

Cable sealing ends for SF6-insulated switchgear and transformers

Description

- Insulator of cast epoxy resin
- Gland
- Fixing ring
- Crimping connector

XLPE and EPR cable

- One-piece silicone-stress cone
- Silicone oil

Oil-impregnated cable

- Prefabricated, lapped stress cone
- Mineral or synthetic oil

Design in accordance to IEC 60859 or on request custom-tailored.

XLPE and EPR cable

	Max. operating voltage				
	72 kV	170 kV	170 kV	245 kV	420 kV
Type	TF1.72-11 TT1.72-11	TF1.170-11 TT1.170-11	TF1.170-12 TT1.170-12	TF1.245-11 TT1.245-11	TF1.420-11 TT1.420-11
Max. conductor cross-section in mm ²	1000	1000	2000	2000	2000
Max. diameter over insulation in mm	68	80	100	115	115
Lightning impulse voltage in kV	325	750	750	1050	1425
Switching impulse voltage in kV	-	-	-	-	1050
Weight with oil in kg	55	62	65	170	350

Oil-impregnated cable

	Max. operating voltage				
	72 kV	170 kV	170 kV	245 kV	420 kV
Type	OF1.72-11 OT1.72-11	OF1.170-11 OT1.170-11	OF1.170-12 OT1.170-12	OF1.245-11 OT1.245-11	OF1.420-11 OT1.420-11
Max. conductor cross-section in mm ²	1000	1000	2000	2000	2000
Lightning impulse voltage in kV	325	750	750	1050	1425
Weight with oil in kg	55	62	65	170	350
Max. operating pressure in bar	10*	10*	10*	10*	10*

*Higher pressure on demand

Application guidelines

General

Our sealing ends can be installed easily and are operating without any additional devices up to an inclination of 45°.

Special installation position

Inclination over 45° including vertical and upside down installations require an expansion tank. Additional devices can be offered by Brugg including the necessary engineering. Expansion tanks are equipped with pressure gauges with or without electrical contacts.

Special tools

We recommend using our special tools in order to achieve a cost-effective and high-quality installation. The range of such tools has been stripped to the minimum. Brugg is in the position to rent out or sell all of these tools.

Tests

Each of our parts is subjected to our internal QS instructions (ISO 9001). It has to be highlighted that all the one-piece, prefabricated silicone stress cones are 100% routine test in full accordance to IEC 60840 and IEC 62067, respectively. These additional tests allow us to achieve the same reliability as experienced with power cables.

Grounding options

- Solid grounding by 1-phase link box
- Solid grounding by 3-phase link box
- Surge voltage arrester in 1-phase link box
- Surge voltage arrester in 3-phase link box
- Solid grounding by grounding braids at GIS
- Surge voltage arrester installed at GIS



High-voltage cable installations are only as reliable as their terminations and joints. The High-Voltage Accessories Unit of Brugg Cables are constantly aware of this, and they leave nothing to chance.

For more than a century, Brugg has developed and sold joints, sealing ends and clamping devices for the world market. Our products have an excellent reputation for being reliable and easy to assemble. We are certified to ISO 9001 and ISO 14001. Brugg engineers are active around the world, erecting and commissioning our various products. In addition, we test final installations according to current standards with AC or DC voltages. Joints and stress cones based on silicone premoulded rubber are routine-tested according to IEC 60840/62067.

High-Voltage Accessories: Overview of products and services.

Sealing ends for XLPE or LPOF cables.

- Sealing ends for outdoor application (porcelain or composite insulator)
- Sealing ends for GIS
- Sealing ends for transformer connection

Joints for XLPE or LPOF cables.

- Straight-through joints
- Cross-bonding joints
- Transition joints between different types of cables
- Stop joints

Additional accessories for sealing ends and joints.

- Earthing for outdoor sealing ends
- Earthing for GIS and transformer sealing ends
- Earthing for joints
- Cable clamps
- Expansion tanks for oil-filled equipment
- Pressure control cabinets for oil-filled equipment

Partial discharge measurements.

- On-site measurements to check installations and continuous monitoring

Installation.

- Wide range of services from installation supervision to erection, commissioning and up to turnkey installation



Open Air.
Outdoor plant
in operation.



Test passed.
Our test field for type
testing according to IEC.



Around the globe.
Installation and
supervision worldwide.

References

Oil-impregnated cable

Year	Customer	Country of project	Type of insulation	Operating voltage in kV
1970	Letsi 2	Sweden	Oil	400
1982	ABB	Turkey	Oil	380
1986	SCECO	Saudi Arabia	Oil	400
1987	ABB	Saudi Arabia	Oil	230
1994	Utility of Bern	Switzerland	Oil	132
2000	MEW	Kuwait	Oil	132
2000	Transelektro	Kuwait	Oil	132
2000	Alstom	Kuwait	Oil	132
2001	GCEEP	Iraq	Oil	400
2001	Siemens	Saudi Arabia	Oil	380
2002	ESBI	Ireland	Oil	220
2003	Siemens	Kuwait	Oil	275

XLPE and EPR cable

Year	Customer	Country of project	Type of insulation	Operating voltage in kV
1987	Cablex	UAE	Polymer	132
1987	Elektra Birseck	Switzerland	Polymer	60
1993	ABB	Switzerland	Polymer	275
1994	China National El.	Pakistan	Polymer	220
1994	ESBI	Ireland	Polymer	220
1995	Bahwan Eng. Co.	UAE	Polymer	132
1995	VKW	Austria	Polymer	110
1995	SFG Technology	Malaysia	Polymer	132
1996	Plateau El. Contr.	USA	Polymer	150
1996	ILJIN El. Ltd.	Korea	Polymer	154
1996	Pakistan WPD	Pakistan	Polymer	132
1997	Utility Mauvoisin	Switzerland	Polymer	220
1997	Suzhou Industrial Park	China	Polymer	110
1998	Riyadh Cables	Saudi Arabia	Polymer	132
1999	Gansu Electric Power	China	Polymer	400
1999	Sagem SA	China	Polymer	220
1999	VA Tech Elin	Brasil	Polymer	132
2000	General Cable	Spain	Polymer	132
2001	Showa Electric	Taiwan	Polymer	345
2001	Union Fenosa	Spain	Polymer	220
2001	Siemens	Saudi Arabia	Polymer	132
2001	ADWEA	UAE	Polymer	132
2002	Olex Cables	China	Polymer	220
2002	Siemens	UAE	Polymer	220
2003	Foshan Yin Long	China	Polymer	330
2003	ABB	Germany	Polymer	110
2003	BKW	Switzerland	Polymer	132
2003	Saudi Cable	Bahrain	Polymer	220
2003	Siemens	UAE	Polymer	400
2004	China United Electric	China	Polymer	220
2004	New River Electric	Puerto Rico	Polymer	115

This reference list is a small selection out of our database. Additional information is available upon your request.