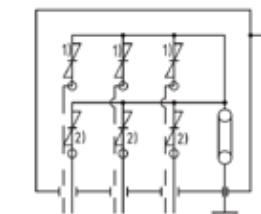
- Dimension 606 x 431 x 320
- Single core cable
- Protection class IP68
- Removable links

HVLB-SICO-6iIE

- Dimension 606 x 401 x 460
- Single core cable
- Protection class IP68
- Removable links

SICO-CRO**COL
collective****SICO-CRO-out****SICO-GND****SICO-GND****SICO-SVL****SICO-SPL
GND-xkV****HVLB-COAX**

- Dimension 821 x 498 x 446
- Coaxial cable
- Protection class IP68
- Removable links

**SICO-SPL
xkV-xkV****COAX-GND****COAX-SVL****COAX-CRO****COAX-SPL
GND-xkV****COAX-SPL
xkV-xkV**

✓

EPPA-055-Linkboxes

U-Niveau	Family	Class	Mechanical dimensions		Electrical dimensions		
			Busbar crossection (mm²)	Distance phases (mm)	Impulse voltage (kV)	Short circuit current	Power arc internal
6 -30 kV	EPPA-055	IP68	120	35	35	-	-
6 -30 kV	EPPA-055	IP56	120	35	35	-	-

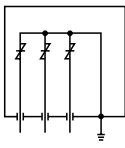
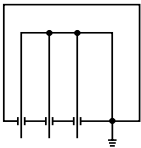
Available Material				Available Painting	
A2	SS304 / 4301	X5CrNi18-10	Drinking water resistance	without	Sandblasted

Features

- Electrically and mechanically type tested
- 1-phase and 3-phase boxes
- With or without surge arresters
- With or without removable links



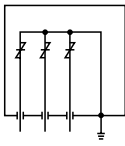
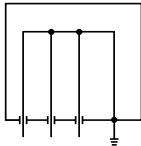
Link Diagram



Bonding lead (type)	Single-core	Single-core
Bonding lead (mm²)	95 - 300	95 - 300
Protection class	IP 56 or IP 68	IP 56 or IP 68
Application	Non buried	Non buried
Sheath voltage limiters	N/A	1 kV - 6 kV
Box size L x H x W (mm)	310 x 255 x 310	310 x 255 x 310
Material	Stainless steel	Stainless steel
Total weight	Approx. 16 kg	Approx. 16 kg
Connection links	Copper 120 mm²	Copper 120 mm²
Cable connection	Compression lug	Compression lug
Impulse withstand voltage (kV)	35	35
AC withstand voltage (kV)	24	24
DC withstand voltage (kV)	40	40
Short circuit current (kA/1s)	-	-
Description	EPPA-055-0-3	EPPA-055-x*-3

* Indicates voltage class of sheath voltage limiter (SVL)

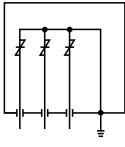
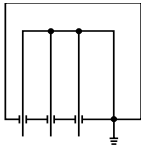
Link Diagram



Bonding lead (type)	Single-core	Single-core
Bonding lead (mm²)	95 - 300	95 - 300
Protection class	IP 56 or IP 68	IP 56 or IP 68
Application	Non buried	Non buried
Sheath voltage limiters	N/A	1 kV - 6 kV
Box size L x H x W (mm)	310 x 255 x 310	310 x 255 x 310
Material	Stainless steel	Stainless steel
Total weight	Approx. 16 kg	Approx. 16 kg
Connection links	Copper 120 mm²	Copper 120 mm²
Cable connection	Compression lug	Compression lug
Impulse withstand voltage (kV)	35	35
AC withstand voltage (kV)	24	24
DC withstand voltage (kV)	40	40
Short circuit current (kA/1s)	-	-
Description	EPPA-055-0-3	EPPA-055-x*-3

* Indicates voltage class of sheath voltage limiter (SVL)

Link Diagram

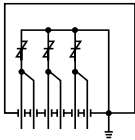


Bonding lead (type)	Single-core	Single-core
Bonding lead (mm²)	95 - 300	95 - 300
Protection class	IP 56 or IP 68	IP 56 or IP 68
Application	Non buried	Non buried
Sheath voltage limiters	N/A	1 kV - 6 kV
Box size L x H x W (mm)	310 x 255 x 310	310 x 255 x 310
Material	Stainless steel	Stainless steel
Total weight	Approx. 16 kg	Approx. 16 kg
Connection links	Copper 120 mm²	Copper 120 mm²
Cable connection	Compression lug	Compression lug
Impulse withstand voltage (kV)	35	35
AC withstand voltage (kV)	24	24
DC withstand voltage (kV)	40	40
Short circuit current (kA/1s)	-	-
Description	EPPA-055-0-3	EPPA-055-x*-3

* Indicates voltage class of sheath voltage limiter (SVL)



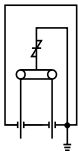
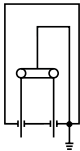
Link Diagram



Bonding lead (type)	Single-core
Bonding lead (mm²)	95 - 300
Protection class	IP 56 or IP 68
Application	Non buried
Sheath voltage limiters	1 kV - 6 kV
Box size L x H x W (mm)	310 x 255 x 310
Material	Stainless steel
Total weight	Approx. 16 kg
Connection links	Copper 120 mm²
Cable connection	Compression lug
Impulse withstand voltage (kV)	35
AC withstand voltage (kV)	24
DC withstand voltage (kV)	40
Short circuit current (kA/1s)	-
Description	EPPA-055-x*-3

* Indicates voltage class of sheath voltage limiter (SVL)

Link Diagram



Bonding lead (type)	Single-core	Single-core
Bonding lead (mm²)	95 - 300	95 - 300
Protection class	IP 56	IP 56
Application	Non buried	Non buried
Sheath voltage limiters	N/A	1 kV - 6 kV
Box size L x H x W (mm)	300 x 165 x 190	300 x 165 x 190
Material	Stainless steel	Stainless steel
Total weight	Approx. 10 kg	Approx. 11 kg
Connection links	Removable copper 120 mm²	Removable copper 120 mm²
Cable connection	Compression lug	Compression lug
Impulse withstand voltage (kV)	35	35
AC withstand voltage (kV)	24	24
DC withstand voltage (kV)	40	40
Short circuit current (kA/1s)	-	-
Description	EPPA-055-0-1	EPPA-055-x*-1

* Indicates voltage class of sheath voltage limiter (SVL)



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