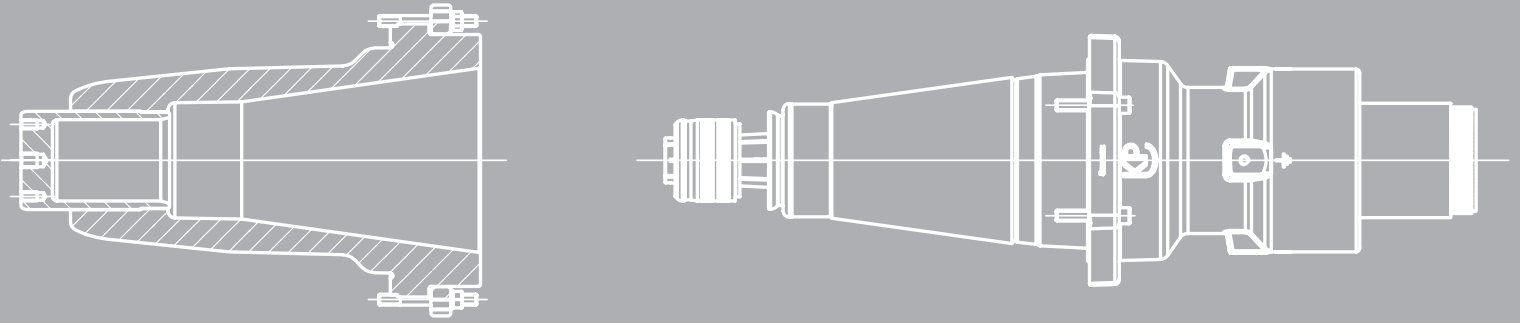


**PFISTERER**

Shahin Mafsal Co.



EDITION 2012

# CABLE SYSTEMS

Cable fittings for high voltage networks

# THE POWER CONNECTION

CABLE SYSTEMS | COMPONENTS | OVERHEAD LINES | RAILWAY CATENARY SYSTEMS



One- and Three-piece  
Page 9



ESS  
Page 10 – 16



ESP  
Page 17 – 23



ESF  
Page 24 – 29



EST  
Page 30 – 34



Size 4  
Page 41 – 52



Size 5  
Page 53 – 66



Size 6  
Page 67 – 79



Size 6-S  
Page 80 – 93



Mounting Accessories  
Page 95 – 99



ESG  
Page 100 – 105



ESU  
Page 106 – 111



### Outdoor Cable Termination (Composite)

ESS terminations are available for a voltage range from 72.5 kV to 300 kV with various creepage distances. A glass fibre reinforced tube equipped with silicone sheds provides the highest degree of mechanical strength. The ESS is filled with an insulating compound. An easy-to-fit head armature and a high quality stress control unit completes the ESS as a maintenance-free system.

**Material:**

Insulator: composite hollow insulator (silicone-sheded FRP tube)  
Material of the control unit: silicone rubber

**Conductor connection:**

compressed or screwed

**Optional accessories:**

Earthing set

**Note:**

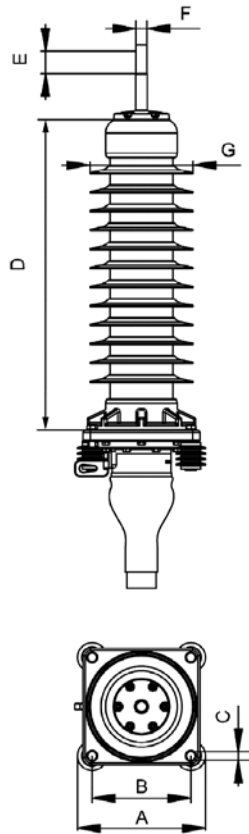
Optional material is not within scope of supply and has to be ordered seperately.

Technical data for conductor cross section 2.500 mm<sup>2</sup> up on request.

Dimensions in parentheses in the following product tables can be inquired separately.

Max. operating voltage	U <sub>m</sub> (kV)	72.5	123	145	170	245	300
Standards		IEC60840	IEC60840	IEC60840	IEC60840	IEC62067	IEC62067
		IEC60815	IEC60815	IEC60815	IEC60815	IEC60815	IEC60815
Rated voltage	U (kV)	60 - 69	110 - 115	132 - 138	150 - 161	220 - 230	275 - 287
Rated lightning impulse withstand voltage (BIL)	(kV)	325	550	650	750	1050	1050
Partial discharge measurement	(pC)	< 5	< 5	< 5	< 5	< 5	< 5

ESS72

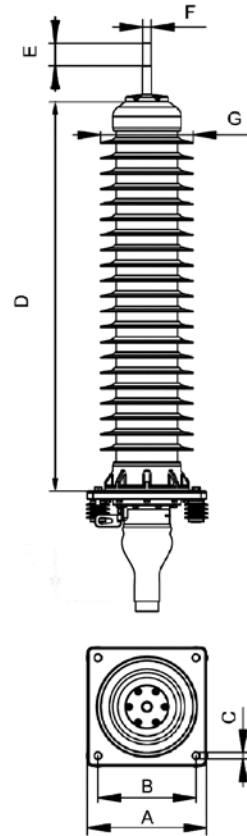
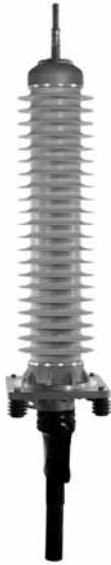


Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESS72-C19	150 - 2000	37 - 84	120	40.0	1813	3	25
ESS72-C23	150 - 2000	37 - 84	120	42.0	2248	4	31

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESS72-C19	320 (420)	270 (345)	19	850	100	30,40,50	282
ESS72-C23	320 (420)	270 (345)	19	850	100	30,40,50	282

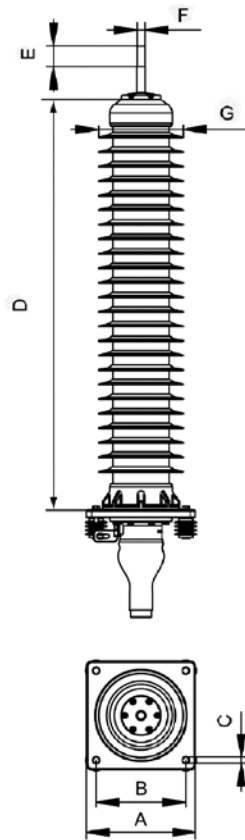
### ESS123



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESS123-C31	150-1600	42 - 99	120	95.0	3075	3	25
ESS123-C34	150 - 2500	42 - 118	170	120.0	3383	3	25
ESS123-C39	150-1600	42 - 99	120	100.0	3813	4	31
ESS123-C42	150 - 2500	42 - 118	170	125.0	4194	4	31

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESS123-C31	420 (320, 500)	345 (270, 400)	19	1370	100	30,40,50	326
ESS123-C34	420 (500)	345 (400)	19	1380	100	30,40,50	376
ESS123-C39	420 (320, 500)	345 (270, 400)	19	1370	100	30,40,50	326
ESS123-C42	420 (500)	345 (400)	19	1380	100	30,40,50	416

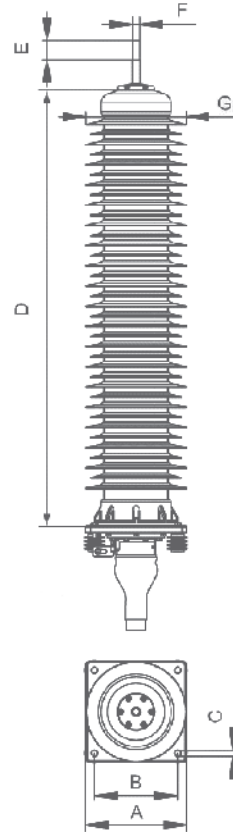
ESS145



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESS145-C37	150-1200	46 - 84	120	111.0	3625	3	25
ESS145-C40	150 - 2500	46 - 118	170	128.0	3989	3	25
ESS145-C45	150-1200	46 - 84	120	118.0	4495	4	31
ESS145-C50	150 - 2500	46 - 118	170	144.0	4945	4	31
ESS145-C72	150 - 2500	46 - 118	170	206.0	7178	-	45
ESS145-C74	150 - 1200	46 - 84	120	125.0	7350	-	50
ESS145-C88	150 - 2500	46 - 118	170	210.0	8773	-	55

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESS145-C37	420 (320, 500)	345 (270, 400)	19	1580	100	30,40,50	326
ESS145-C40	420 (500)	345 (400)	19	1590	100	30,40,50	376
ESS145-C45	420 (320, 500)	345 (270, 400)	19	1580	100	30,40,50	326
ESS145-C50	420 (500)	345 (400)	19	1590	100	30,40,50	416
ESS145-C72	500 (420, 600)	400 (320, 500)	19	2200	100	30,40,50	416
ESS145-C74	500 (420)	400 (345)	19	1830	100	30,40,50	326
ESS145-C88	500 (420, 600)	400 (345, 500)	19	2200	100	30,40,50	416

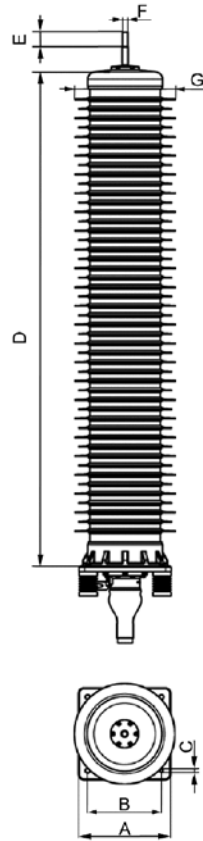
## ESS170



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESS170-C47	150 - 2500	52 - 118	170	155.0	4675	3	25
ESS170-C58	150 - 2500	52 - 118	170	175.0	5797	4	31
ESS170-C72	150 - 2500	52 - 118	170	206.0	7106	-	38

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESS170-C47	500 (420, 600)	400 (345, 500)	19	1810	100	30,40,50	376
ESS170-C58	500 (420, 600)	400 (345, 500)	19	1810	100	30,40,50	416
ESS170-C72	500 (420, 600)	400 (345, 500)	19	2200	100	30,40,50	416

ESS245



ESS

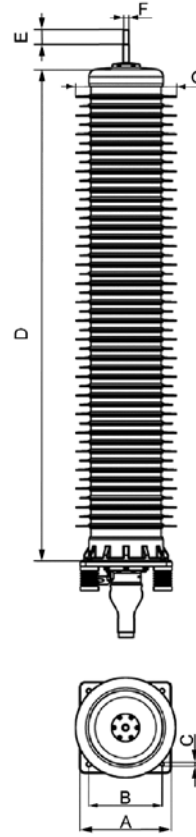
Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESS245-C84	240 - 2500	68 - 118	170	321.0	8355	4	31
ESS245-C149	240 - 2500	68 - 118	170	525.0	14880	-	55

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESS245-C84	600 (500)	400, 500	19	2697	100	30,40,50	547
ESS245-C149	600	500	19	3728	100	30,40,50	547



### ESS300



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESS300-C83	400 - 2500	72 - 118	170	321.0	8250	3	25

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESS300-C83	500, 600	400, 500	19	2697	100	30,40,50	547

II

ESS

### Outdoor Cable Termination (Porcelain)

ESP termination can be supplied for voltages from 72.5 kV to 300 kV. The porcelain insulator provides the highest degree of mechanical strength and the highest protection against ultraviolet radiation. The ESP is filled with an insulating compound. An easy-to-fit head armature and an high quality stress control unit completes the ESS as a maintenance-free system.

**Material:**

Insulator: porcelain  
Material of the control unit: silicone rubber

**Conductor connection:**

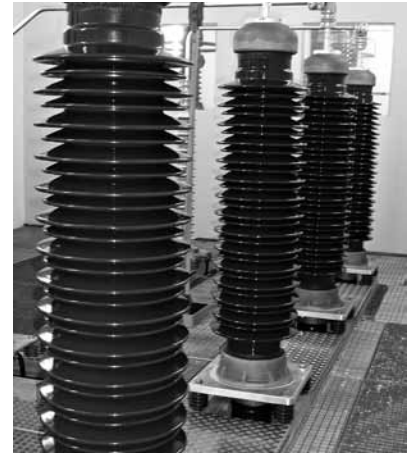
compressed or screwed

**Optional accessories:**

Earthing set, spark conductors

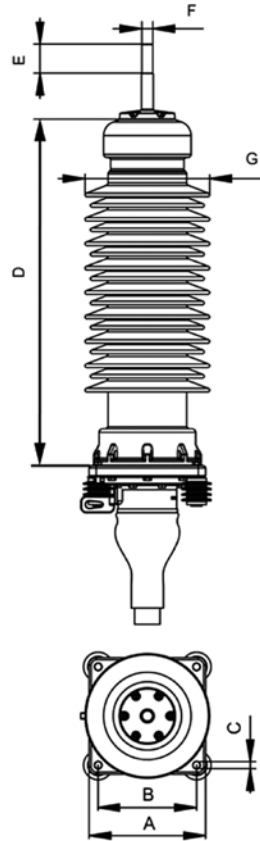
**Note:**

Optional material is not within scope of supply and has to be ordered seperately.  
Technical data for conductor cross section 2.500 mm<sup>2</sup> up on request.  
Dimensions in parentheses in the following product can be inquired separately.



Max. operating voltage	U <sub>m</sub> (kV)	72.5	123	145	170	245	300
Standards		IEC60840	IEC60840	IEC60840	IEC60840	IEC62067	IEC62067
		IEC60815	IEC60815	IEC60815	IEC60815	IEC60815	IEC60815
Rated voltage	U (kV)	60 - 69	110 - 115	132 - 138	150 - 161	220 - 230	275 - 287
Rated lightning impulse withstand voltage (BIL)	(kV)	325	550	650	750	1050	1050
Partial discharge measurement	(pC)	< 5	< 5	< 5	< 5	< 5	< 5

### ESP72

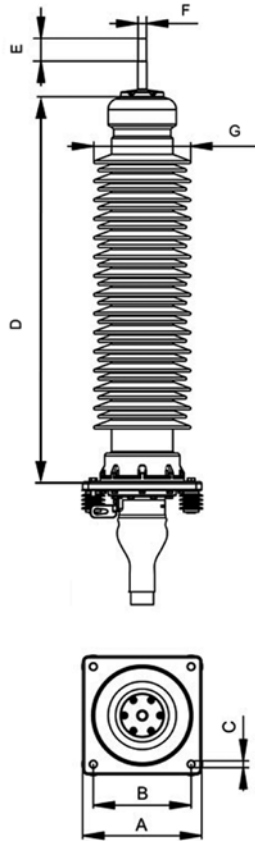


Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESP72-C23	95-2000	37 - 84	120	120.0	2248	4	31
ESP72-C39	95-2000	37 - 84	120	170.0	3852	-	53

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESP72-C23	320 (420)	270 (345)	19	950	100	30,40,50	342
ESP72-C39	420 (320)	345 (270)	19	1360	100	30,40,50	170

ESP123

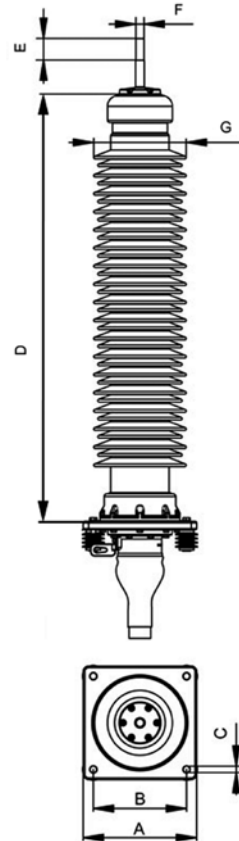


ESP

Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESP123-C39	150-1600	42 - 84	120	170.0	3813	4	31
ESP123-C45	150-1600	42 - 84	120	195.0	4540	-	36

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESP123-C39	420 (320)	345 (270)	19	1360	100	30,40,50	170
ESP123-C45	420 (500)	345 (400)	19	1580	100	30,40,50	195

### ESP145

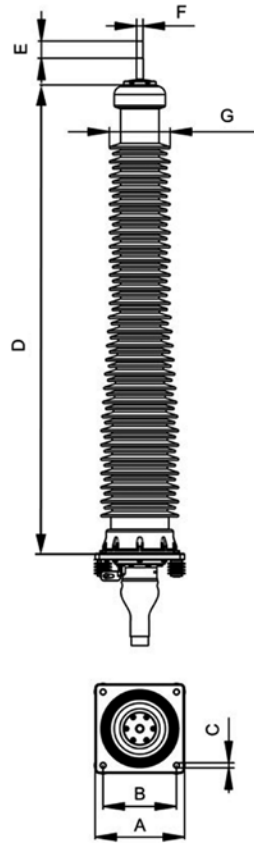


Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESP145-C45	150-1200	46 - 84	120	195.0	4540	4	31
ESP145-C50	150-2000	46 - 99	120	220.0	4994	4	31
ESP145-C58	150-2000	46 - 99	120	235.0	5800	-	36
ESP145-C73	150 - 2500	46 - 118	170	330.0	7250	-	45

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESP145-C45	420 (500)	345 (400)	19	1580	100	30,40,50	342
ESP145-C50	420 (500)	345 (400)	19	1599	100	30,40,50	390/310
ESP145-C58	500 (420)	400 (345)	19	2200	100	30,40,50	365/285
ESP145-C73	500 (600, 420)	400 (500, 345)	19	2200	100	30,40,50	450/370

ESP

ESP170



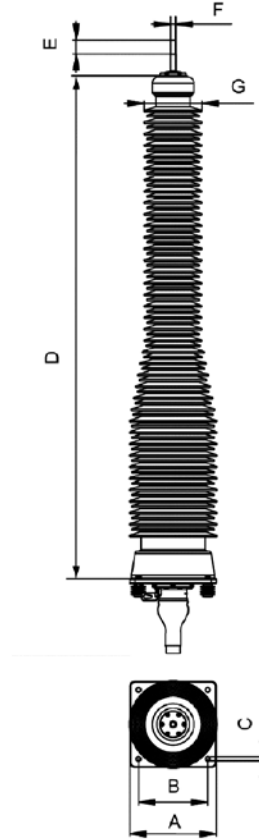
Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESP170-C58	150-2000	52 - 99	120	235.0	5800	4	31
ESP170-C73	150 - 2500	52 - 118	170	330.0	7250	-	38

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESP170-C58	500 (420)	400 (345)	19	2200	100	30,40,50	365/285
ESP170-C73	500 (600, 420)	400 (500, 345)	19	2200	100	30,40,50	450/370

ESP

## ESP245

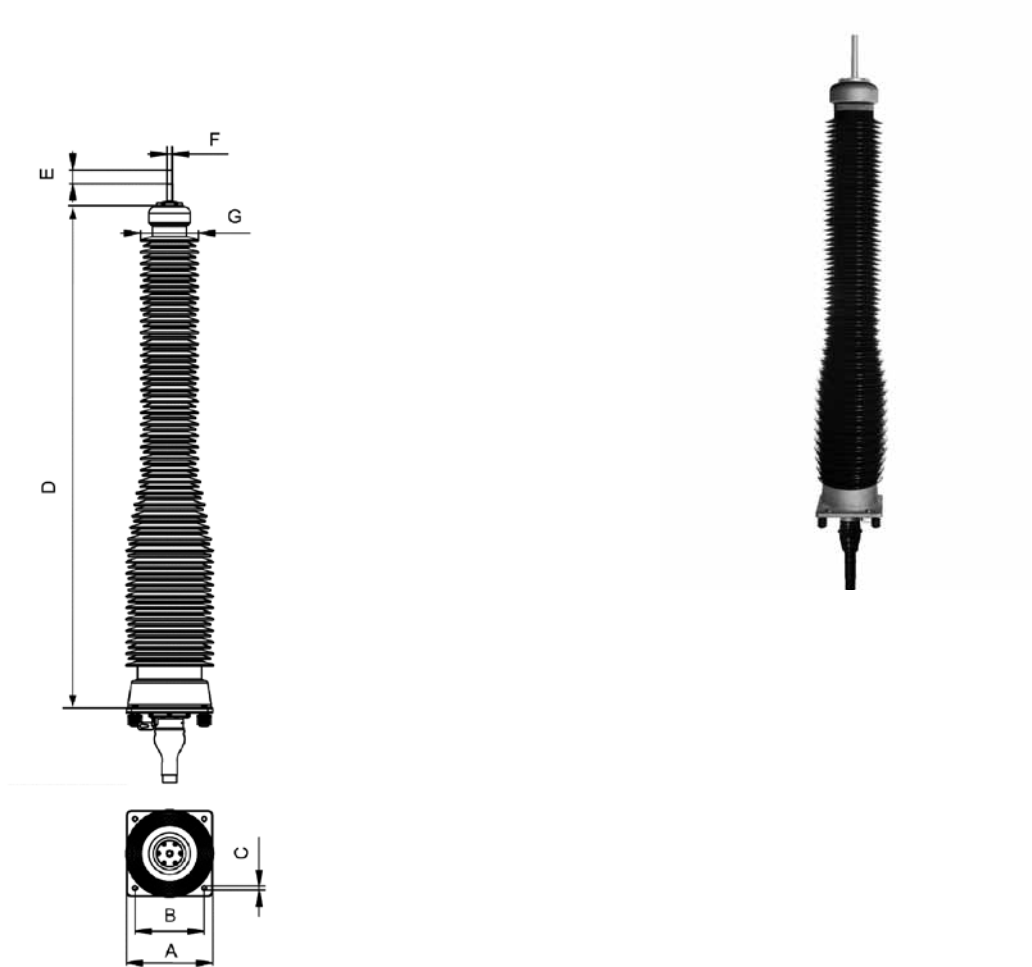


Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESP245-C103	240 - 2500	68 - 118	170	530.0	10339	-	38

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESP245-C103	500, 600	400, 500	19	2909	100	30,40,50	334/506

ESP300



ESP

Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESP300-C103	240 - 2500	72 - 118	170	530.0	10339	4	31

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
ESP300-C103	500, 600	400, 500	19	2909	100	30,40,50	334/506





### Flexible Outdoor Cable Termination

ESF flexible terminations are dry, slip-on terminations for modular assembly. The use of silicone sheds makes them ideally suited for applications in outdoor installations and are available for a voltage range from 52 kV to 170 kV.

**Material:**

Insulator: silicone rubber

Material of the control unit: silicone rubber

**Conductor connection:**

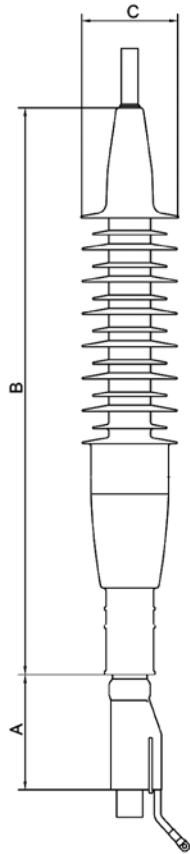
compressed or screwed

**Note:**

Various connection options.

<b>Max. operating voltage</b>	<b>U<sub>m</sub> (kV)</b>	52	72.5	123	145	170
<b>Standards</b>		IEC60840	IEC60840	IEC60840	IEC60840	IEC60840
		IEC60815	IEC60815	IEC60815	IEC60815	IEC60815
<b>Rated voltage</b>	<b>U (kV)</b>	45 - 47	60 - 69	110 - 115	132 - 138	150 - 161
<b>Rated lightning impulse withstand voltage (BIL)</b>	<b>(kV)</b>	250	325	550	650	750
<b>Partial discharge measurement</b>	<b>(pC)</b>	< 5	< 5	< 5	< 5	< 5

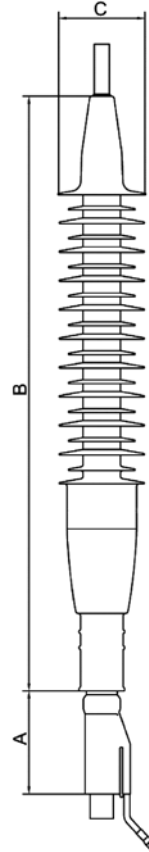
ESF52



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class (mm/kV)
ESF52-C15	95 - 1200	32.5 - 64.4	11.0	1500	28
ESF52-C19	95 - 1200	32.5 - 64.4	12.0	1813	34

Product designation	A (mm)	B (mm)	C (mm)
ESF52-C15	~250	909 - 1021	175
ESF52-C19	~250	1019 - 1137	175

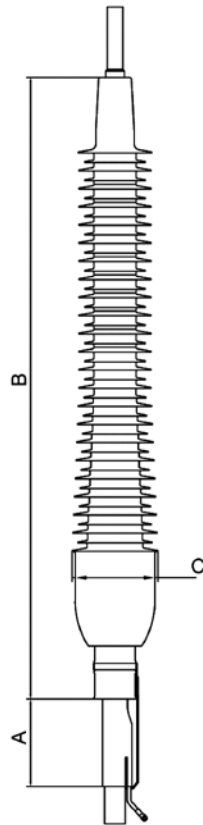
### ESF72



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESF72-C15	95 - 1200	32.5 - 64.4	11.0	1450	2	20
ESF72-C19	95 - 1200	32.5 - 64.4	12.0	1813	3	25
ESF72-C23	95 - 2000	32.5 - 82	13.5 - 22.0	2248	4	31

Product designation	A (mm)	B (mm)	C (mm)
ESF72-C15	~250	909 - 1021	175
ESF72-C19	~250	1019 - 1137	175
ESF72-C23	~250	1120 - 1330	175 - 190

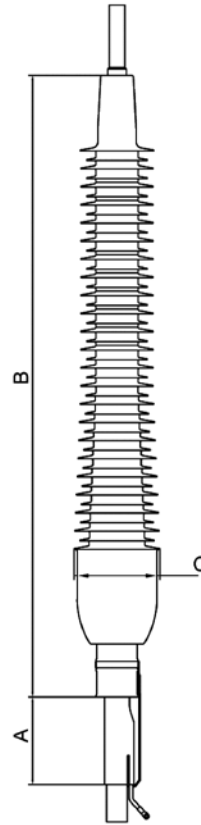
ESF123



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESF123-C25	95 - 2000	46 - 76.2	19.0	2460	2	20
ESF123-C31	150 - 2000	46 - 115	28.0 - 37.0	3075	3	25
ESF123-C39	150 - 2000	46 - 115	31.0 - 50.0	3813	4	31

Product designation	A (mm)	B (mm)	C (mm)
ESF123-C25	~250	~1300 - 1360	180
ESF123-C31	~250	~1450 - 1560	227 - 274
ESF123-C39	~250	~1670 - 1790	227 - 274

### ESF145



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESF145-C37	240 - 2000	46 - 115	31.0 - 45.0	3625	3	25
ESF145-C45	240 - 2000	46 - 115	36.0 - 54.0	4495	4	31

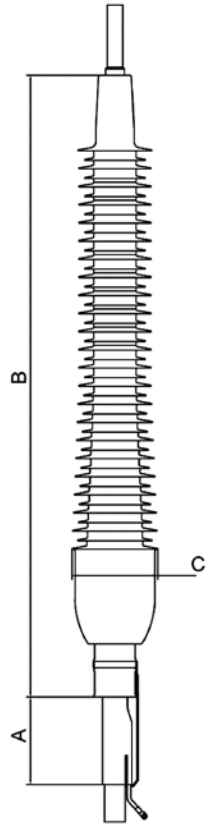
  

Product designation	A (mm)	B (mm)	C (mm)
ESF145-C37	~250	~1670 - 1790	227 - 274
ESF145-C45	~250	~1890 - 2025	227 - 274

=

ESF

ESF170



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
ESF170-C43	240 - 2000	52 - 115	54.0	4250	3	25
ESF170-C53	240 - 2000	52 - 115	58.0	5270	4	31

Product designation	A (mm)	B (mm)	C (mm)
ESF170-C43	~250	~1968 - 2022	274
ESF170-C53	~250	~2200 - 2254	274



### Dry-insulated Outdoor Cable Termination

EST termination is ideally suited for outdoor and indoor use. It is available for voltages from 72.5 kV to 170 kV and consists of one flexible ESF termination and one supporting insulator. It contains no liquid insulating materials and is self-supporting. The EST is of modular construction for rapid, easy installation. The base plate design allows installations on existing units.

**Material:**

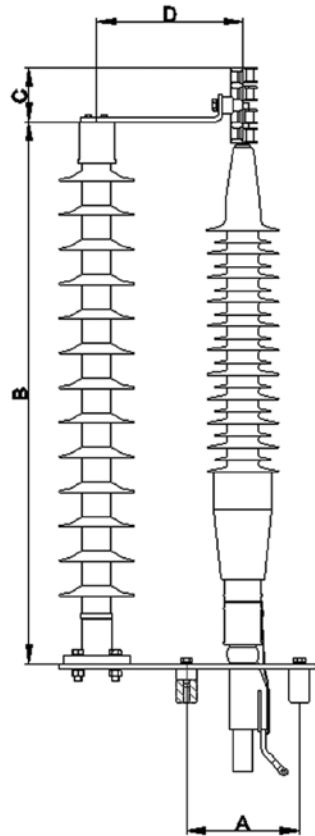
Insulator: silicone shielded fibre glass reinforced rod  
 Stress relief cone: silicone rubber  
 Shed material: silicone rubber

**Conductor connection:**

compressed or screwed

<b>Max. operating voltage</b>	<b>U<sub>m</sub> (kV)</b>	72.5	123	145	170
<b>Standards</b>		IEC60840 IEC60815	IEC60840 IEC60815	IEC60840 IEC60815	IEC60815 IEC60840
<b>Rated voltage</b>	<b>U (kV)</b>	60 - 69	110 - 115	132 - 138	150 - 161
<b>Rated lightning impulse withstand voltage (BIL)</b>	<b>(kV)</b>	325	550	650	750
<b>Partial discharge measurement</b>	<b>(pC)</b>	< 5	< 5	< 5	< 5

EST72



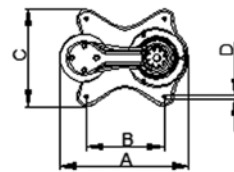
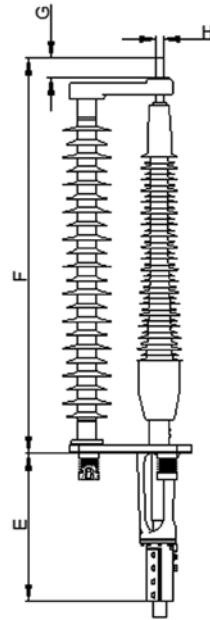
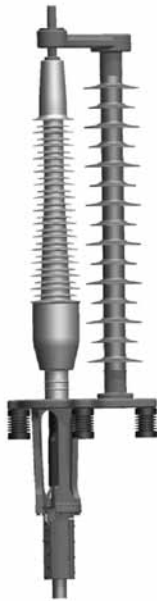
Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
EST72-C19	95 - 1200	32.5 - 64.4	65.0	1813	3	25
EST72-C23	95 - 1200	32.5 - 64.4	68.0	2248	4	31

Product designation	A (mm)	B (mm)	C (mm)	D (mm)
EST72-C19	270	1300	130	350
EST72-C23	270	1300	130	350



### EST123

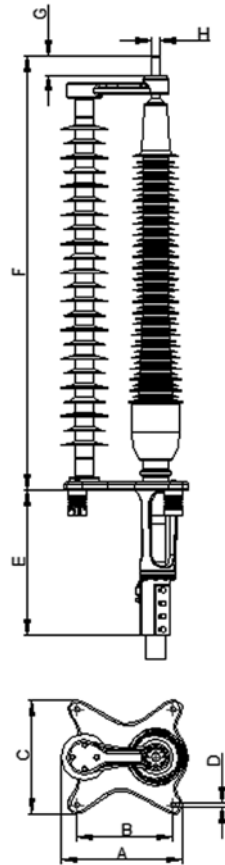


Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
EST123-C31	150 - 2000	46 - 115	100.0	3075	3	25
EST123-C39	150 - 2000	46 - 115	120.0	3813	4	31

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)
EST123-C31	690 (661)	500 (400)	600 (500)	18	~760	1800	100	30,40,50
EST123-C39	690 (661)	500 (400)	600 (500)	18	~760	2030	100	30,40,50

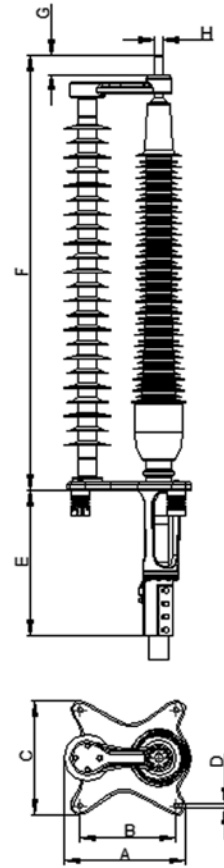
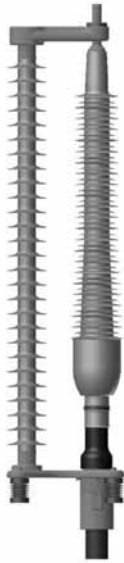
EST145



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
EST145-C37	240 - 2000	46 - 115	120.0	3625	3	25
EST145-C45	240 - 2000	46 - 115	130.0	4495	4	31

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)
EST145-C37	690 (661)	500 (400)	600 (500)	18	~760	2030	100	30,40,50
EST145-C45	690 (661)	500 (400)	600 (500)	18	~760	2260	100	30,40,50

EST170



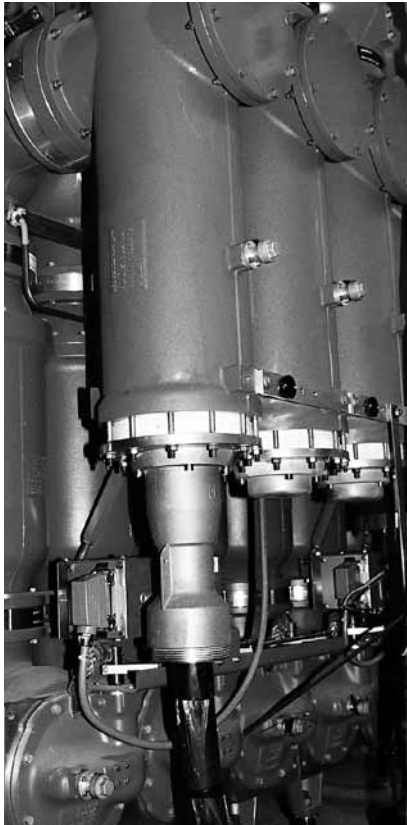
Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Net weight approx. (kg)	Minimal creepage distance (mm)	Pollution class	Pollution class (mm/kV)
EST170-C43	240 - 2000	52 - 115	150.0	4250	3	25
EST170-C53	240 - 2000	52 - 115	160.0	5270	4	31

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)
EST170-C43	690 (661)	500 (400)	600 (500)	18	~760	2260	100	30,40,50
EST170-C53	690 (661)	500 (400)	600 (500)	18	~760	2480	100	30,40,50



EST



## HV-CONNEX 72,5 kV – 245 kV

The advantages of the CONNEX system come to the fore in particular in the area of high-voltage systems: simple on-site installation and factory-tested components save money and provide additional safety. Plug-in HV-CONNEX systems make costly oil and gas work during the installation and commissioning of transformers and gas-insulated switchgear a thing of the past. Thanks to their plug-in connectors, cable joints from the HV-CONNEX range are much more flexible than traditional solutions when it comes to building and converting electrical systems. Needless to say, the range includes all the connection components needed to test the system and the attached equipment.

### Advantages

- approx. 50 % shorter mounting length compared with conventional systems in accordance with IEC62271-209 (former IEC60859)
- no opening of the cable termination and associated costly gas or oil work
- horizontal, vertical and angled versions for connection to GIS and transformers
- considerably reduced installation times
- the use of pre-assembled and tested components means maximum safety and efficiency
- installation errors are minimised
- if a fault does arise, rapid separation of cable and equipment
- cable sheath test possible without unplugging

#### A Socket

- 1 contact element
- 2 epoxy socket

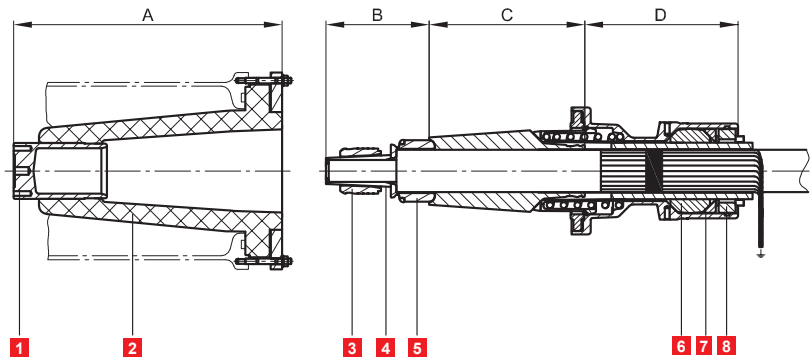
#### B Contact System

- 3 contact ring
- 4 tension cone
- 5 thrust piece

#### C Insulating part

#### D Bell flange

- 6 gasket ring
- 7 thrust ring
- 8 counter ring

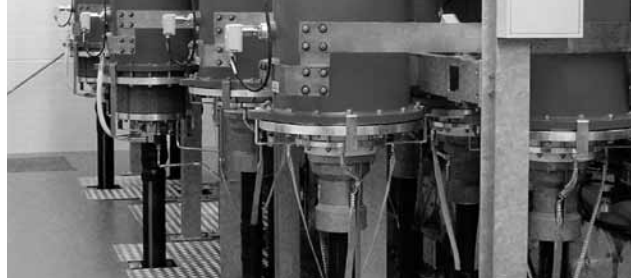


Sample Drawing: Cable connecting system CONNEX Size 5 (cable with wire screen, application switch gear)

HV-CONNEX Pluggable Connection System

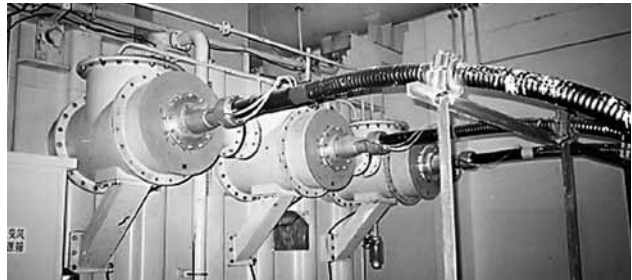
### GIS Equipment

Using HV-CONNEX sockets in switchgears allows for maximum flexibility. The interface provides the socket, which is ideally pre-assembled at the factory. This allows all relevant parameters to be tested at the factory and eliminates the need to open up the plant on site during commissioning. However, assembly on site is possible as well. The connection geometry meets all relevant standards.



### Transformers

Assembly at the factory and pre-testing the entire transformer lead to the best possible outcome. The actual plugging portion is then performed at the plant when it is commissioned on site, thus ensuring surge-proof sealing. The sockets can be installed in any position. Meeting all relevant standards ensures a proper connection geometry.



### Plug-in Joint Boxes

The HV-CONNEX cable connection system means plug-in joint boxes for various geometric configurations can be assembled using fewer components. The advantage of these joint boxes is that the joint body is a single unit which is completely manu-factured and tested at the factory. Solutions of this kind bring enormous benefits if, for example, cables need to be bent back multiple times during the installation and conversion phase.



### HV-CONNEX Pluggable Bushing

The HV-CONNEX pluggable bushing for sizes 5 and 6 can be used wherever overhead lines need to be connected to high-voltage equipment. The interface provides a HV-CONNEX socket. Commissioning involves a simple plugging procedure in every position.



### HV-CONNEX Surge Arrester

HV-CONNEX Surge Arresters size 4 are used to protect metal clad switchgear (GIS) and transformers equipped with HV-CONNEX sockets size 4 (with or without a voltage tap). The surge arrester is directly connected to the switchgear or the transformer and prevents inadmissibly high, incoming surges. It is particularly effective in limiting surges caused by reflected traveling waves.





**HV-CONNEX Separable Connectors Size 4 - 6-S  
Technical Data and Size Classification List**

Size		4	5	6	6-S
Max. operating voltage	$U_m$ (kV)	72.5	145	170	245
Nominal voltage	$U_n$ (kV)	60 - 69	132 - 138	150 - 161	220 - 230
Conductor Earth Voltage	$U_0$ (kV)	36	76	87	127
Max. current rating for cable accessory <sup>1)</sup>	$I_N$ (A)	2500	2500	2500	2500
Max. current rating for transformer application <sup>1)</sup>	$I_R$ (A)	2000	2000	2000	2000
Cross section range <sup>2) 3)</sup>	(mm <sup>2</sup> )	95 - 1600	95 - 1600	240 - 2500	240 - 2500
Min. conductor diameter <sup>3) 4)</sup>	$\varnothing$ (mm)	9.3	9.3	15.3	15.3
Max. conductor diameter <sup>3) 4)</sup>	$\varnothing$ (mm)	50.4	50.4	64.9	64.9
Min. diameter over insulation <sup>4)</sup>	$\varnothing$ (mm)	33.0	36.0	53.0	53.0
Max. diameter over insulation <sup>4)</sup>	$\varnothing$ (mm)	75.0	76.0	110.5	110.5
Gross weight per packing unit <sup>5)</sup>	(kg)	12.0	18.0	27.0	27.0
Rated power frequency withstand voltage	1 min (kV)	140	275	325	460
Partial discharge at $2 \times U_0$	(pC)	$\leq 2$	$\leq 2$	$\leq 2$	$\leq 2$
Rated lightning impulse withstand voltage (BIL)	(kV)	325	650	750	1050
DC voltage test	15 min $6 \times U_0$ (kV)	144	304	348	508
Rated short-time withstand current	3 s (kA)	50	50	50	50
Rated peak withstand current	(kA)	125	125	125	125

<sup>1)</sup> depending on the cable that is used

<sup>2)</sup> Cross section is for reference only.

Actual value is limited by min. / max. diameter over conductor and min. / max. diameter over insulation.

(1 inch = 25.4 mm; 1 square inch = 645.16 mm<sup>2</sup>)

<sup>3)</sup> Values are for RM (round circular).

RE (round solid) and RF (round superflexible stranded) upon request.

<sup>4)</sup> The total range is covered by different components.

<sup>5)</sup> Packaging unit PU = 1 piece;

Weight is just a guide value, depends on version

### HV-CONNEX Separable Connectors, Size 4, up to 72,5 kV

The following options are available but must be specified when ordering:

#### Low temperature

The standard components are designed for a temperature down to -25°C. A special low temperature grease is used for ambient conditions involving temperatures below -25°C.

#### Offshore

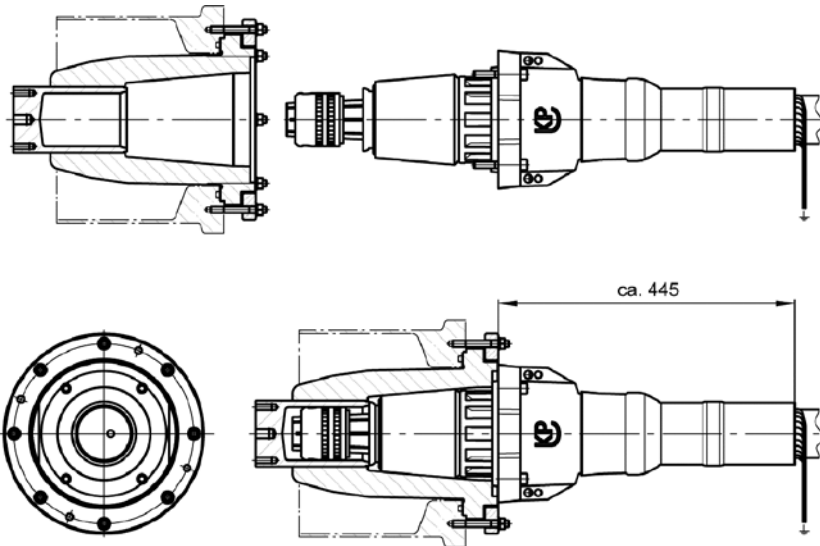
Components with corresponding material properties are used for offshore applications.

#### Insulated cable shield

For insulated networks and usage of a Link Box. A touch proof system and flexibility were the main approach.

#### Important:

Special tools are required for the assembly of HV-CONNEX separable connectors size 4 (see assembly accessories).



No.	Version <sup>1)</sup>	Nominal voltage <sup>2)</sup>	Cross section range <sup>3) 4)</sup>	Conductor diameter <sup>4) 5)</sup>	Diameter over insulation
		$I_N$ (A)	(mm <sup>2</sup> )	Ø (mm)	Ø (mm)
849 999 999	XXXX	2500	95 - 1600	9.3 - 50.4	33.0 - 75.0

<sup>1)</sup> Individual article number determined according to actual cable dimensions (see page 39: Form to determine HV-CONNEX Separable Connectors).

<sup>2)</sup> depending on the cable that is used

<sup>3)</sup> Cross section is for reference only.

Actual value is limited by min. / max. diameter over conductor and min. / max. diameter over insulation.

(1 inch = 25.4 mm; 1 square inch = 645.16 mm<sup>2</sup>)

<sup>4)</sup> Values are vor RM (round circular).

RE (round solid) and RF (round superflexible stranded) upon request.

<sup>5)</sup> The total range is covered by different components.

Size 4



### HV-CONNEX Sockets for GIS, Size 4, up to 72.5 kV

For installation in gas-insulated switchgears, switchgears, joint boxes and other devices.

#### HV-CONNEX socket

with or without voltage tap, each including fastenings.

#### Extension adapter

for adjusting the length of terminations to relevant standards.

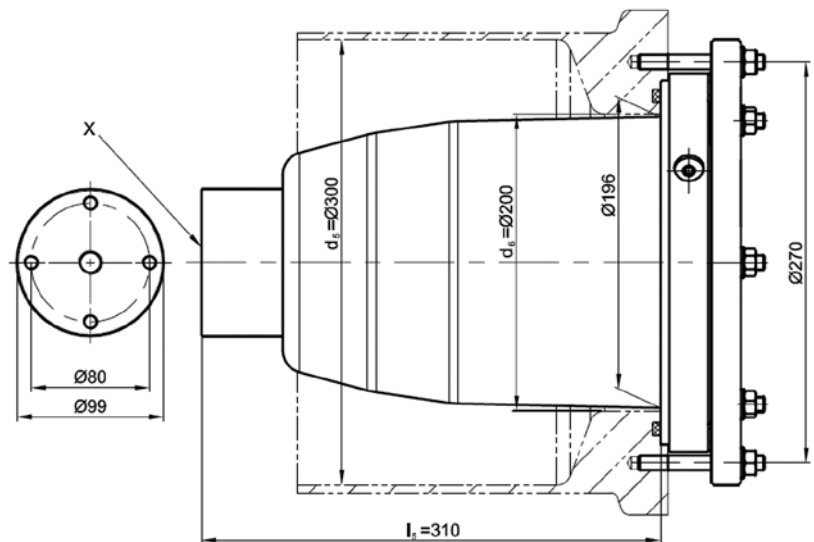


### For dimensions according to IEC 62271-209, for dry terminations, Size 4

These versions allow for very small cable connection spaces and therefore also a significant reduction in the amount of SF<sub>6</sub> gas needed.

#### Scope of delivery:

- Socket (with or without voltage tap)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	IEC dimensions I <sub>s</sub> (mm)	Weight (kg)
828 040 999	0001	—	310	17.8
828 040 999	0002	approx. 5	310	16.0

<sup>1)</sup> Further versions upon request.

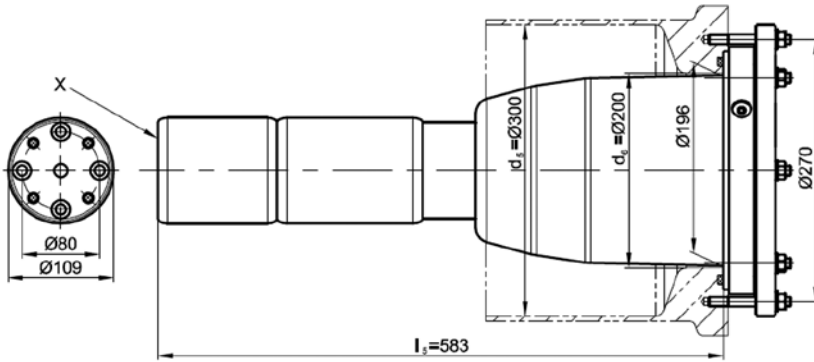
<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %



**For dimensions according to IEC 62271-209, for fluid-filled terminations, Size 4**

**Scope of delivery:**

- Socket (with or without voltage tap)
- Extension adapter (pre-assembled)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	IEC dimensions I <sub>s</sub> (mm)	Weight (kg)
828 040 999	0003	—	583	24.5
828 040 999	0004	approx. 5	583	22.1

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

III  
Size 4



## HV-CONNEX Sockets for transformers, Size 4, up to 72.5 kV

For installation in transformers, E-coils, joint boxes and other oil-insulated devices.

### HV-CONNEX socket

with or without voltage tap, each including fastenings.

### Extension adapter

for adjusting the length of terminations to relevant standards.

### Corona shield

Protects against sharp-edged areas of the connection system.

### Take-off bolt

optional; must be ordered separately. Included in scope of delivery of transformer manufacturer as specified in standard. Individual designs can be delivered upon request.

**Please note:** When using a HV-CONNEX separable connector, the maximum temperature of the surrounding insulating fluid must not exceed the maximum temperature admissible for cable insulation.

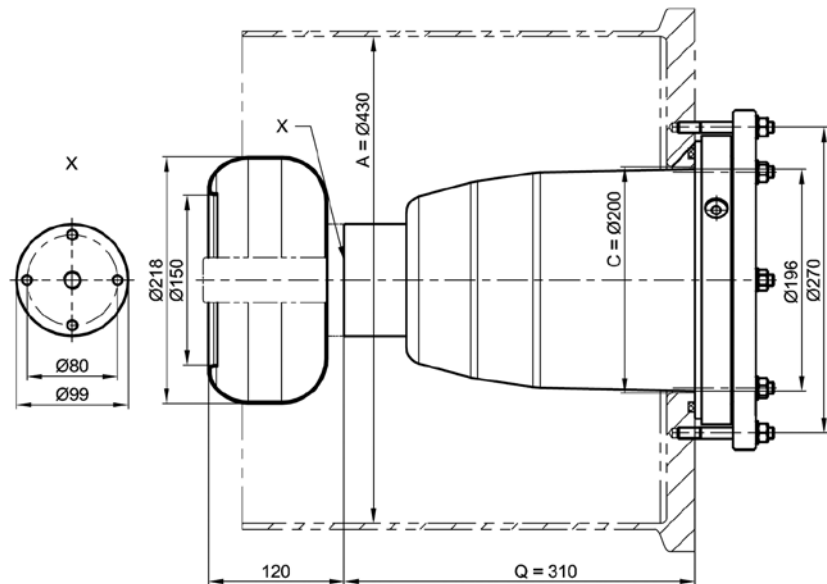
## For dimensions according to DIN VDE 0532, Size 4

These versions allow for very small cable connection spaces and therefore also a significant reduction in the amount of insulating fluid needed.

### Scope of delivery:

- Socket (with or without voltage tap)
- corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	Weight (kg)
828 041 999	0001	—	310	18.3
828 041 999	0002	approx. 5	310	16.5

<sup>1)</sup> Further versions upon request.

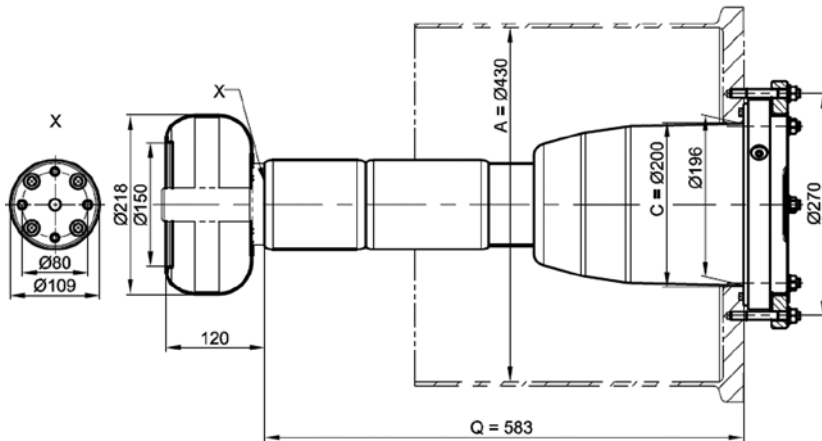
<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

### For dimensions according to EN 50299, for conventional terminations, Size 4

#### Scope of delivery:

- Socket (with or without voltage tap)
- Extension adapter (pre-assembled)
- corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	Weight (kg)
828 041 999	0003	—	583	24.9
828 041 999	0004	approx. 5	583	23.1

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

### HV-CONNEX Separable Connectors, Size 5, up to 145 kV

The following options are available but must be specified when ordering:

#### Low temperature

The standard components are designed for a temperature down to -25°C. A special low temperature grease is used for ambient conditions involving temperatures below -25°C.

#### Offshore

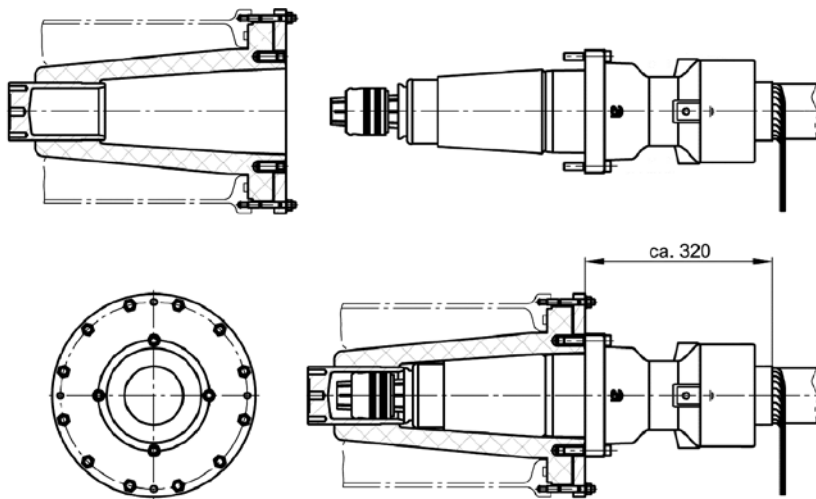
Components with corresponding material properties are used for offshore applications.

#### Insulated cable shield

For insulated networks and usage of a Link Box. A touch proof system and flexibility were the main approach.

#### Important:

Special tools are required for the assembly of HV-CONNEX separable connectors size 5 (see assembly accessories).



No.	Version <sup>1)</sup>	Nominal	Cross section	Conductor	Diameter over
		voltage <sup>2)</sup>	range <sup>3) 4)</sup>	diameter <sup>4) 5)</sup>	insulation
		$I_N$ (A)	(mm <sup>2</sup> )	Ø (mm)	Ø (mm)
859 999 999	XXXX	2500	95 - 1600	9.3 - 50.4	33.0 - 76.0

<sup>1)</sup> Individual article number determined according to actual cable dimensions (see page 39: Form to determine HV-CONNEX Separable Connectors).

<sup>2)</sup> depending on the cable that is used

<sup>3)</sup> Cross section is for reference only.

Actual value is limited by min. / max. diameter over conductor and min. / max. diameter over insulation.

(1 inch = 25.4 mm; 1 square inch = 645.16 mm<sup>2</sup>)

<sup>4)</sup> Values are for RM (round circular).

RE (round solid) and RF (round superflexible stranded) upon request.

<sup>5)</sup> The total range is covered by different components.

III  
Size 5



### HV-CONNEX Sockets for GIS, Size 5, up to 145 kV

For installation in gas-insulated switchgears, switchgears, joint boxes and other devices.

#### HV-CONNEX socket

with or without voltage tap, each including fastenings.

#### Extension adapter

for adjusting the length of terminations to relevant standards.

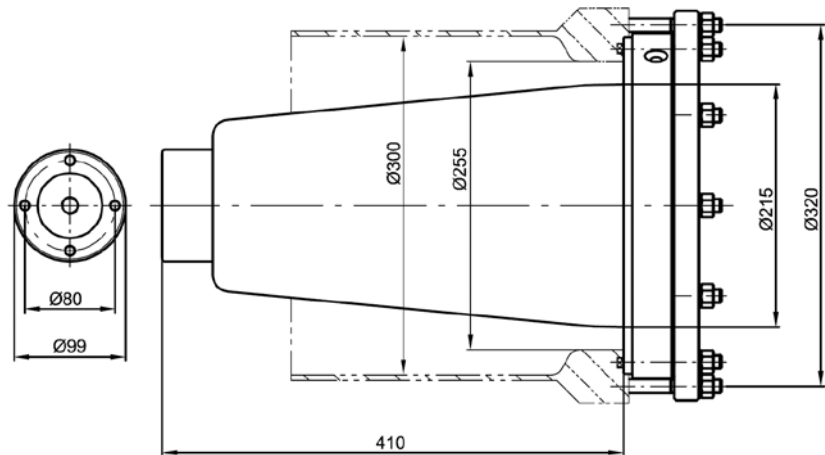


### Dimensions for compact design, Size 5

These versions allow for very small cable connection spaces and therefore also a significant reduction in the amount of SF<sub>6</sub> gas needed.

#### Scope of delivery:

- Socket (with or without voltage tap)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	Weight (kg)
828 050 999	0001	—	410	24.2
828 050 999	0002	approx. 3	410	24.2

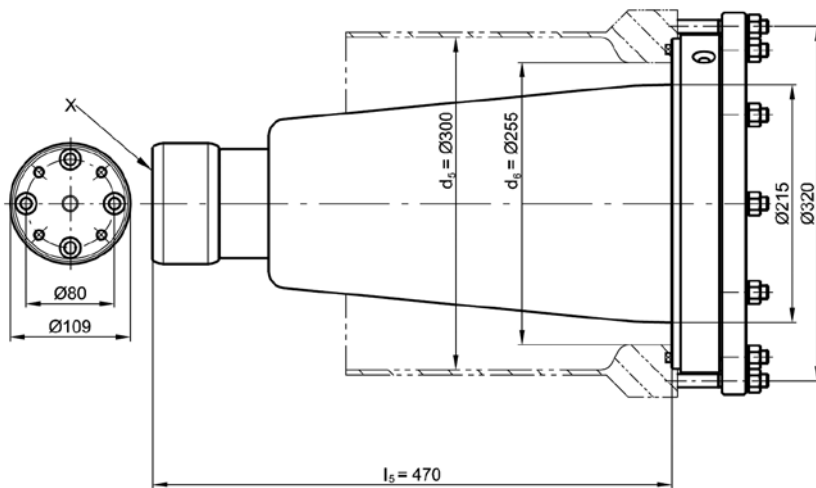
<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

**For dimensions according to IEC 62271-209, for dry-type termination, Size 5**

**Scope of delivery:**

- Socket (with or without voltage tap)
- Extension adapter (pre-assembled)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	IEC dimensions I <sub>5</sub> (mm)	Weight (kg)
828 050 999	0003	—	470	25.7
828 050 999	0004	approx. 3	470	25.8

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

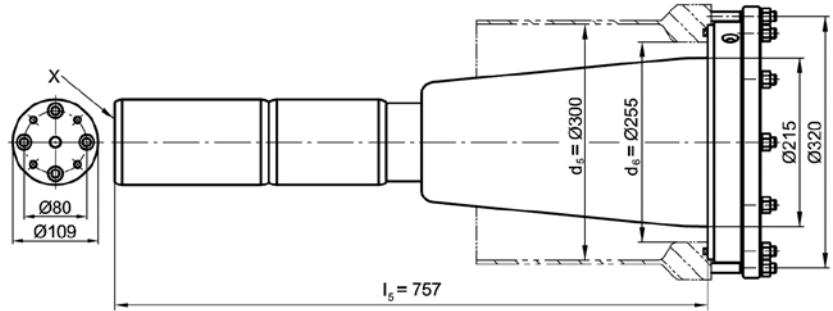
Size 5



**For dimensions according to IEC 62271-209, for fluid-filled termination, Size 5**

**Scope of delivery:**

- Socket (with or without voltage tap)
- Extension adapter (pre-assembled)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	IEC dimensions I <sub>s</sub> (mm)	Weight (kg)
828 050 999	0005	—	757	32.5
828 050 999	0006	approx. 3	757	32.6

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

### HV-CONNEX Sockets for transformers, Size 5, up to 145 kV

For installation in transformers, E-coils, joint boxes and other oil-insulated devices.

#### HV-CONNEX socket

with or without voltage tap, each including fastenings.

#### Extension adapter

for adjusting the length of terminations to relevant standards.

#### Corona shield

Protects against sharp-edged areas of the connection system.

#### Take-off bolt

optional; must be ordered separately. Included in scope of delivery of transformer manufacturer as specified in standard. Individual designs can be delivered upon request.

**Please note:** When using a HV-CONNEX separable connector, the maximum temperature of the surrounding insulating fluid must not exceed the maximum temperature admissible for cable insulation.



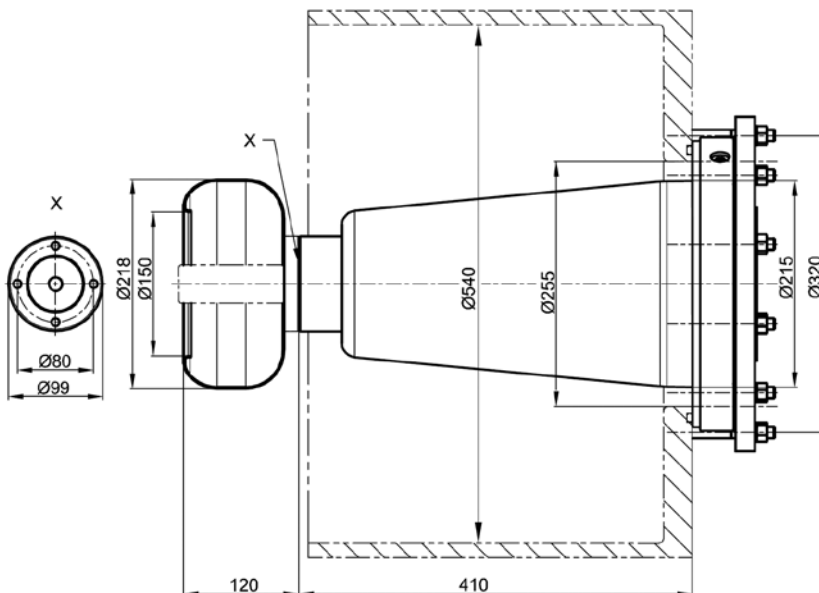
### Dimensions for compact design, Size 5

These versions allow for very small cable connection spaces and therefore also a significant reduction in the amount of insulating fluid needed.

#### Scope of delivery:

- Socket (with or without voltage tap)
- corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	Weight (kg)
828 051 999	0001	—	410	24.6
828 051 999	0002	approx. 3	410	24.7

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance  $\pm 3\%$

III  
Size 5



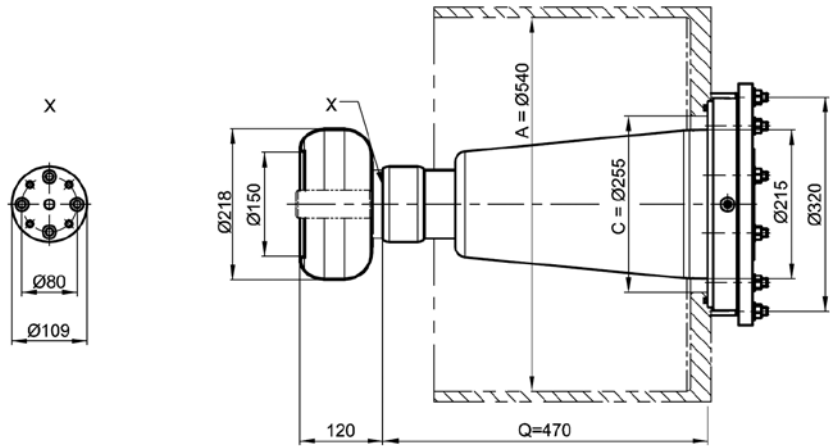


**For dimensions according to DIN VDE 0532**

**Scope of delivery:**

- Socket (with or without voltage tap)
- Extension adapter (pre-assembled)
- corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	Weight (kg)
828 051 999	0003	—	470	26.2
828 051 999	0004	approx. 3	470	26.2

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

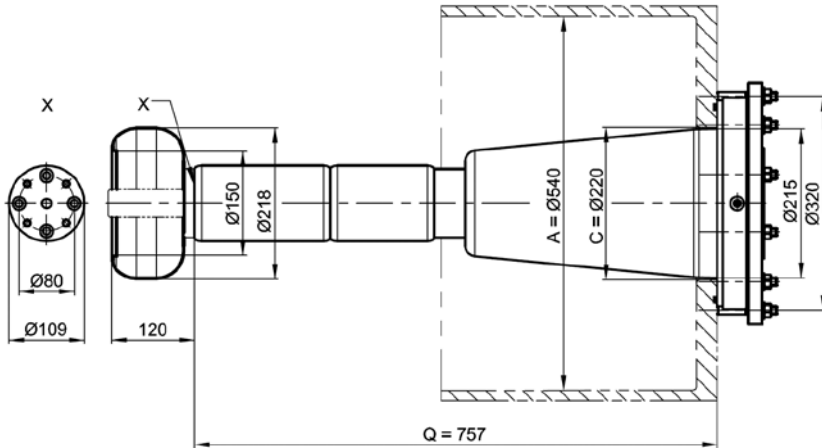
Size 5

### For dimensions according to EN 50299 for conventional terminations

#### Scope of delivery:

- Socket (with or without voltage tap)
- Extension adapter (pre-assembled)
- corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	Weight (kg)
828 051 999	0005	—	757	33.0
828 051 999	0006	approx. 3	757	33.0

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

### HV-CONNEX Separable Connectors, Size 6, up to 170 kV

The following options are available but must be specified when ordering:

#### Low temperature

The standard components are designed for a temperature down to -25°C. A special low temperature grease is used for ambient conditions involving temperatures below -25°C.

#### Offshore

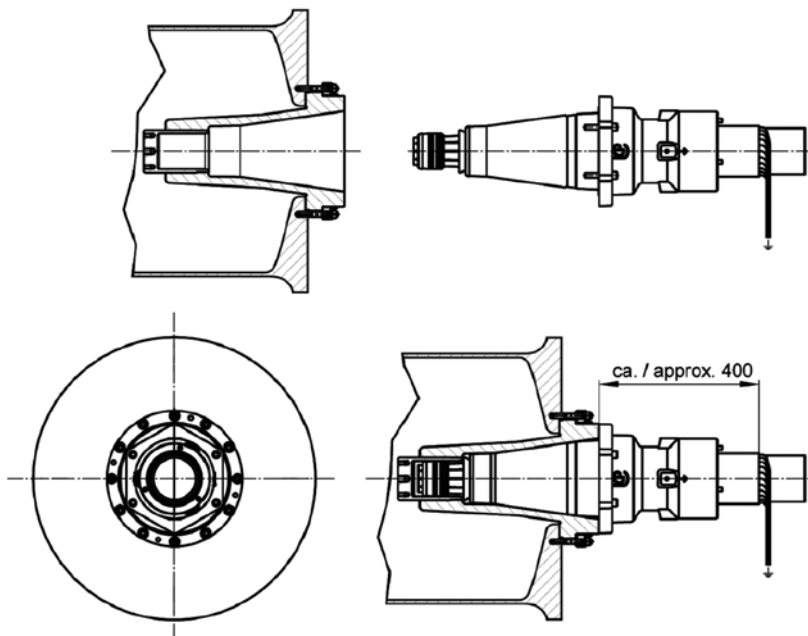
Components with corresponding material properties are used for offshore applications.

#### Insulated cable shield

For insulated networks and usage of a Link Box. A touch proof system and flexibility were the main approach.

#### Important:

Special tools are required for the assembly of HV-CONNEX separable connectors size 6 (see assembly accessories).



Size 6

No.	Version <sup>1)</sup>	Nominal voltage <sup>2)</sup>	Cross section range <sup>3) 4)</sup>	Conductor diameter <sup>4) 5)</sup>	Diameter over insulation
		$I_N$ (A)			
869 999 999	XXXX	2500	240 - 2500	15.3 - 64.9	53.0 - 110.5

<sup>1)</sup> Individual article number determined according to actual cable dimensions (see page 39: Form to determine HV-CONNEX Separable Connectors)

<sup>2)</sup> depending on the cable that is used

<sup>3)</sup> Cross section is for reference only.

Actual value is limited by min. / max. diameter over conductor and min. / max. diameter over insulation.

(1 inch = 25.4 mm; 1 square inch = 645.16 mm<sup>2</sup>)

<sup>4)</sup> Values are vor RM (round circular).

RE (round solid) and RF (round superflexible stranded) upon request.

<sup>5)</sup> The total range is covered by different components.



## HV-CONNEX Sockets for GIS, Size 6, up to 170 kV

For installation in gas-insulated switchgears, switchgears, joint boxes and other devices.

### HV-CONNEX socket

with or without voltage tap, each including fastenings.

### Extension adapter

for adjusting the length of terminations to relevant standards.

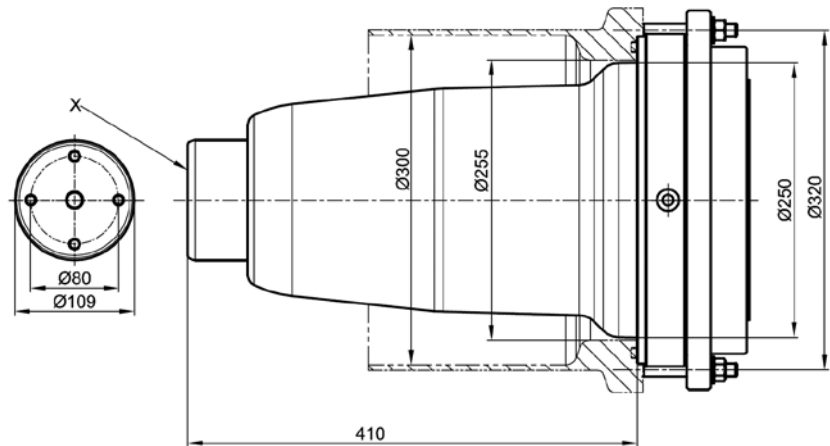


## Dimensions for compact design, Size 6

These versions allow for very small cable connection spaces and therefore also a significant reduction in the amount of SF<sub>6</sub> gas needed.

### Scope of delivery:

- Socket (with or without voltage tap)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup>	Installation depth	d <sub>e</sub>	Weight
		(pF)	(mm)	(mm)	(kg)
828 060 999	0001	—	410	255	24.3
828 060 999	0002	approx. 3	410	255	24.5

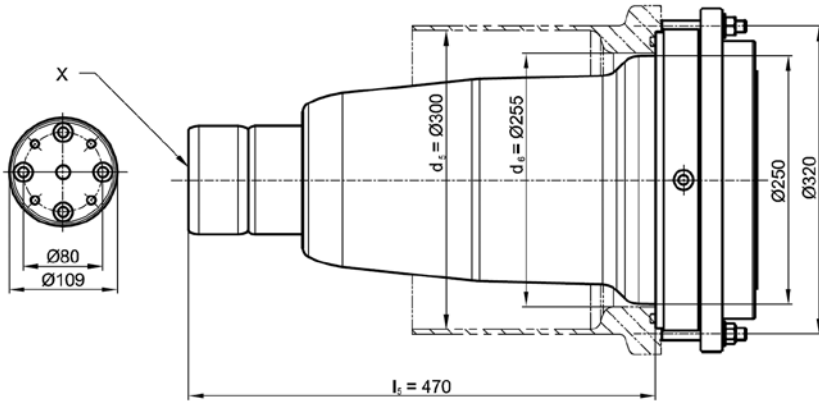
<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

### For dimensions according to IEC 62271-209, for dry terminations, Size 6

#### Scope of delivery:

- Socket (with or without voltage tap)
- Extension adapter (pre-assembled)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	IEC dimensions l <sub>s</sub> (mm)	d <sub>e</sub> (mm)	Weight (kg)
828 060 999	0003	—	470	255	25.814
828 060 999	0004	approx. 3	470	255	25.961

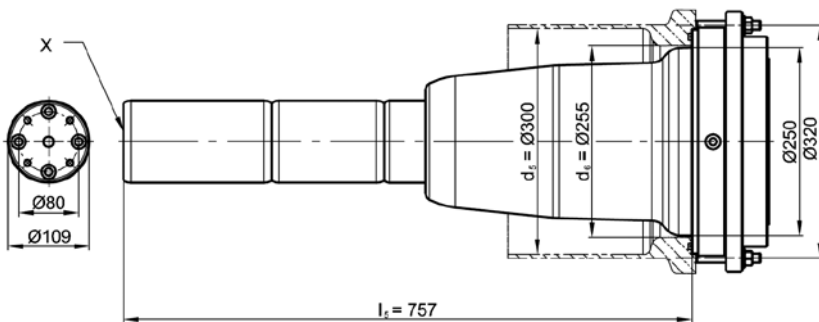
<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

### For dimensions according to IEC 62271-209, for fluid-filled terminations, Size 6

#### Scope of delivery:

- Socket (with or without voltage tap)
- Extension adapter (pre-assembled)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	IEC dimensions l <sub>s</sub> (mm)	d <sub>e</sub> (mm)	Weight (kg)
828 060 999	0005	—	757	255	32.6
828 060 999	0006	approx. 3	757	255	32.8

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

III  
Size 6



## HV-CONNEX Sockets for transformers, Size 6, up to 170 kV

For installation in transformers, E-coils, joint boxes and other oil-insulated devices.

### HV-CONNEX socket

with or without voltage tap, each including fastenings.

### Extension adapter

for adjusting the length of terminations to relevant standards.

### Corona shield

Protects against sharp-edged areas of the connection system.

### Take-off bolt

optional; must be ordered separately. Included in scope of delivery of transformer manufacturer as specified in standard. Individual designs can be delivered upon request.

**Please note:** When using a HV-CONNEX separable connector, the maximum temperature of the surrounding insulating fluid must not exceed the maximum temperature admissible for cable insulation.

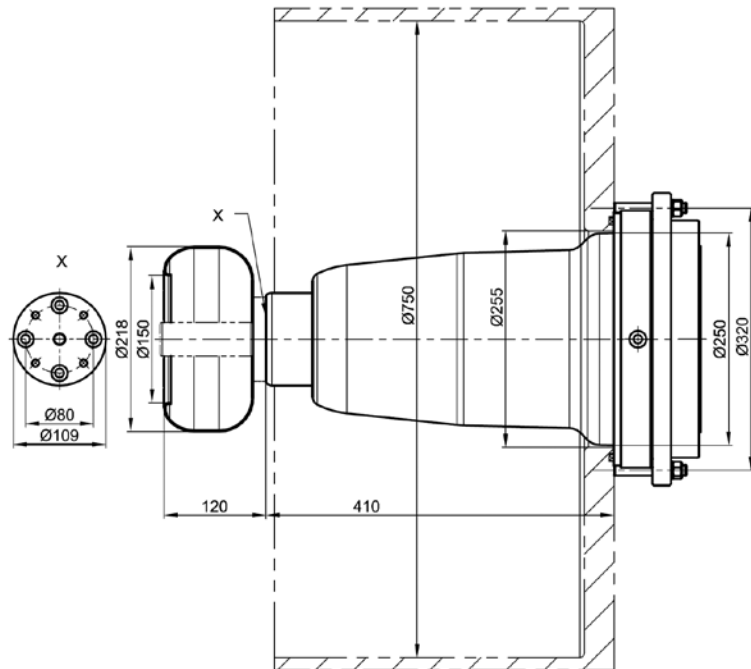
## Dimensions for compact design, Size 6

These versions allow for very small cable connection spaces and therefore also a significant reduction in the amount of insulating fluid needed.

### Scope of delivery:

- Socket (with or without voltage tap)
- corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup>	Installation depth	C	Weight
		(pF)	(mm)	(mm)	(kg)
828 061 999	0001	—	410	255	25.9
828 061 999	0002	approx. 3	410	255	26.0

<sup>1)</sup> Further versions upon request.

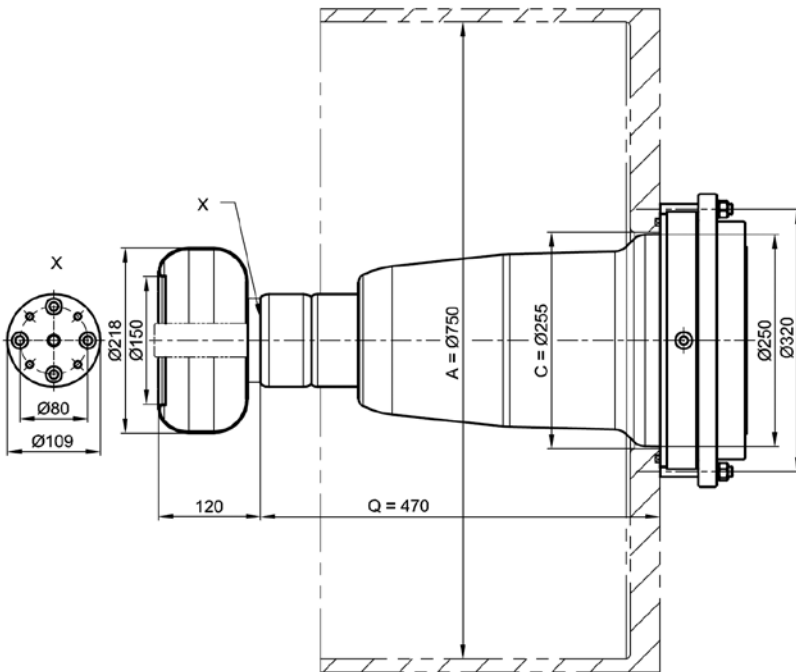
<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

### Dimensions for compact design according to DIN VDE 0532, Size 6

#### Scope of delivery:

- Socket (with or without voltage tap)
- Extension adapter (pre-assembled)
- corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup>	Installation depth	C	Weight
		(pF)	(mm)	(mm)	(kg)
828 061 999	0003	—	470	255	27.4
828 061 999	0004	approx. 3	470	255	27.5

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance  $\pm 3\%$

Size 6

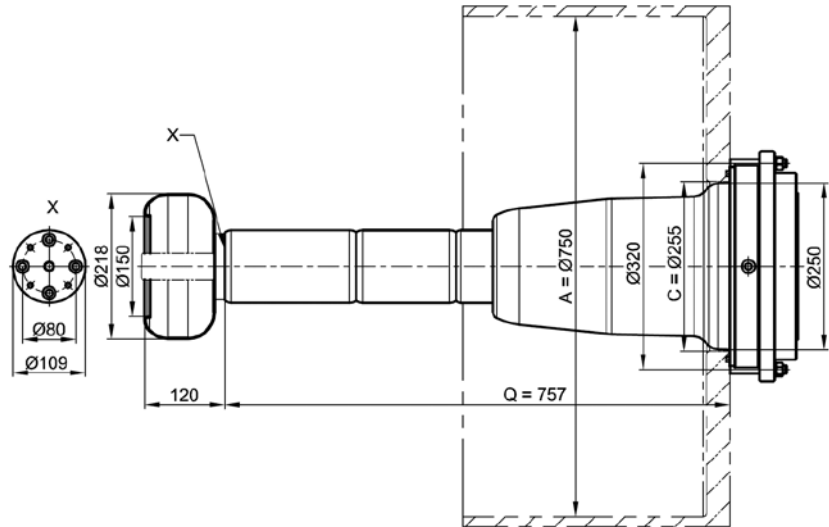


**For dimensions according to EN 50299, for conventional terminations, Size 6**

**Scope of delivery:**

- Socket (with or without voltage tap)
- Extension adapter (pre-assembled)
- corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	C (mm)	Weight (kg)
828 061 999	0005	—	757	220	33.4

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

III  
Size 6



## HV-CONNEX Separable Connectors, Size 6-S, up to 245 kV

The following options are available but must be specified when ordering:

### Low temperature

The standard components are designed for a temperature down to -25°C. A special low temperature grease is used for ambient conditions involving temperatures below -25°C.

### Offshore

Components with corresponding material properties are used for offshore applications.

### Insulated cable shield

For insulated networks and usage of a Link Box. A touch proof system and flexibility were the main approach.

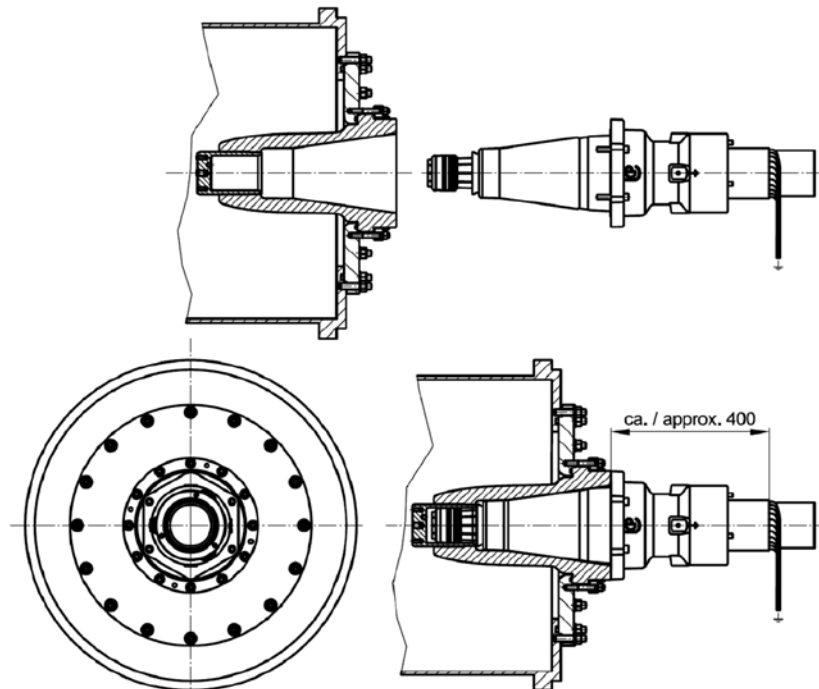
### Important:

Special tools are required for the assembly of HV-CONNEX separable connectors size 6-S (see assembly accessories).



III

Size 6-S



No.	Version <sup>1)</sup>	Nominal voltage <sup>2)</sup>	Cross section range <sup>3) 4)</sup> (mm <sup>2</sup> )	Conductor diameter <sup>4) 5)</sup> Ø (mm)	Diameter over insulation Ø (mm)
		I <sub>N</sub> (A)			
869 999 999	XXXX	2500	240 - 2500	15.3 - 64.9	54.5 - 110.5

<sup>1)</sup> Individual article number determined according to actual cable dimensions (see page 39: Form to determine HV-CONNEX Separable Connectors).

<sup>2)</sup> depending on the cable that is used

<sup>3)</sup> Cross section is for reference only.  
Actual value is limited by min. / max. diameter over conductor and min. / max. diameter over insulation.  
(1 inch = 25.4 mm; 1 square inch = 645.16 mm<sup>2</sup>)

<sup>4)</sup> Values are vor RM (round circular).

RE (round solid) and RF (round superflexible stranded) upon request.

<sup>5)</sup> The total range is covered by different components.

### HV-CONNEX Sockets for GIS, Size 6-S, up to 245 kV

For installation in gas-insulated switchgears, switchgears, joint boxes and other devices.

#### HV-CONNEX socket

with or without voltage tap, each including fastenings.

#### Adapter flange

for adjusting the diameter to relevant standards.

#### Extension adapter

or adjusting the length of terminations to relevant standards.

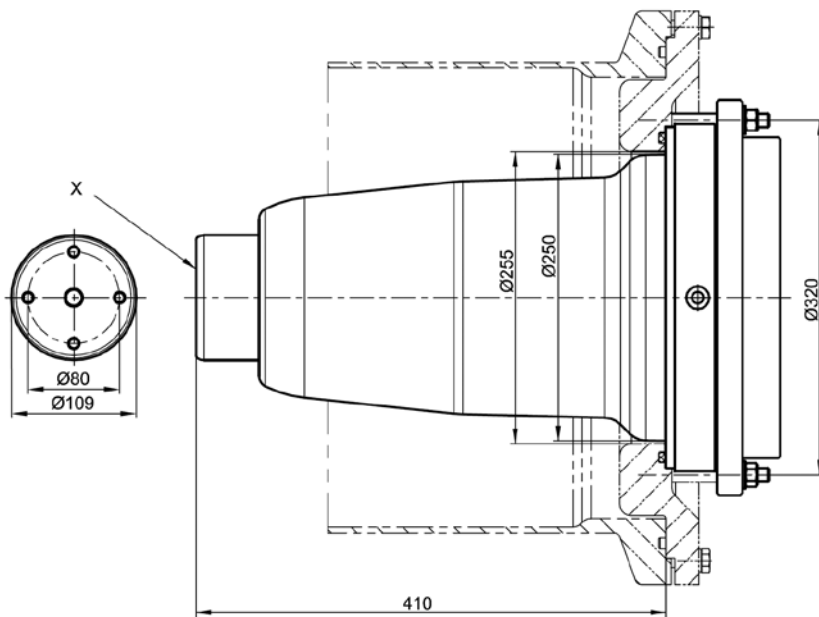


### Dimensions for compact design, Size 6-S

These versions allow for very small cable connection spaces and therefore also a significant reduction in the amount of SF<sub>6</sub> gas needed.

#### Scope of delivery:

- Socket (with or without voltage tap)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	Weight (kg)
828 065 999	0001	—	410	25.4
828 065 999	0002	approx. 3	410	25.6

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

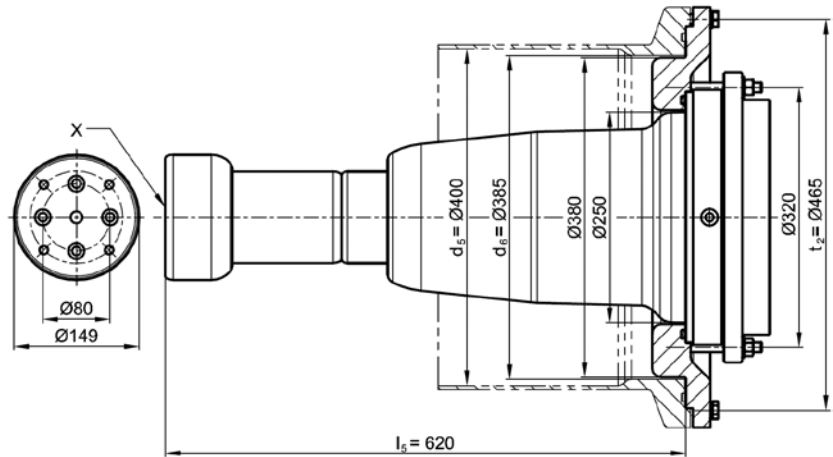
III  
Size 6-S



**For dimensions according to IEC 62271-209, for dry terminations, Size 6-S**

**Scope of delivery:**

- Socket (with or without voltage tap)
- Adapter flange (included)
- Extension adapter (pre-assembled)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	IEC dimensions I <sub>5</sub> (mm)	t <sub>2</sub> (mm)	Weight (kg)
828 065 999	0003	—	620	475	45.9
828 065 999	0004	approx. 3	620	475	46.1

<sup>1)</sup> Further versions upon request.

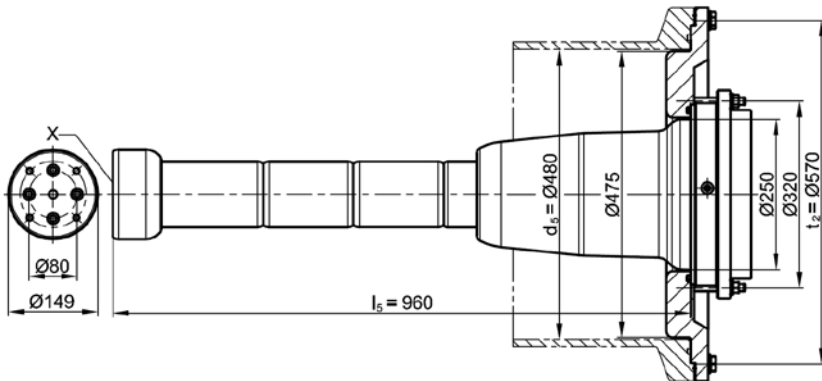
<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

Size 6-S

**For dimensions according to IEC 62271-209, for fluid-filled terminations, Size 6-S**

**Scope of delivery:**

- Socket (with or without voltage tap)
- Adapter flange (included)
- Extension adapter (pre-assembled)
- Fastenings



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	IEC dimensions l <sub>5</sub> (mm)	t <sub>2</sub> (mm)	Weight (kg)
828 065 999	0005	—	960	582	65.3
828 065 999	0006	approx. 3	960	582	65.5

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %



### **HV-CONNEX Sockets for transformers, Size 6-S, up to 245 kV**

For installation in transformers, E-coils, joint boxes and other oil-insulated devices.

#### **HV-CONNEX socket**

with or without voltage tap, each including fastenings.

#### **Adapter flange**

for adjusting the diameter to relevant standards.

#### **Extension adapter**

for adjusting the length of terminations to relevant standards.

#### **Corona shield**

Protects against sharp-edged areas of the connection system.

#### **Take-off bolt**

optional; must be ordered separately. Included in scope of delivery of transformer manufacturer as specified in standard. Individual designs can be delivered upon request.

**Please note:** When using a HV-CONNEX separable connector, the maximum temperature of the surrounding insulating fluid must not exceed the maximum temperature admissible for cable insulation.

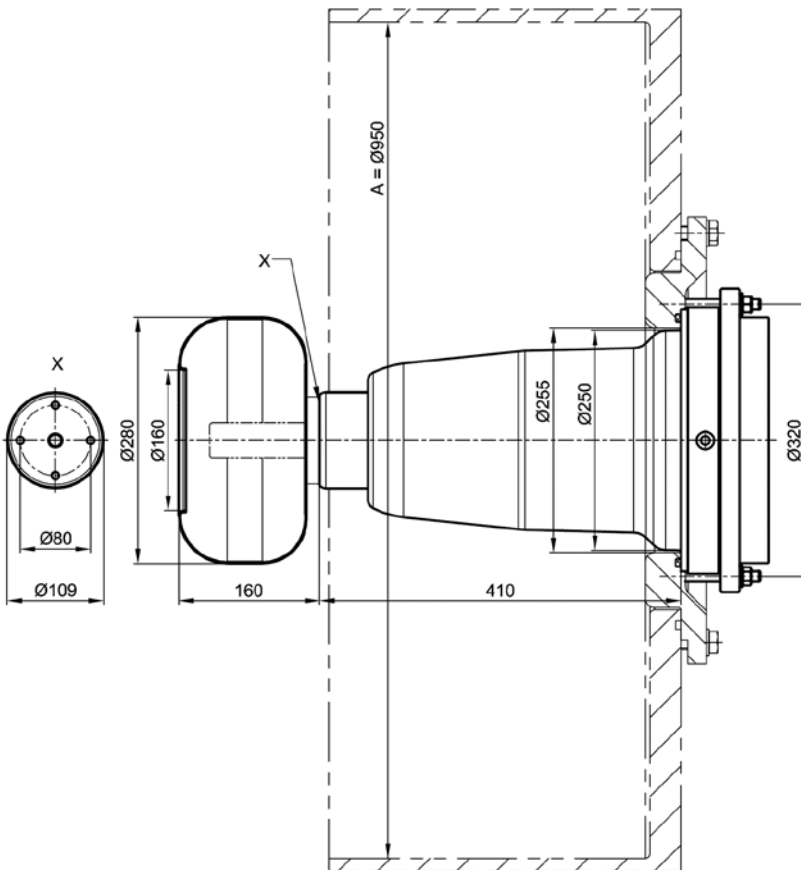
### Dimensions for compact design, Size 6-S

These versions allow for very small cable connection spaces and therefore also a significant reduction in the amount of insulating fluid needed.

#### Scope of delivery:

- Socket (with or without voltage tap)
- Corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	Weight (kg)
828 066 999	0001	—	410	26.2
828 066 999	0002	approx. 3	410	26.4

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

Size 6-S

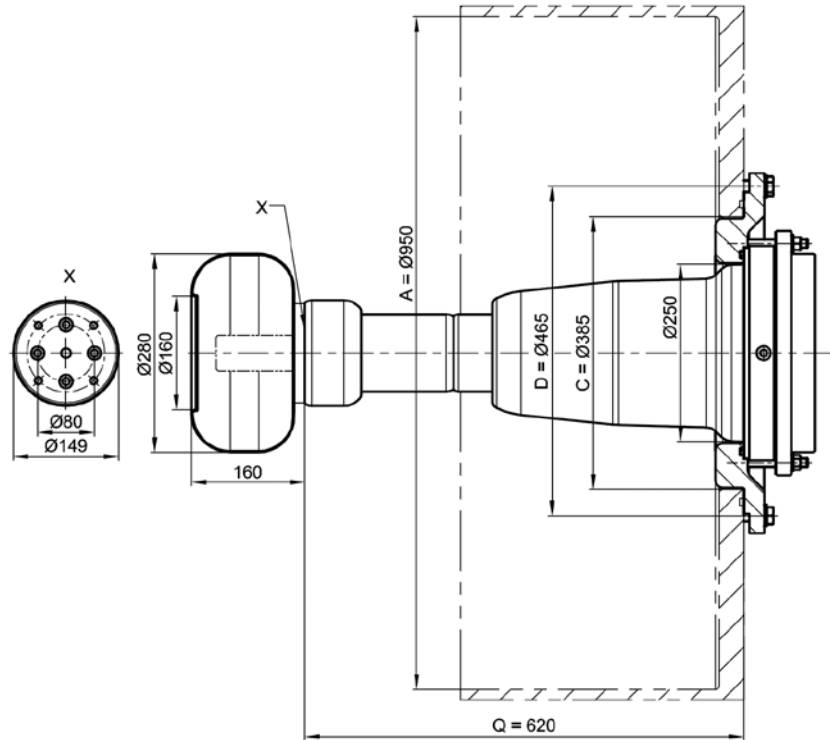


**For dimensions according to DIN VDE 0532, Size 6-S**

**Scope of delivery:**

- Socket (with or without voltage tap)
- Adapter flange (included)
- Extension adapter (pre-assembled)
- Corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	D (mm)	Weight (kg)
828 065 999	0003	—	620	475	46.5
828 066 999	0004	approx. 3	620	475	46.6

<sup>1)</sup> Further versions upon request.

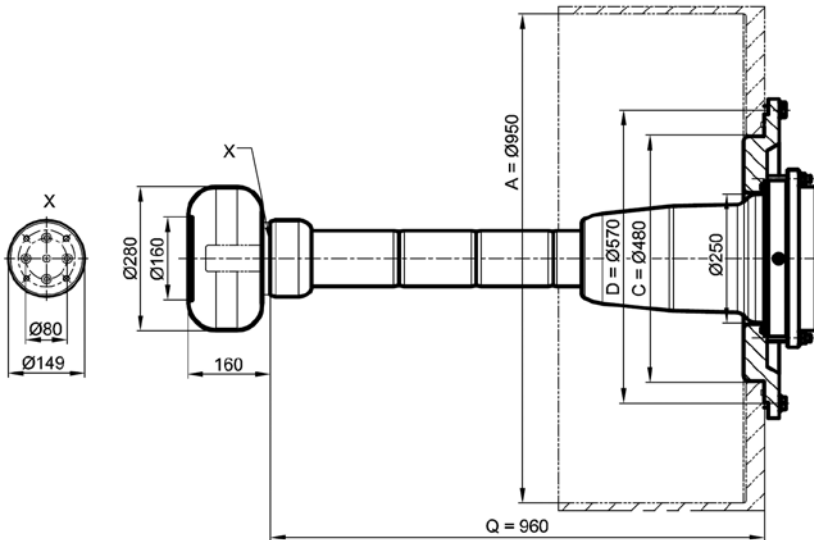
<sup>2)</sup> capacity with cable plugged in; tolerance ±3 %

for dimensions according to EN 50299 for conventional terminations, Size 6-S

**Scope of delivery:**

- Socket (with or without voltage tap)
- Adapter flange (included)
- Extension adapter (pre-assembled)
- Corona shield (included)
- Fastenings

Optional: take-off bolt (must be ordered separately)



No.	Version <sup>1)</sup>	Capacitive voltage tap <sup>2)</sup> (pF)	Installation depth (mm)	D (mm)	Weight (kg)
828 066 999	0005	—	960	582	66.1
828 066 999	0006	approx. 3	960	582	66.3

<sup>1)</sup> Further versions upon request.

<sup>2)</sup> capacity with cable plugged in; tolerance  $\pm 3\%$

III  
Size 6-S





**GIS Cable Termination**

The terminations are used for the direct insertion of polymer insulated high voltage cables in gas insulated switchgears. They are available in nearly identical versions as vertical, horizontal or upside-down designs for voltage ranges from 72.5 kV to 245 kV. The slide-on silicone control unit is surrounded by a cast resin insulator, which safely separates the gas insulated switchgear from the cable system. The insulator is additionally filled with an insulating compound.

**Material:**

Insulator material: cast resin  
Material of the control unit: silicone rubber

**Conductor connection:**

compressed or screwed

**Optional accessories:**

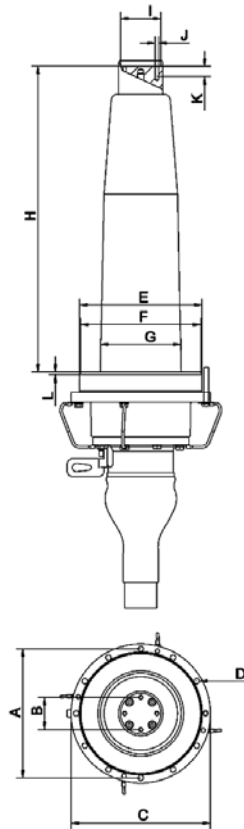
adapter plate

**Note:**

The horizontal version is equipped with an expansion vessel.  
Upside-down version on request.  
Optional material is not within scope of supply and has to be ordered separately.

Max. operating voltage	$U_m$ (kV)	72.5	123	145	170	245
Standards		IEC60840	IEC60840	IEC60840	IEC60840	IEC62067
		IEC60859	IEC60859	IEC60859	IEC60859	IEC60859
		IEC62271-209	IEC62271-209	IEC62271-209	IEC62271-209	IEC62271-209
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
Partial discharge measurement	(pC)	< 5	< 5	< 5	< 5	< 5

### ESG72



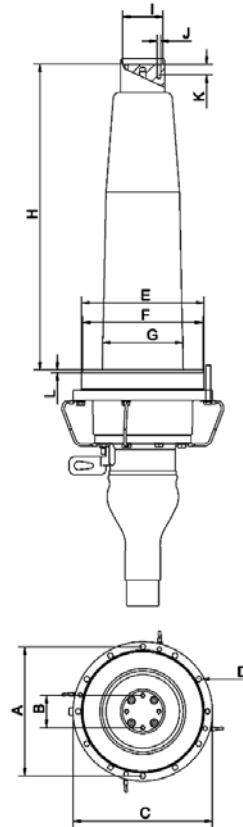
Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	
ESG72-H	95-2000	37 - 84	120	58.0	1
ESG72-V	95-2000	37 - 84	120	52.0	2

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
ESG72-H	270	80 ± 0,3	295	8 x Ø11	255	245 ± 0,3	184	583 ± 1	100	4 x M10	24	7
ESG72-V	270	80 ± 0,3	295	8 x Ø11	255	245 ± 0,3	184	583 ± 1	100	4 x M10	24	7



**1** ESG123

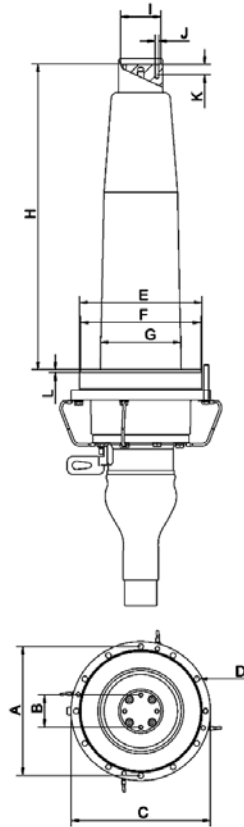
**2**



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	
ESG123-H	150-2000	42 - 99	120	78.0	<b>1</b>
ESG123-H	150 - 2500	84 - 110	170	86.0	<b>1</b>
ESG123-V	150-2000	42 - 99	120	72.0	<b>2</b>
ESG123-V	150 - 2500	84 - 110	170	80.0	<b>2</b>

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
ESG123-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESG123-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7
ESG123-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESG123-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7

ESG145



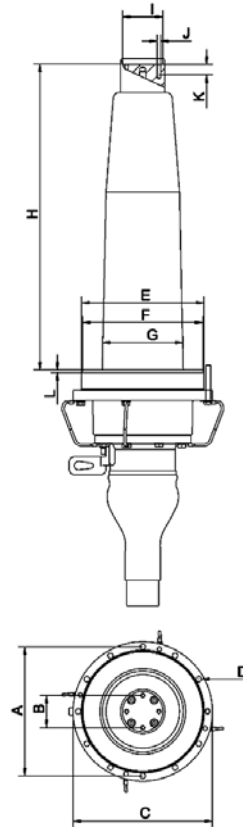
Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	
ESG145-H	150-2000	46 - 99	120	78.0	1
ESG145-H	150 - 2500	84 - 110	170	86.0	1
ESG145-V	150-2000	46 - 99	120	72.0	2
ESG145-V	150 - 2500	84 - 110	170	80.0	2

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
ESG145-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESG145-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7
ESG145-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESG145-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7



**1** ESG170

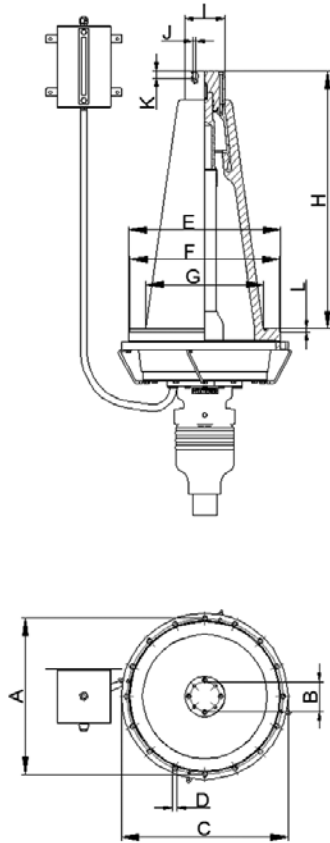
**2**



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	
ESG170-H	150-2000	52 - 99	120	78.0	<b>1</b>
ESG170-H	150 - 2500	84 - 110	170	86.0	<b>1</b>
ESG170-V	150-2000	52 - 99	120	72.0	<b>2</b>
ESG170-V	150 - 2500	84 - 110	170	80.0	<b>2</b>

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
ESG170-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESG170-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7
ESG170-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESG170-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7

**ESG245**



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)
ESG245	240 - 2500	69 - 118	170	170.0

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
ESG245	585 ± 0,5	110 ± 0,3	620	16 x Ø17,5	565	559 ± 0,3	439	960 ± 2	150	4 x M12	24	10

IV  
ESG



**Transformer Cable Termination**

The terminations are used for the direct insertion of polymer insulated high voltage cables in oil-filled transformers. They are available in nearly identical versions as vertical, horizontal or upside-down designs for voltage ranges from 72.5 kV to 245 kV. The slide-on silicone control unit is surrounded by a cast resin insulator, which safely separates the oil-filled equipment from the cable system. The insulator is additionally filled with an insulating compound.

**Material:**

Insulator material: cast resin  
Material of the control unit: silicone rubber

**Conductor connection:**

compressed or screwed

**Optional accessories:**

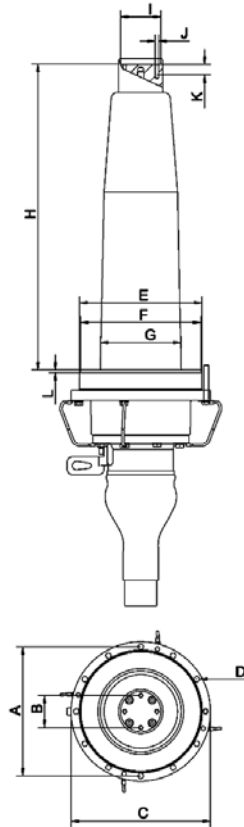
adapter plate, corona shield

**Note:**

The horizontal version is equipped with an expansion vessel.  
Upside-down version on request.  
Optional material is not within scope of supply and has to be ordered separately.

<b>Max. operating voltage</b>	<b>U<sub>m</sub> (kV)</b>	72.5	123	145	170	245
<b>Standards</b>		IEC60840 EN50299	IEC60840 EN50299	IEC60840 EN50299	IEC60840 EN50299	IEC62067 EN50299
<b>Rated voltage</b>	<b>U (kV)</b>	60 - 69	110 - 115	132 - 138	150 - 161	220 - 230
<b>Rated lightning impulse withstand voltage (BIL)</b>	<b>(kV)</b>	325	550	650	750	1050
<b>Partial discharge measurement</b>	<b>(pC)</b>	< 5	< 5	< 5	< 5	< 5

ESU72



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)
ESU72-H	95-2000	37 - 84	120	58.0
ESU72-V	95-2000	37 - 84	120	52.0

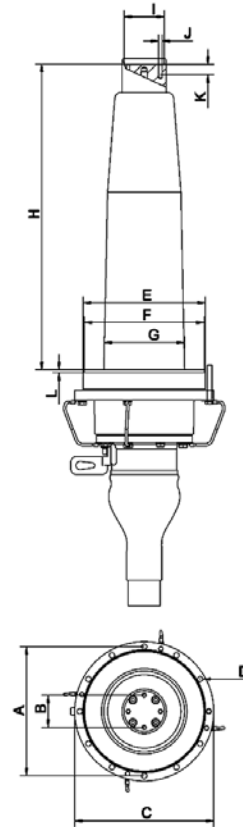
Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
ESU72-H	270	80 ± 0,3	295	8 x Ø11	255	245 ± 0,3	184	583 ± 1	100	4 x M10	24	7
ESU72-V	270	80 ± 0,3	295	8 x Ø11	255	245 ± 0,3	184	583 ± 1	100	4 x M10	24	7





1 ESU123

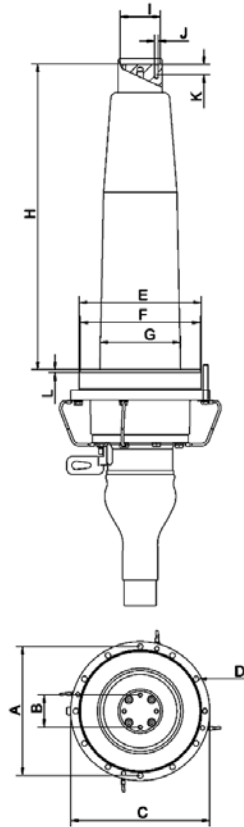
2



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	
ESU123-H	150-2000	42 - 99	120	78.0	1
ESU123-H	150 - 2500	84 - 110	170	86.0	1
ESU123-V	150-2000	42 - 99	120	72.0	2
ESU123-V	150 - 2500	84 - 110	170	80.0	2

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
ESU123-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESU123-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7
ESU123-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESU123-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7

ESU145



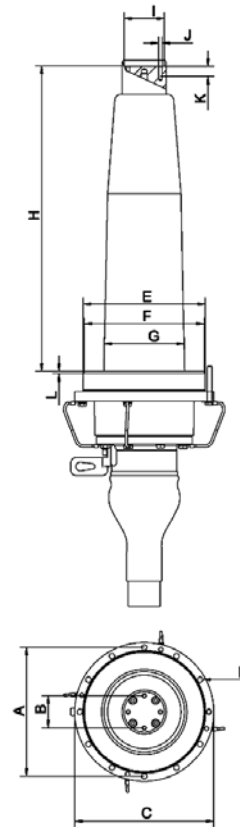
Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	
ESU145-H	150-2000	46 - 99	120	78.0	1
ESU145-H	150 - 2500	84 - 110	170	86.0	1
ESU145-V	150-2000	46 - 99	120	72.0	2
ESU145-V	150 - 2500	84 - 110	170	80.0	2

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
ESU145-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESU145-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7
ESU145-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESU145-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7



**1** ESU170

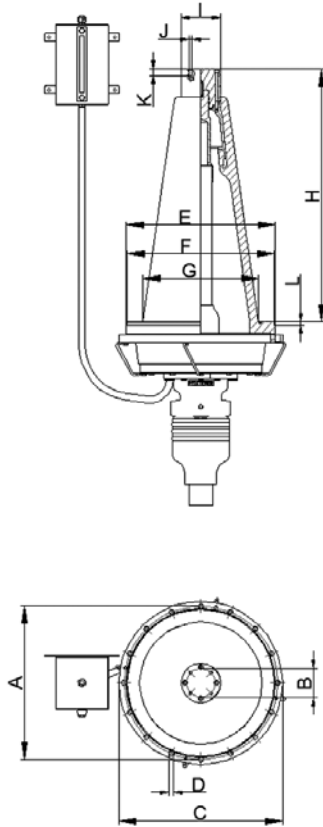
**2**



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)	
ESU170-H	150-2000	52 - 99	120	78.0	<b>1</b>
ESU170-H	150 - 2500	84 - 110	170	86.0	<b>1</b>
ESU170-V	150-2000	52 - 99	120	72.0	<b>2</b>
ESU170-V	150 - 2500	84 - 110	170	80.0	<b>2</b>

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
ESU170-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESU170-H	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7
ESU170-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	200	757 ± 1	100	4 x M10	24	7
ESU170-V	320	80 ± 0,3	345	12 x Ø13,5	303	298 ± 0,3	215	757 ± 1	100	4 x M10	24	7

**ESU245**



Product designation	Conductor cross-section area (mm <sup>2</sup> )	Diameter across cable insulation (prepared) (mm)	Max. diameter across cable outer sheath (mm)	Net weight approx. (kg)
ESU245-H/V	240 - 2500	69 - 118	170	170.0

Product designation	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	J (mm)	K (mm)	L (mm)
ESU245-H/V	585 ± 0,5	110 ± 0,3	620	16 x Ø17,5	565	559 ± 0,3	439	960 ± 2	150	4 x M12	24	10

IV  
ESU

**PFISTERER**  
**Kontaktsysteme GmbH**  
Rosenstraße 44  
73650 Winterbach  
**Germany**  
Phone +49 7181 7005 0  
info@pfisterer.de

**PFISTERER IXOSIL AG**  
Gotthardstrasse 31  
6460 Altdorf  
**Switzerland**  
Phone +41 41 874 75 75  
power@ixosil.ch

**PFISTERER S.A.**  
Av. Velez Sarsfield 464  
C1282AFR Buenos Aires  
**Argentina**  
Phone +54 11 4306 3595  
pfisterer@pfisterer.com.ar

**PFISTERER Ges.m.b.H.**  
Augasse 17  
1090 Wien  
**Austria**  
Phone +43 1 3176531 0  
info@pfisterer.at

**PFISTERER Power Connection  
Systems (Beijing) Co., Ltd.**  
Unit 518, Landmark Tower 2  
8 North Dongsanhuan Road  
Chaoyang District  
100004 Beijing  
**China**  
Phone +86 10 6590 6272 0  
info@pfisterer.cn

**PFISTERER**  
**Representative Office**  
Budova Mediahall  
Bidlaky 20  
63900 Brno  
**Czech Republic**  
Phone +420 533 337 190  
dialog@pfisterer.cz

**PFISTERER SAS**  
35 avenue d'Italie  
BP 10045  
68311 Illzach Cedex  
**France**  
Phone +33 389 319029  
info@pfisterer.fr

**PFISTERER**  
**Kontaktsysteme GmbH**  
**Sales Germany**  
Rosenstraße 44  
73650 Winterbach  
**Germany**  
Phone +49 7181 7005 301  
info@pfisterer.de

**PFISTERER**  
**Representative Office**  
Bég u. 3-5.  
1022 Budapest  
**Hungary**  
Phone +36 1 251 3441  
office@pfisterer.hu

**PFISTERER s.r.l.**  
Via Sirtori 45 d  
20017 Passirana di Rho (MI)  
**Italy**  
Phone +39 02 93158 11  
pfisterer@pfisterer.it

**PFISTERER**  
**Korea Branch**  
Room 1930,  
Kwanghwamun Officia Building  
163 Shinmunro-1ga, Jongno-Gu  
Seoul 110-999  
**Korea**  
Phone +82 2 3276 2630  
info@pfisterer.kr

**PFISTERER Sp. z o.o.**  
ul. Pogodna 10  
05-850 Piotrkówek Mały  
**Poland**  
Phone +48 22 72241 68  
info@pfisterer.pl

**PFISTERER**  
**Representative Office**  
Krasnopresnenskaya nab., 12  
Entrance № 6, office № 921  
123610 Moscow  
**Russia**  
Phone +7 495 258 1350  
info.ru@pfisterer.com

**PFISTERER Komponent &  
System AB**  
Flygfältsgatan 2  
12830 Skarpnäck  
**Sweden**  
Phone +46 8 7240 150  
info.se@pfisterer.com

**PFISTERER**  
**Singapore Branch**  
300 Beach Road  
# 34-05 The Concourse  
Singapore 199555  
**Singapore**  
Phone +65 6346 4042  
info@pfisterer.sg

**PFISTERER (Pty.) Ltd.**  
9 Willowton Road  
Pietermaritzburg 3201  
**South Africa**  
Phone +27 33 397 5400  
pfisterer@iafrica.com

**PFISTERER UPRESA S.A.U.**  
Calle Industria 90-92  
08025 Barcelona  
**Spain**  
Phone +34 93 4367409  
pfisterer.upresa@pfistererupresa.eu

**PFISTERER INTERNATIONAL AG**  
Werkstrasse 7  
6102 Malters, Luzern  
**Switzerland**  
Phone +41 41 4997 474  
export@sefag.ch

**PFISTERER**  
**Representative Office**  
P.O. Box 184090,  
Gate 7, Floor 3  
Hamarain Center,  
Dubai  
**United Arab Emirates**  
Phone +971 4 2690147  
info@pfisterer.ae

**PFISTERER Ltd.**  
Unit 9, Ellesmere Business Park  
Off Swingbridge Road  
Grantham NG31 7XT  
Lincolnshire  
**United Kingdom**  
Phone +44 1476 578657  
info.uk@pfisterer.com

**PFISTERER**  
**Representative Office**  
7625 Wisconsin Avenue, Suite 306  
Bethesda, MD, 20814  
Maryland  
**USA**  
Phone +1 240 482 4955  
fabrice.jedrej@pfisterer.us