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 nexans



**High Voltage Accessories
up to 72.5 kV**

Technical instructions and application information

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Attention: Before first design in please contact manufacturer.

Impact wrenches have to be approved by Nexans! Depending on different conductor material or conductor type, indicated values may differ from test values acc. to IEC 61238-1. The use of fine stranded conductors has to be approved by Nexans Power Accessories Germany GmbH.

Our responsibilities are only those listed in the latest edition of "General Terms and Conditions for the Supply of Products and Services of the Electrical and Electronics Industry". If requested we provide a copy.

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Nexans Power Accessories Germany GmbH **Specialist for connection technology and cable accessories**

Nexans Power Accessories Germany GmbH has been a leader in pre-assembled cable accessories for more than 55 years. The company is part of the Nexans Power Accessories Business Group and is represented in more than 40 countries worldwide.

A medium-sized enterprise with outstanding know-how in the sector of connection technology, we are embedded in the French Nexans group to complete its portfolio to the global specialist for cables and cabling systems.

Nexans brings energy to life through an extensive range of cables and cabling solutions that deliver increased performance for our customers worldwide. Nexans' teams are committed to a partnership approach that supports customers in four main business areas: Power transmission and distribution (submarine and land), Energy resources (Oil & Gas, Mining and Renewables), Transportation (Road, Rail, Air, Sea) and Building (Commercial, Residential and Data Centers).

Nexans Power Accessories Germany GmbH is specialized in manufacturing of low, medium and high voltage accessories as well as mechanical connectors and cable lugs.

In the headquarters in Hof, the GPH standard product range of compression or mechanical connectors and cable lugs is developed and manufactured as well as customized solutions. At a second location, the focus concentrates on kitting of cable accessories from

1 kV up to 170 kV and the assembly of customized jumper cables for medium voltage applications.

With the brand name Euomold we are a European market leader for medium voltage accessories. Longtime know-how and technological advance in this area was successfully transferred into high voltage applications. We provide a complete range of cold-shrinkable and slip-on accessories, e.g. premoulded terminations and joints for cables and epoxy bushings for transformers and switchgears, up to 170 kV. For low and medium voltage applications, a series of Nexans heat-shrinkable terminations and joints up to 42 kV is available. The product range is completed by dedicated installation tools and customized product trainings in our own premises.

Nexans Power Accessories have set industrial and European product standards. Quality and environmental awareness are vital elements of our corporate philosophy and management system. Besides our certification according to DIN EN ISO 9001 we are acting certified in the scope of environmental protection and industrial safety.



High Voltage Accessories up to 72.5 kV

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R909TB/G

Interface F

Tee connector

72.5 kV
1250 A*

Application

Separable tee shape connector designed to connect polymeric insulated cable to equipment (transformers, switchgears, ...). Also connects cable to cable when using the appropriate mating parts.

Technical characteristics

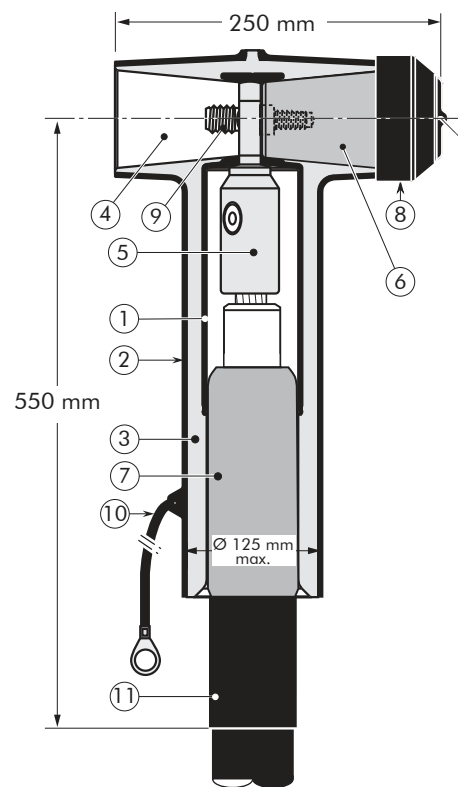
- The thick conductive EPDM jacket provides a total safe to touch screen which ensures safety for personnel.
- Each separable connector is tested for AC withstand and partial discharge prior to leaving the factory.

U (U_m)
60-69 (72.5) kV

Design

1. Conductive EPDM insert
2. Conductive EPDM jacket
3. Insulating EPDM layer moulded between insert and jacket
4. Type F interface ref. CENELEC EN 50180 and 50181
5. Conductor connector (hexagonal crimping or bolted type)
6. Basic insulating plug
7. Cable reducer
8. Conductive EPDM cap
9. Stud + nut + washer
10. Earthing lead
11. Heat-shrinkable sleeve

The screen break design enables cable outer sheath testing without removing or dismantling the connector.



Specifications and standards

The R909TB/G separable tee connector is type tested acc. to IEC 60840.

Separable connector type	Max. operating voltage U _m (kV)	Continuous current I _n (A)	Conductor cross-section** (mm ²)	
			min	max
R909TB/G	72.5	1250*	95	1200

* When installed on an appropriate equipment bushing.

** Indicative for cables with 10 mm insulation wall thickness.

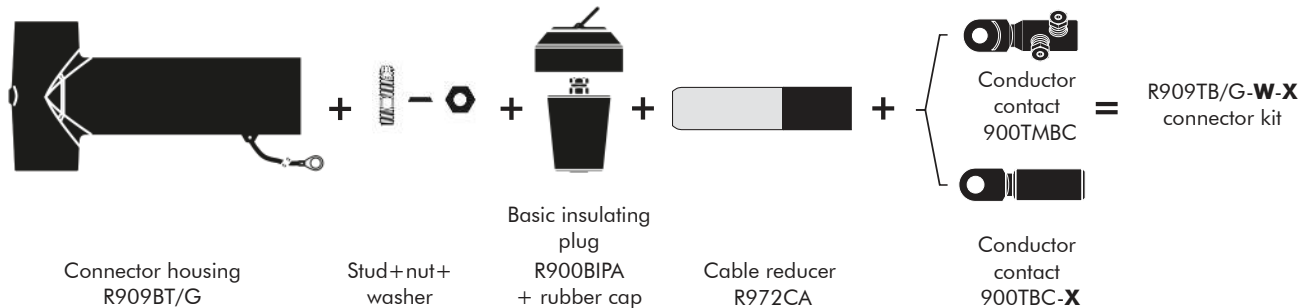
For detailed electrical ratings please see page 29-30.

Kit contents

The complete R909TB/G tee connector kit comprises 1x the following components:

The kit also comprises:

- + installation instructions
- + silicone grease
- + sealing mastic
- + gloves
- + roll adhesive tape
- + heat-shrinkable sleeve



Ordering instructions

To order the tee connector, select the ordering part number which gives you the best centering of your core insulation diameter and substitute **X** using **Table X**, according to your conductor size and type.

Order example:

The copper wire screened cable is 72.5 kV, 800 mm² round stranded aluminium with a diameter over XLPE core insulation of 58 mm after preparation and 50 mm² copper wire screen.
Order
R909TB/G-50-800.1200-14-5
+ 50x10KU-V tee connector kit.

For screen wire cable lug please see page 17-18.

Table W

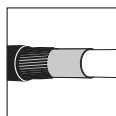
Ordering part number	Ø over core insulation* (mm)	
	min.	max.
3 x R909TB/G-25-X	27	33.5
3 x R909TB/G-30-X	32.5	41
3 x R909TB/G-37-X	40	48
3 x R909TB/G-43-X	46.5	51
3 x R909TB/G-46-X	49.5	55
3 x R909TB/G-50-X	54	59
3 x R909TB/G-53-X	57	64
3 x R909TB/G-58-X	62.5	68

* after cable preparation

Table X

Conductor size (mm ²)	Aluminium and Copper conductor (RMV)		Copper conductor (RMV)
	Bolted		DIN hexagonal
95	95.240-14-5	185.400-14-5	95(K)M-11-2
120			120(K)M-11-2
150			150(K)M-11-2
185	400.630-14-5	800.1200-14-5	185(K)M-11-2
240			240(K)M-11-2
300			300(K)M-11-2
400	800.1200-14-5	800.1200-14-5	400(K)M-11-2
500			500(K)M-11-2
630			630(K)M-11-2
800	800.1200-14-5	800.1200-14-5	800(K)M-11-2
1000			1000(K)M-11-2
1200			1200(K)M-11-2

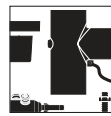
RMV: round stranded compacted conductors



For use with copper wire screened cables. No further earthing device is necessary.



For use with other cable types. Please contact our representative.



Components can be ordered individually.



When installed on an appropriate equipment bushing: 1250 A continuously.

R909PB/G Coupling connector for 909TB/G tee connector

72.5 kV
1250 A*
1800 A**

Application

Separable coupling connector (bolted type) for dual cable arrangement. It has been designed to be used with R909TB/G separable tee connector. The arrangement might be extended by multiple coupling connectors.

Technical characteristics

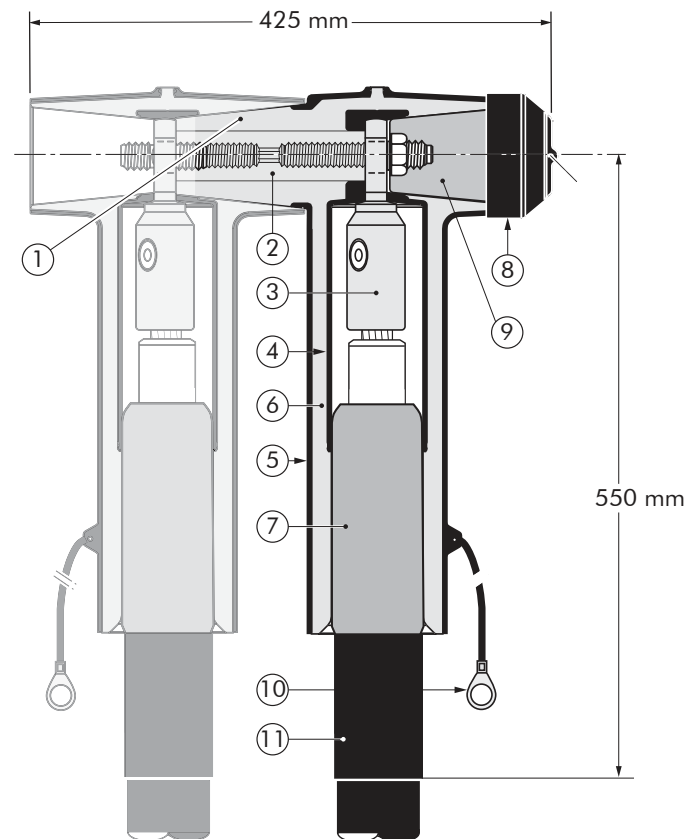
- The thick conductive EPDM jacket provides a total safe to touch screen which ensures safety for personnel.
- Each separable connector is tested for AC withstand and partial discharge prior to leaving the factory.

U (U_m)
60-69 (72.5) kV

Design

1. Interface designed to fit R909TB/G
2. Bus for R909PB/G (contact rod and stud)
3. Conductor connector (hexagonal crimping or bolted type)
4. Conductive EPDM insert
5. Conductive EPDM jacket
6. Insulating EPDM layer moulded between the insert and the jacket
7. Cable reducer
8. Conductive EPDM cap
9. Basic insulating plug
10. Earthing lead
11. Heat-shrinkable sleeve

The screen break design enables cable outer sheath testing without removing or dismantling the connector.



R909TB/G
Tee connector

R909PB/G
Coupling
connector

Specifications and standards

The R909PB/G coupling connector is type tested acc. to IEC 60840.

Separable connector type	Max. operating voltage U _m (kV)	Continuous current I _n (A)	Conductor cross-section*** (mm ²)	
			min	max
R909PB/G	72.5	1250*/1800**	95	1200

* When installed on an appropriate equipment bushing.

** Daisy chain arrangement.

*** Indicative for cables with 10 mm insulation wall thickness.

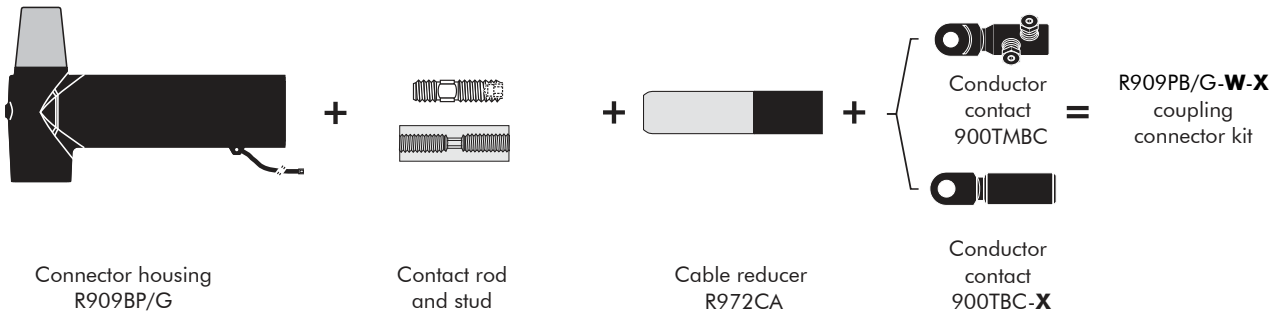
For detailed electrical ratings please see page 29-30.

Kit contents

The complete R909PB/G coupling connector kit comprises 1x the following components:

The kit also comprises:

- + installation instructions
- + silicone grease
- + sealing mastic
- + gloves
- + roll adhesive tape
- + heat-shrinkable sleeve



Ordering instructions

To order the coupling connector, select the ordering part number which gives you the best centering of your core insulation diameter and substitute **X** using **Table X**, according to your conductor size and type.

Order example:

The copper wire screened cable is 72.5 kV, 800 mm² round stranded aluminium with a diameter over XLPE core insulation of 58 mm after preparation and 50 mm² copper wire screen.
Order R909PB/G-50-800.1200-14-5 + 50x10KU-V coupling connector kit.

For screen wire cable lug please see page 17-18.

Table W

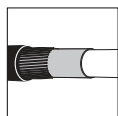
Ordering part number	Ø over core insulation* (mm)	
	min.	max.
3 x R909PB/G-25-X	27	33.5
3 x R909PB/G-30-X	32.5	41
3 x R909PB/G-37-X	40	48
3 x R909PB/G-43-X	46.5	51
3 x R909PB/G-46-X	49.5	55
3 x R909PB/G-50-X	54	59
3 x R909PB/G-53-X	57	64
3 x R909PB/G-58-X	62.5	68

* after cable preparation

Table X

Conductor size (mm ²)	Aluminium and Copper conductor (RMV)		Copper conductor (RMV)
	Bolted		DIN hexagonal
95	95.240-14-5	185.400-14-5	95(K)M-11-2
120			120(K)M-11-2
150			150(K)M-11-2
185	400.630-14-5	800.1200-14-5	185(K)M-11-2
240			240(K)M-11-2
300			300(K)M-11-2
400	800.1200-14-5	1200(K)M-11-2	400(K)M-11-2
500			500(K)M-11-2
630			630(K)M-11-2
800	1200(K)M-11-2	1200(K)M-11-2	800(K)M-11-2
1000			1000(K)M-11-2
1200			1200(K)M-11-2

RMV: round stranded compacted conductors



For use with copper wire screened cables. No further earthing device is necessary.



For use with other cable types. Please contact our representative.



Components can be ordered individually.



When installed on an appropriate equipment bushing: 1250 A continuously.



When in a daisy chain arrangement or similar: 1800 A continuously.

900SA-CD

Interface F

Surge arrester

72.5 kV

Application

Surge arrester designed to protect 72.5 kV class components, including transformers, equipment, cable and accessories from high voltage surges resulting from lightning or switching.

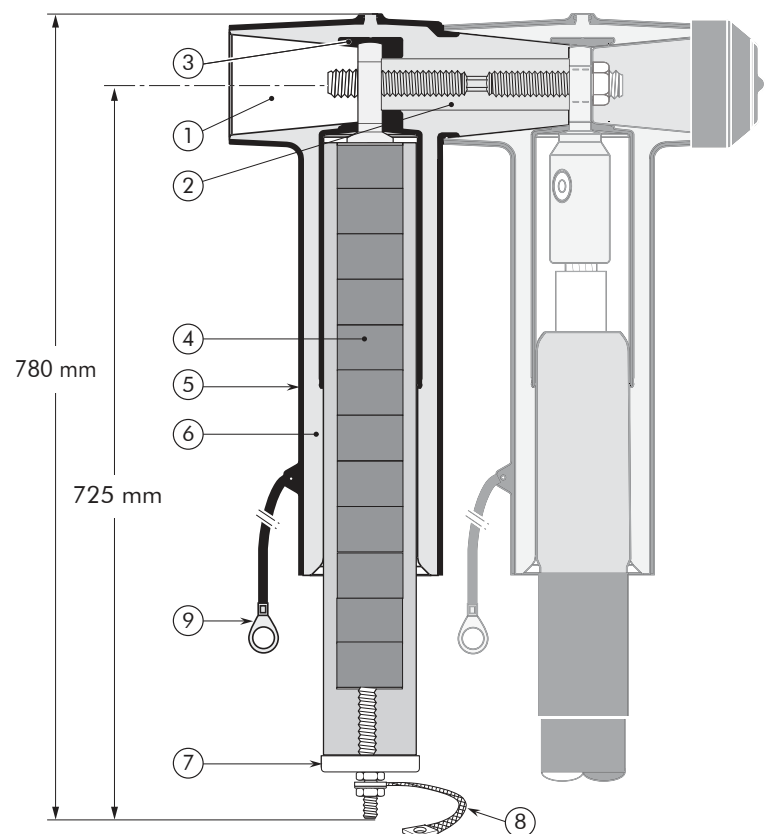
Technical characteristics

- This surge arrester is a metal oxide varistor surge arrester in an elbow configuration.
- Each separable surge arrester is tested for AC withstand and partial discharge prior to leaving the factory.

U (U_m)
60-69 (72.5) kV

Design

1. Type F interface ref. CENELEC EN 50180 and 50181
2. Bus for 909PB/G (contact rod and stud)
3. Conductive EPDM insert
4. Metal oxide valve elements
5. Conductive EPDM jacket
6. Insulating EPDM layer moulded between the insert and the jacket
7. Steel cap
8. Earthing connection
9. Earthing lead



It has been designed to be used with the R909TB/G separable tee connector.

Specifications and standards

The 900SA-CD surge arresters meet the test requirements of IEC 60099-4 and EN 60099-4.

Surge arrester type	Nominal discharge current I _n (kA)	Rated voltage U _r (kV)	Max. continuous operating voltage* U _c (kV)	I _{sc} Rated short-circuit current (kA, 0.2s)
900SA-10-74-CD20	10	74	59.2	20
900SA-10-74-CD31.5	10	74	59.2	31.5

* Other voltage on request.

For detailed electrical ratings please see page 29-30.

Kit contents

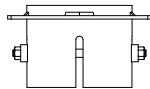
The complete 900SA-CD surge arrester kit comprises 1x the following components:

The kit also comprises:
 + installation instructions
 + silicone grease and nylon vent rod
 + gloves and wiper
 + contact rod and stud



Surge arrester
900SA-CD

+



Support
900SA

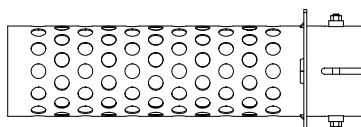
=

900SA-10-74-CD20
surge arrester kit



Surge arrester
900SA-CD

+



Cover
900SA

=

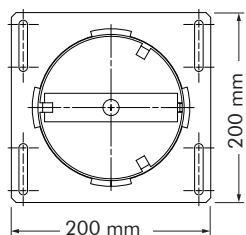
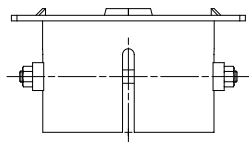
900SA-10-74-CD31.5
surge arrester kit

Ordering instructions

For rated short-circuit current 31.5 kA, 0.2s order the surge arrester kit 900SA-10-74-CD31.5.

Support 900SA

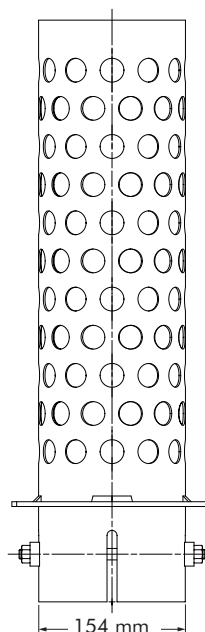
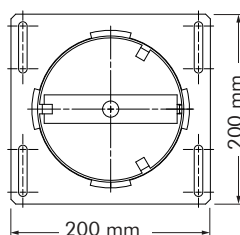
To support the weight of the surge arrester.



Cover 900SA

To obtain an increased short circuit level up to 31.5 kA.

To support the weight of the surge arrester.



R900BE/G

Interface F

Bushing extender

Up to 72.5 kV
1250 A*

Application

The separable bushing extender R900BE/G provides an extension piece to allow cables to stand away from equipment (transformers, switchgears, ...). It is used in conjunction with R909PB/G, supplied with an earthing lead.

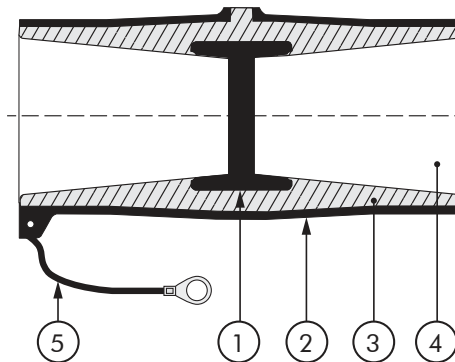
Technical characteristics

- The thick conductive EPDM jacket provides a total safe to touch screen which ensures safety for personnel.
- Each bushing extender is tested for AC withstand and partial discharge prior to leaving the factory.

$U (U_m)$
60-69 (72.5) kV

Design

1. Conductive EPDM insert
2. Conductive EPDM jacket
3. Insulating EPDM layer moulded between insert and jacket
4. Type F interface ref. CENELEC EN 50180 and 50181
5. Earthing lead



For use with connectors, bushings and connecting plugs with interface F as described by CENELEC EN 50180 and 50181.

* When installed on an appropriate equipment bushing.

R900DR-B/G

Interface F

Dead-end receptacle

Up to 72.5 kV

Application

Fits over a bushing with a type F interface to provide dead-end facility. The dead-end receptacle R900DR-B/G is supplied with an earth lead.

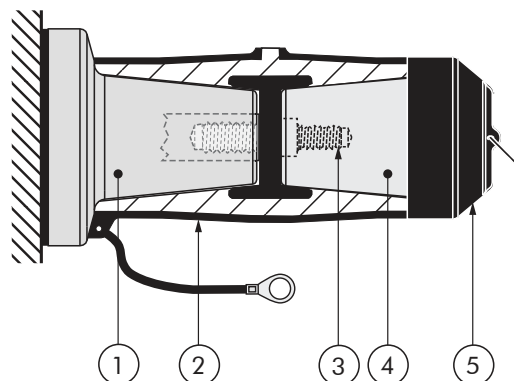
Technical characteristics

- Each dead-end receptacle is tested for AC withstand and partial discharge prior to leaving the factory.

$U (U_m)$
60-69 (72.5) kV

Design

1. Type F interface ref. CENELEC EN 50180 and 50181
2. Bushing extender R900BE/G
3. Stud + nut + washer
4. Basic insulating plug
5. Conductive EPDM cap

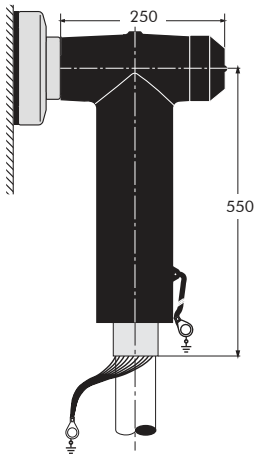


Order R900DR-B/G for 72.5 kV applications.

POSSIBLE ARRANGEMENTS

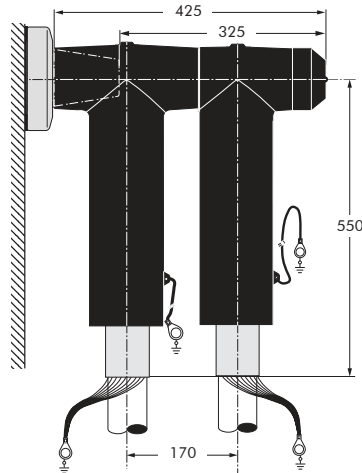
Interface F

R909TB/G
Single cable arrangement



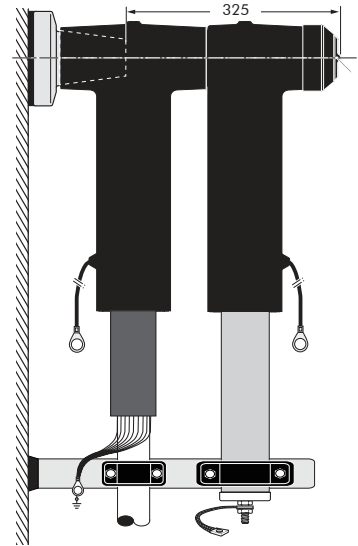
Tee connector
R909TB/G

R909TB/G + R909PB/G
Dual cable arrangement



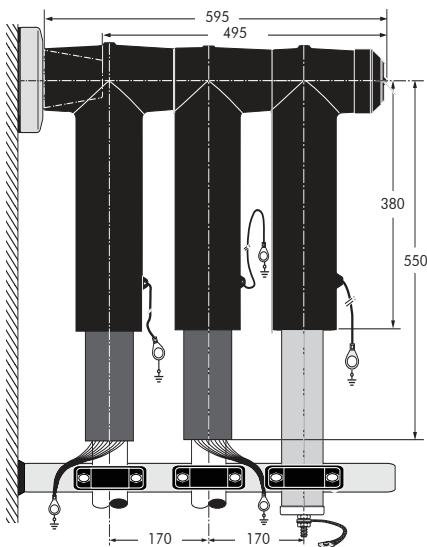
Tee connector R909TB/G Coupling connector R909PB/G

R909TB/G + 900SA-CD
Single cable arrangement with surge arrester



Tee connector R909TB/G Surge arrester 900SA-CD

R909TB/G + R909PB/G + 900SA-CD
Dual cable arrangement with surge arrester



Tee connector R909TB/G Coupling connector R909PB/G Surge arrester 900SA-CD

R900AR-6 / R900AR-8 Interface F Equipment bushing

Application

Moulded epoxy insulated bushings for use in equipment, typically for transformers, switchgear, capacitors...

Technical characteristics

Each bushing is tested for AC withstand and partial discharge prior to leaving the factory.

**72.5 kV
Up to 630 A**

**U (U_m)
60-69 (72.5) kV**

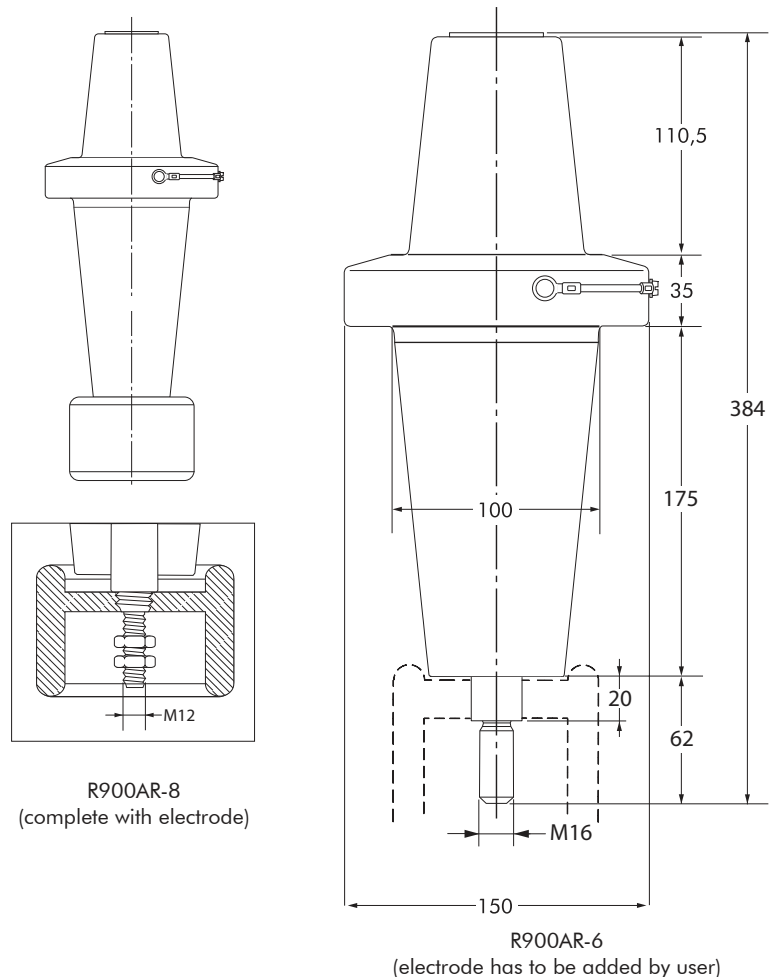
Specifications and standards

The bolted type equipment bushings R900AR-X/J are moulded epoxy insulated parts with type F interface acc. to CENELEC EN 50180.

The bushing R900AR-X/J is type tested acc. to IEC 60840 and IEC 60137.

Note:

The connection has to be encapsulated by an electrode of adequate design.

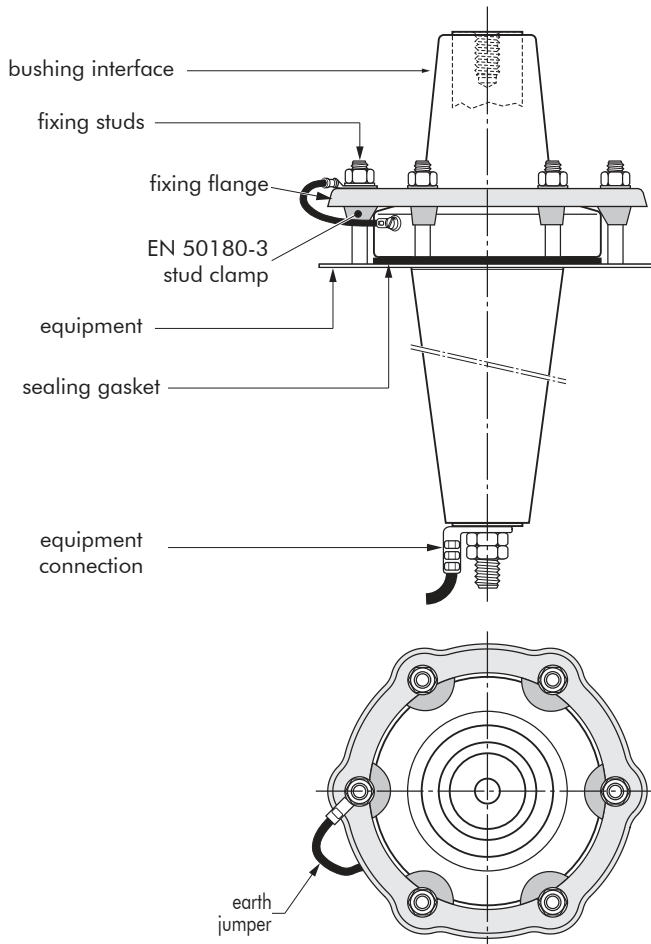


Equipment bushing type	Interface type	Max. operating voltage U _m (kV)	Current I _r (A)
R900AR-6/J	F2	72.5	630
R900AR-8/J	F2	72.5	630

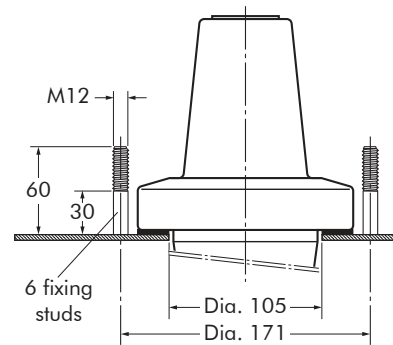
For detailed electrical ratings please see page 29-30.

FIXINGS FOR EQUIPMENT BUSHINGS

R900AR-X/J Bushing



Fixing dimensions



Bushing clamping kit

To order the bushing clamping kit with DIN style fixing flange, simply specify KBCDS-400.

- Contents:
- 1 x fixing flange
DIN style
 - 6 x stud clamp
 - 1 x sealing gasket

AFN72

Slip-on termination
for indoor and outdoor use

72.5 kV

Application

Dry type, non size sensitive terminations for use indoors, outdoors and exposed to prolonged sunshine and other weather conditions. To connect polymeric insulated cable to equipment and for the outdoor terminating onto overhead lines or bus bars.

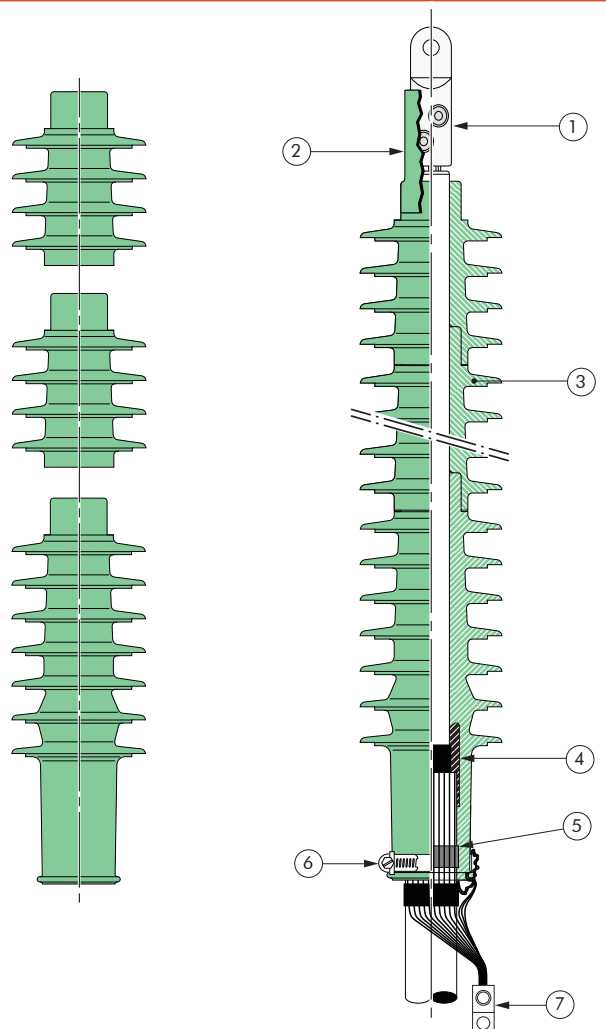
Technical characteristics

- Its compact and modular design supports the suitability for different pollution levels.
- All termination housings are tested for AC withstand and partial discharge prior to leaving the factory.

$U (U_m)$
60-69 (72.5) kV

Design

1. Longitudinally sealed mechanical cable lug (topbolt or crimped cable lugs available on request)
2. Water sealing cover
3. Silicone shed modules providing different pollution levels
4. Silicone housing with sheds and integrated conductive silicone rubber insert providing stress relief for the cable
5. Water sealing mastic
6. Earthing clamp
7. Earthing lug



Specifications and standards

The AFN72 slip-on termination is type tested acc. to IEC 60840, and meets the requirements of IEC/TS 60815-3; SPS class d and e.

According to IEC 60112:
CTI > 600

Termination type	Max. operating voltage U_m (kV)	Ø over core insulation (mm)		Conductor cross-section* (mm ²)	
		min.	max.	min.	max.
AFN72	72.5	31,5	82	95	2000

* Indicative for cables with 10 mm insulation wall thickness.

For detailed electrical ratings please see page 29-30.

01-04-2015 Version 1

Kit contents

A kit always comprises:

- + 1 termination housing
- + modules with sheds
- + conductor cable lug
- + screen wire cable lug
- + water sealing sleeve
- + installation instructions
- + special lubricant
- + wiper
- + earthing clamp
- + water sealing mastic
- + adhesive tape

Ordering instructions

To order the termination, select the ordering part number which gives you the best centering of your core insulation diameter and substitute **X** using **Table X**, according to your conductor cable lug size and type and add the screen wire cable lug.

Order example:

One outdoor termination for a 72.5 kV - 630 mm² stranded aluminium cable with 50 mm² copper wire screen to be used

in pollution class environment d. The diameter over core insulation is 54 mm.

Order

AFN72-6-D + C400-630x16 + 1070/1x10MS

For screen wire cable lug please see page 17-18.

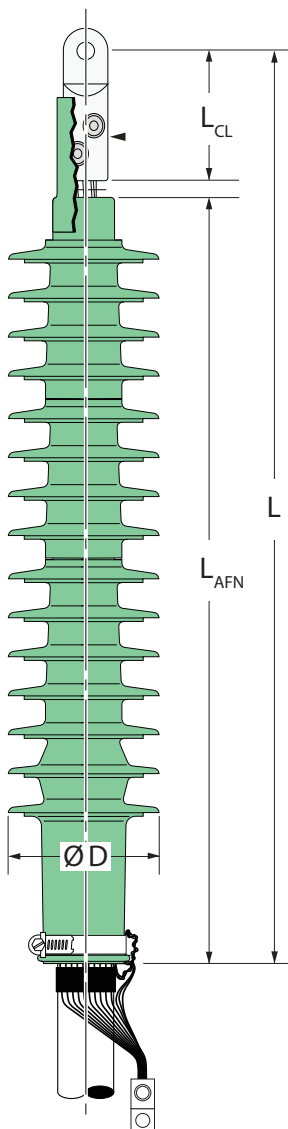


Table 1 - Classification and dimensions

Ordering part number termination	Ø over core insulation* (mm)		Ø D (mm)	Length L _{AFN} (mm)	Creepage distance (mm)	Site pollution survey (SPS) class**
	min.	max.				
AFN72-4-D-X	31.5	41	127	915	1975	d (Heavy)
AFN72-4-E-X	31.5	41	127	1040	2300	e (Very heavy)
AFN72-5-D-X	39.0	47	127	915	1975	d (Heavy)
AFN72-5-E-X	39.0	47	127	1040	2300	e (Very heavy)
AFN72-6-D-X	46.0	55	127	915	1975	d (Heavy)
AFN72-6-E-X	46.0	55	127	1040	2300	e (Very heavy)
AFN72-7-D-X	53	60	172	805	1965	d (Heavy)
AFN72-7-E-X	53	60	172	965	2475	e (Very heavy)
AFN72-8-D-X	59	67	172	805	1965	d (Heavy)
AFN72-8-E-X	59	67	172	965	2475	e (Very heavy)
AFN72-9-D-X	66	73	172	805	1965	d (Heavy)
AFN72-9-E-X	66	73	172	965	2475	e (Very heavy)
AFN72-10-D-X	72	82	172	805	1965	d (Heavy)
AFN72-10-E-X	72	82	172	965	2475	e (Very heavy)

* after cable preparation

** acc. to IEC/TS 60815-3: 2008

To determine the total termination length:

$$\text{Total Length } L = L_{AFN} + L_{CL} + 10 \text{ mm}$$

For detailed information see next pages.

Mechanical conductor cable lug with shear-off-head bolts



C95-240

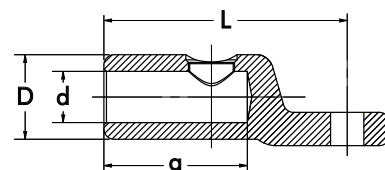


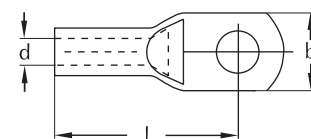
Table X

Ordering part number mechanical cable lug	Conductor cross-section Aluminium (mm ²)		Conductor cross-section Copper (mm ²)	Length L _{CL}	Dimensions (mm)			Palm hole diameter (mm)
	rm(v)	re	rm(v)		d	D	a	
C95-240 x 16	95-240	95-240	95-240	95	20	33	56	17
C185-400 x 16	185-400	185-400	185-400	120	26	42	82	17
C400-630 x 16	400-630	400-630	400-630	130	34	52	94	17
C630-1000 x 20	630-1000	630-1000	630-1000	165	41	65	105	21
C800-1200 x 20	800-1200	800-1200	800-1000	170	45	72	105	21
Other cable lugs on request								

Screen wire cable lug, Cu compression type acc. to DIN 46235



KU-V



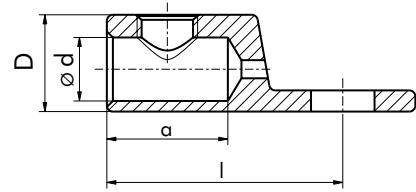
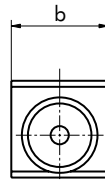
Ordering part number screen wire cable lug (compression type)	Conductor cross-section (mm ²) strand.	Dimensions (mm)			Palm hole diameter (mm)	Die code no.	Number of compressions	
		d	l	b			mech.	hydr.
16 x 10 KU-V 16 x 12 KU-V ¹⁾	16	5.5	36	17.0 21.0	10.5 13.0	8	2	1
25 x 10 KU-V 25 x 12 KU-V	25	7.0	38	17.0 19.0	10.5 13.0	10	2	1
35 x 10 KU-V 35 x 12 KU-V	35	8.2	42	19.0 21.0	10.5 13.0	12	2	1
50 x 10 KU-V 50 x 12 KU-V	50	10.0	52	22.0 24.0	10.5 13.0	14	3	1
70 x 10 KU-V 70 x 12 KU-V	70	11.5	55	24.0 24.0	10.5 13.0	16	3	1
95 x 10 KU-V 95 x 12 KU-V	95	13.5	65	28.0 28.0	10.5 13.0	18	4	2
120 x 10 KU-V 120 x 12 KU-V	120	15.5	70	32.0 32.0	10.5 13.0	20	4	2

¹⁾ These cable lugs differ from DIN 46235.

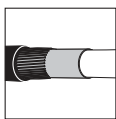
Mechanical screen wire cable lug with shear-off-head bolts



1070/1x...MS



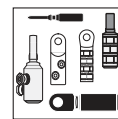
Ordering part number screen wire cable lug	Copper in (mm ²)	Flat wire Aluminium		Dimensions mm					Palm hole dia. (mm)
		Quantity	Dimension	l	D	b	d	a	
1070/1 x 10 MS	10-50	3-13	1 mm x 5,2 mm	39	16	16	10,5	20	10,5
1070/1 x 12 MS	10-50	3-13	1 mm x 5,2 mm	41	16	19	10,5	20	13



For use with copper wire screened cables. No further earthing device is necessary.



For use with other cable types. Please contact our representative.



All accessories available with mechanical or compression conductor connector.

FEV72.5

Outdoor termination with composite insulator for single core XLPE HV cables

Application

FEV72.5 terminations are suitable for outdoor installation on single core XLPE cables. This high quality outdoor termination with composite insulator filled with insulating fluid, is optionally equipped with arcing horn and flat terminal connector.

Technical characteristics

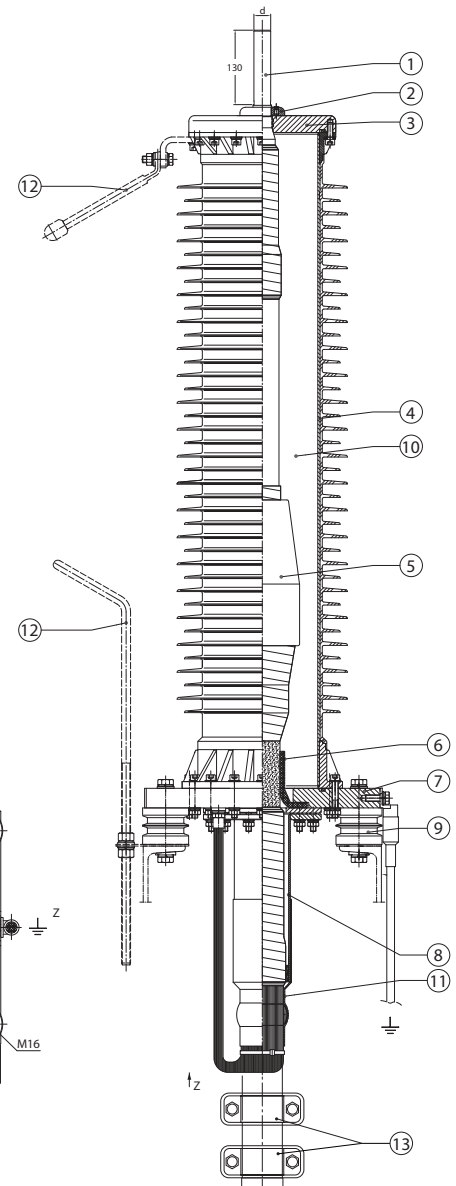
- Optimised for mechanical connecting stalk
- Premoulded and factory tested EPDM stress cone
- Insulated arrangement, disconnectable earth lead
- Frequency 50 Hz, conductor cross-section 185 - 2000 mm²
- For diameter over core insulation up to 81 mm

72.5 kV

U (U_m)
60-69 (72.5) kV

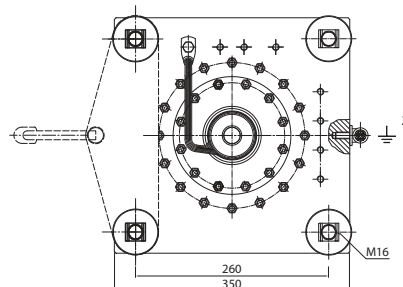
Design

1. Mechanical connecting stalk
2. Lock nut
3. Head plate
4. Composite insulator
5. EPDM stress cone
6. Sealing flange
7. Base plate
8. Cable gland
9. Support insulator
10. Silicone oil
11. Heat-shrinkable tube
12. Arcing horn (optional)
13. Cable clamp (set includes 2 pieces)



Connecting stalk

Diameter Ø d (mm)	Conductor cross-section (mm ²)
Ø 30	185 - 630
Ø 40	800 - 1200
Ø 50	1400 - 1800
Ø 60	2000



Specifications and Standards

All high voltage accessories are in compliance with national and international specifications and can be adapted to special customer

requirements. Therefore, all technical specification are purely for information purposes only. For your specific requirements, please do not hesitate to contact us.

International:
IEC 60840

Termination type	Max. operating voltage (kV)	Height (mm)	Weight per piece (kg)	Oil volume (l)	Creepage distance (mm)
FEV72,5-1.8VIn	72.5	1145	60	15	1800
FEV72,5-2.5VIn	72.5	1168	65	14	2560

Other variants available on request.

For detailed electrical ratings please see page 29-30.

Premoulded EPDM Stress Cones (ESC-Series)



Application

Premoulded EPDM stress cones are used for more than 30 years on cables with extruded insulation. Euromold's ESC range of high voltage stress cones is designed based on the long experience with moulded dielectrical components. The stress control is provided by a semi-conductive EPDM deflector on which the insulating part of the stress cone is moulded under high pressure. Stress cones are suitable to terminate cables with extruded insulation from 72.5 kV up to 550 kV in insulators filled with insulating fluid (gas or oil).

Specifications and Standards

ESC series EPDM stress cones have been qualified as part of outdoor, switchgear and transformer termination.

International:
IEC 60840, IEC 62067

National:
DIN VDE 0276-632

Stress cone ESC-Series (Size)	Ø over core insulation* (mm)	Conductor cross-section 72 kV cable [t _{iso} = 10 mm] (mm)
E0	35 - 42	120 - 240
E1	41 - 48	240 - 400
E2	47 - 55	400 - 630
E3	53 - 61	630 - 1000
E4	60 - 72	1000 - 1600
E5	70 - 81	1600 - 2000

01-04-2015 Version 1

72MSJ Slip-on single core straight joint with mechanical connectors 72.5 kV

Application

Non size sensitive slip-on single core straight joint made of silicone, optimized for mechanical connectors. For jointing copper wire screened polymeric cable to be laid in air or directly buried. The product is fully screened and fully submersible.

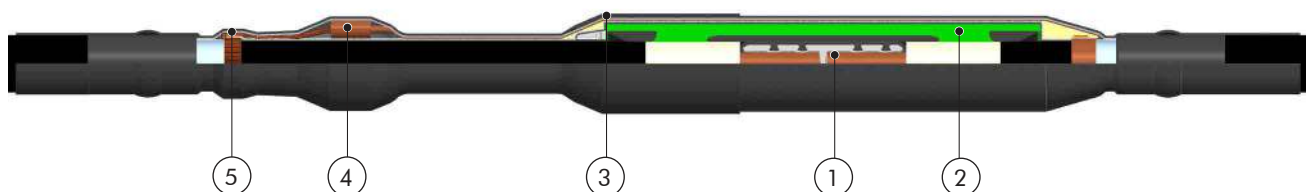
Technical characteristics

- All joint bodies are tested for AC withstand and partial discharge prior to leaving the factory.
- Outer cover made of heat-shrinkable tubes

U (U_m)
60-69 (72.5) kV

Design

1. Mechanical conductor connector
2. Premoulded silicone joint body
3. Heat-shrinkable protective cover
4. Mechanical screen wire connector
5. Vapour barrier



Specifications and standards

The slip-on single core straight joint 72MSJ is type tested acc. to IEC 60840.

Straight joint type	Max. operating voltage U _m (kV)	Ø over core insulation (mm)		Conductor cross-section* (mm ²)
		min	max	
72MSJ-3	72.5	34,5	47	120 – 400
72MSJ-4	72.5	47	63	400 – 1000

* Indicative for cables with 10 mm insulation wall thickness.

For detailed electrical ratings please see page 29-30.

Kit contents

A kit always comprise:

- 1 x mechanical conductor connector
- 1 x premoulded joint body
- 1 x mechanical screen connector
- 1 x Vapor barrier sleeve
- + Semi-conductive tape
- + Copper woven fabric tape
- + Adhesive tape
- + Sealing mastic
- + Heat-shrinkable tubes
- + Installation instruction

Ordering instructions

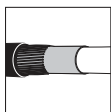
To order the joint, select the joint type which gives you the best centering of your core insulation diameter and add the conductor connector and the screen wire connector.

Order example:

One straight joint for a 72.5 kV XLPE insulated cable with 630 mm² aluminum stranded conductor and 50 mm² copper wire screen. The diameter over core insulation is 54 mm.

Order

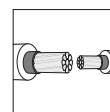
72MSJ-4+M400.630+D25.150



For use with copper wire screened cables. No further earthing device is necessary.



For use with other cables types. Please contact our representative.



Joining cables of different sizes possible.

72MSJ-x-SB

Slip-on single core straight joint with mechanical connectors and integrated screen sectionalizing for cross-bonding application

72.5 kV

Application

Non size sensitive slip-on single core straight joint made of silicone, optimized for mechanical connectors. For jointing copper wire screened polymeric cable to be laid in air or directly buried. The product is fully screened and fully submersible.

Technical characteristics

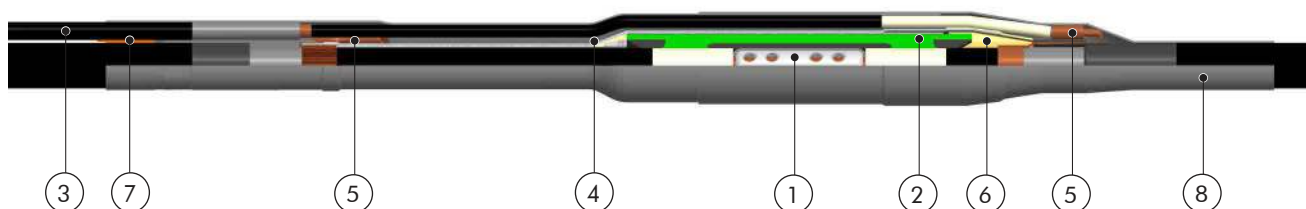
- All joint bodies are tested for AC withstand and partial discharge prior to leaving the factory.
- Outer cover made of heat-shrinkable tubes
- Also for single-bonding-cables available

U (U_m)

60-69 (72.5) kV

Design

1. Mechanical conductor connector
2. Premoulded silicone joint body
3. Coaxial cross-bonding cable
4. Vapour barrier
5. Mechanical screen wire connector
6. Shield break
7. Branch clip
8. Heat-shrinkable protective cover



Specifications and standards

The slip-on single core straight joint 72MSJ-x-SB is type tested acc. to IEC 60840.

Straight joint type	Max. operating voltage U _m (kV)	Ø over core insulation (mm)		Conductor cross section* (mm ²)
		min	max	
72MSJ-3-SB	72.5	34,5	47	120 – 400
72MSJ-4-SB	72.5	47	63	400 – 1000

* Indicative for cables with 10 mm insulation wall thickness.

For detailed electrical ratings please see page 29-30.

Kit contents

A kit always comprise:

- | | |
|--|----------------------------|
| 1 x mechanical conductor connector | + Copper woven fabric tape |
| 1 x pre-moulded joint body | + Adhesive tape |
| 2 x mechanical screen connector | + Sealing mastic |
| 1 x Vapor barrier sleeve | + Heat-shrinkable tubes |
| 1 x Semi-conductive tape | + Installation instruction |
| 1 x branch clip (2 x for use with single bonding cables) | |

Ordering instructions

To order the joint, select the joint type which gives you the best centering of your core insulation diameter and add the conductor connector and the screen wired connector.

For coaxial cross-bonding cable please indicate: -SB1

Order example:

One straight joint for a 72.5 kV XLPE insulated cable with 630 mm² aluminum stranded conductor and 50 mm² copper wire screen. The diameter over core insulation is 54 mm. Used with coaxial cross-bonding cable with 95 mm² copper conductor.

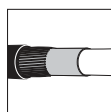
Order
72MSJ-4-SB1
+M400.630+D16.95

For single bonding-cables please indicate: -SB2

Order example:

One straight joint for a 72.5 kV XLPE insulated cable with 630 mm² aluminum stranded conductor and 50 mm² copper wire screen. The diameter over core insulation is 54 mm. Used with two single bonding-cables with 120 mm² copper conductor.

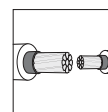
Order
72MSJ-4-SB2
+M400.630+D25.150



For use with copper wire screened cables. No further earthing device is necessary.



For use with other cables types. Please contact our representative.

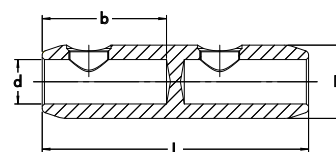


Joining cables of different sizes possible.

Mechanical conductor connector with shear-off-head bolts



M120-300

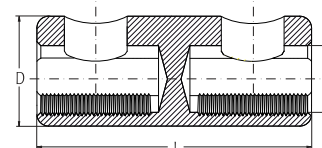


Ordering part number mechanical connector	Conductor cross-section Aluminium (mm ²)		Conductor cross-section Copper (mm ²)	Length L	Dimensions (mm)		
	rm(v)	re	rm(v)		d	D	b
M120-300	120-300	120-300	120-300	142	25	38	67
M185-400	185-400	185-400	185-400	170	26	42	82
M300-500	300-500	300-500	300-500	200	34	52	94
M400-630	400-630	400-630	400-630	200	34	52	94
M630-1000	630-1000	630-1000	630-1000	220	41	65	105
M800/1000	800/1000	800/1000	800/1000	220	37/41	60	105
M800-1200	800-1200	800-1200	800-1200	220	45	72	105

Mechanical screen wire connector with shear-off-head bolts



D25-150 SV-T-V-K

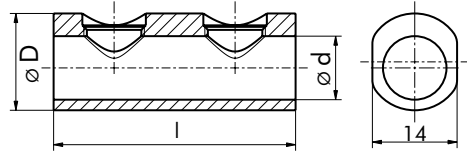


Ordering part number mechanical screen wire connector	Conductor cross-section Copper rm (mm ²)	Number of bolts	Dimensions (mm)		
			L	D	d
D16-95 SV-T-V-K	16-95	2	55	25	14.0
D25-150 SV-T-V-K	25-150	2	70	28	17.0

Mechanical screen wire cable lug with shear-off-head bolts



1070MS



Ordering part number screen wire connector	Copper in (mm ²)	Flat wire Aluminium		Dimensions mm		
		Quantity	Dimension	l	D	d
1070MS	10-50	3-13	1 mm x 5,2 mm	40	16	10,5

Joint installation tool



- Installation tool will be supplied with joint kit
- Slip on tool to slide the joint body onto the prepared cable core



- Assembly rings for pushing the joint body on parking position and to final position
- Support tube keeps the joint body straight while sliding

Cable preparation tools for installation

Multitool LHV1

I Multitool LHV1 Base unit

Article number: 16050050



- Base unit with universal adaptation to different cable diameters (40 mm – 130 mm), adjustable feed position in the range of 0° to 10°, two handles.
- Peel-adapter and blade to peel the extruded semi-conductive layer over XLPE core insulation.
- Set of rollers with a smooth running surface.
- Cutting adapter with 22 mm blade for depositing the XLPE core insulation, incl. one replacement blade.
- Carrying case with appropriate foam pads for base unit plus option 1 and 2.

I Option 1 for LHV1 Base unit

Article number: 16050051



- Peel adapter, with suspension and 1 mm cutting limit for peeling the semi-conductive layer on cable outer sheath.
- Set of rollers with profiled running surface.

I Option 2 for LHV1 Base unit

Article number: 16050052



- Cutting Adapter for grooves
- Profiled knife
- 10 mm grooving knife
- Set of rollers with soft plastic running surface
- Plastic prism

I Multitool LHV1 Tool case, fully assembled



- Carrying case with appropriate foam pads
- fully assembled with base unit, peel and cutting adapter (option 1 und 2)

ELECTRICAL CHARACTERISTICS

R909TB/G, R909PB/G

Connector and coupling connector type	Partial discharge (<5pC)	Power frequency withstand voltage	Lighting impulse voltage (1,2x50µs)	Rated short time withstand current	Rated peak withstand current
R909TB/G	54 kV	90 kV/30 min	325 kV	32.5 kA/3s	84 kA
R909PB/G	54 kV	90 kV/30 min	325 kV	32.5 kA/3s	84 kA

900SA-CD

Surge arrester type	Nominal discharge current I _n	Line discharge class	Energy withstand capability	Partial discharge
900SA-CD	10 kA	2	Min 4.25 kJ/kVUr	<5pC

Surge arrester type	Steep current residual voltage @ 10 kA [1/20 µs] (kV)	Lighting current residual voltage [8/20 µs] (kV)			Switching impulse residual voltage [8/20 µs] (kV)		High current impulse withstand (kA)	Rated short-circuit current I _{sc} (kA, 0.2s)
		@ 5 kA	@ 10 kA	@ 20 kA	@ 250 kA	@ 500 kA		
900SA-10-74-CD20	213	187	197	213	160	163	100	20
900SA-10-74-CD31.5	213	187	197	213	160	163	100	31.5

R900AR-6 / R900AR-8

Equipment bushing type	Partial discharge (<10 pC)	Power frequency withstand voltage	Lighting impulse voltage (1,2x50µs)
R900AR-6	54 kV	90 kV/30 min	325 kV
R900AR-8	54 kV	90 kV/30 min	325 kV

AFN72

Termination type	Partial discharge (<5 pC)	Power frequency withstand voltage	Impulse voltage (1,2x50µs)
AFN72	54 kV	90 kV/30 min	325 kV

| FEV72.5

Termination type	Max. operating voltage U_m (kV)	Impulse voltage (kV)	Nominal leakage path (mm)	Arcing distance (mm)	AC withstand voltage (kV)
FEV72,5-1.8VIn	72.5	325	1860	775	90
FEV72,5-2.5VIn	72.5	325	2560	755	90

| 72MSJ, 72MSJ-x-SB

Joint type	Partial discharge (<5 pC)	Power frequency withstand voltage	Impulse voltage (1,2x50 μ s)
72MSJ	54 kV	90 kV/30 min	325 kV
72MSJ-x-SB	54 kV	90 kV/30 min	325 kV



 Nexans



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