

# HIGH-VOLTAGE COMPOSITE INSULATORS

Products catalogue  
2022



GLOBAL INSULATOR GROUP



## GLOBAL INSULATOR GROUP

**Global Insulator Group (GIG)** is an international industrial holding investing in production and development in the field of glass, porcelain, composite insulation and line fittings. The basic enterprises – Yuzhnouralsky Insulators and Fittings Plant, YuAIZ AO (Russia), United Porcelain Company LLC (Russia), Kazakh Insulators and Fittings Plant (Kazakhstan), GIG-IRM Glass Insulators (India).

**Suspension disc-type glass insulators** – 13 million units per year. Suspension string toughened glass insulators for HVTL and substations for the voltage range of 35–1150 kV for AC systems and up to 800 kV for DC lines as well.

**Porcelain insulators** – 2.4 million units per year. Porcelain insulators for HVTL for the voltage range of 0.4–20 kV and for 0.4–110 kV substations.

**Composite insulators** – 300 000 units per year. Line suspension insulators for voltage of 10–110 kV, pin insulators for traction lines, line post insulators, post insulators for substations and hardware-controlled insulators for up to 110 kV.

**High-voltage transmission and distribution line fittings** – 4 000 ton per year, for 35–1150 kV HVTL.

More than 300 companies from Russia, the CIS countries and from more than 100 countries of Europe, America, Africa, Middle East, Asian-Pacific region are the constant consumers of the holding's products. The wide geography of deliveries provides manufacturing of the insulation units for different environmental conditions.

The new constructive designs are based on the 60-year-old operating experience in the field of insulation at the important high-voltage objects in harsh environmental conditions. Thanks to constant cooperation of **GIG** technical centre with the TL service departments there were developed the products with special requirements: Super-FOG glass insulators, glass insulators with a waterproof (composite) coating, insulators for DC lines, pin glass-porcelain insulators, seamless composite insulators for HVTL and substations up to 500 kV, line fittings for tight and high-temperature conductors.

The products of **Global Insulator Group** comply with the quality management systems of ISO 9001, 14001, and 18001. The products are subjected to testing in the factory laboratories and international independent test centers to confirm the customer's requirements and national standards.

Technical support of the **GIG** clients is carried out by the technical consulting service "GIG-Operation division".

**Global Insulator Group** specializes in the manufacture of polymer insulators with high-technology equipment.

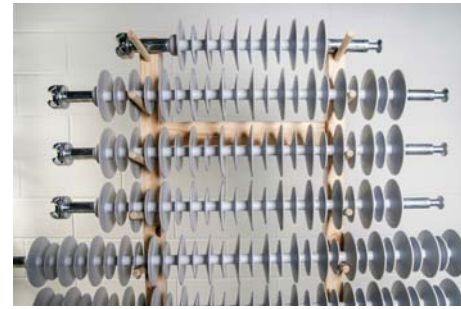
**Main types of the output products:**

- Polymer line suspension insulators for voltage range of 10–110 kV.
- Railway polymer insulators (trolley wire insulators for overhead railroad systems).
- Polymer line post insulators.
- Polymer substation post and apparatus insulators with up to 110 kV voltage.

**Global Insulator Group** use the highest performance technology for silicone rubber based polymer insulators – **HTV** technology (injection molding of rubber with high viscosity under high pressure).

**Advantages of polymer insulators:**

- There is no need in puncture tracing and diagnostics on the insulator since the design eliminates all probable puncture causes.
- Special design of end fittings reduces the possibility of flashover.
- All kinds of end fittings, including stainless steel fittings.
- Any kind of insulator configuration can be developed promptly – mold arrangement is based on mosaic technology.
- Special corrosion-resistant fiberglass.
- 100% laboratory incoming inspection of the components and raw materials.
- High hydrophobicity and tracking resistance of the silicone rubber.
- Extra smooth rubber surface.
- Inclined ribs form dry zone.
- Collet coupling of the end fittings ensures uniform load distribution on fiberglass rods.
- Hot dip galvanizing with coating thickness from 70 µm.

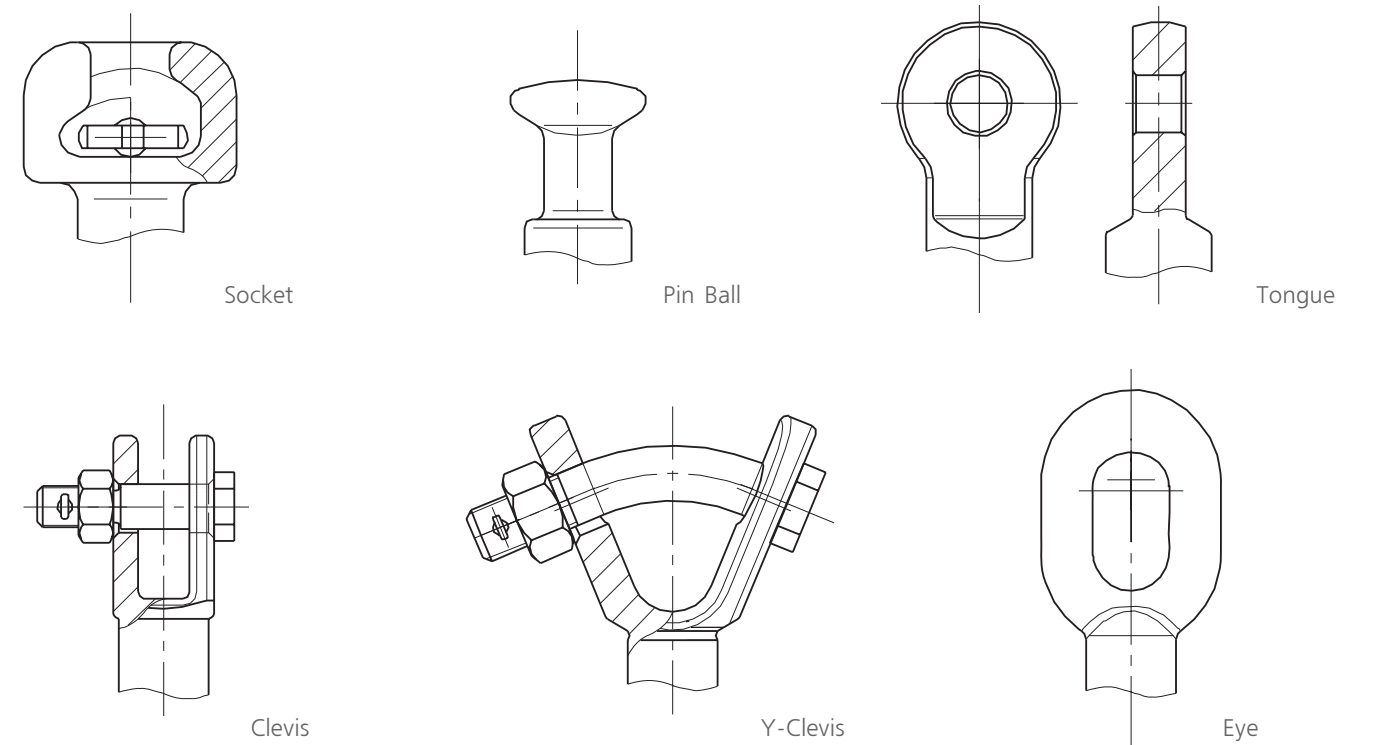


**Line suspension insulators**

Designed for insulating and fixing the wires and ground wire of overhead transmission lines. It is also used in switchgear power stations and AC substations with voltage 10–110 kV and frequency up to 100 Hz, at an ambient temperature from –60°C to +50°C, located at an altitude of 3500 m above sea level, in regions with site pollution severity classes from very light to very heavy according to IEC 60815-1.

Insulators could be furnished with all types of end fittings according to IEC 60120, IEC 60471, IEC 61466. Also the creepage distance could be varied at the customer's request.

**Standard end fittings depending on the class of mechanical load**



Insulator load class	Socket	Pin Ball	Tongue	Clevis	Y-Clevis	Eye
70 kN	S16 (IEC 60120)	B16 (IEC 60120)	T13L (IEC 60471)	C13L (IEC 60471)	Y16 (IEC 61466)	E17 (IEC 61466)
120 kN	S16 (IEC 60120)	B16 (IEC 60120)	T16L (IEC 60471)	C16L (IEC 60471)	Y19 (IEC 61466)	E24 (IEC 61466)
160 kN	S20 (IEC 60120)	B20 (IEC 60120)	T19L (IEC 60471)	C19L (IEC 60471)	Y22 (IEC 61466)	E25 (IEC 61466)

Depending on the customer request end fittings can be selected with different dimensions.

- Nominal voltage: 10 kV
- Class of mechanical load: 70 kN

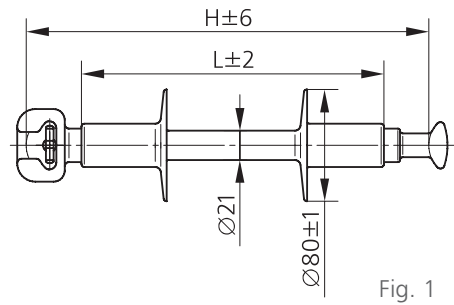


Fig. 1

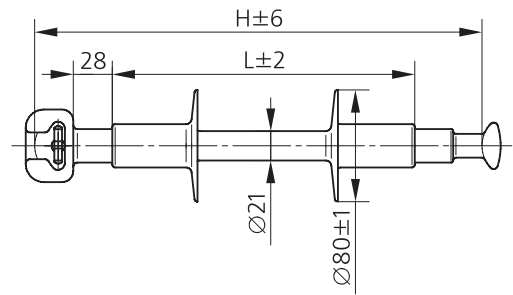


Fig. 2

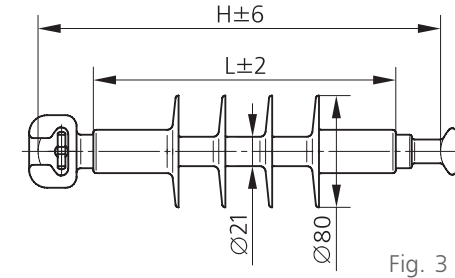


Fig. 3

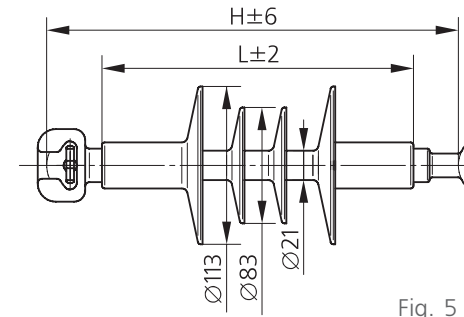


Fig. 5

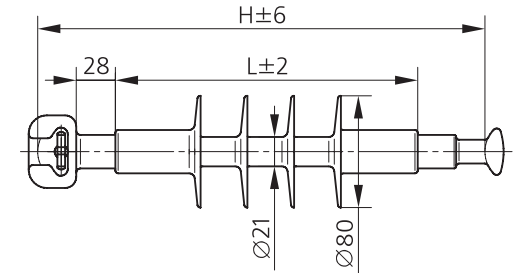


Fig. 4

In the design of the insulators used standard fittings, connection dimensions comply with standards: IEC 60120, IEC 60471, IEC 61466.

The pictures show the appearance of the insulators with socket-ball (SB) connection. Insulators can be equipped with bird protection device as per customer requirements.

Cat. No.	Reference designation	Type of insulator in accordance with IEC 61466-1	Weight, kg	Spacing H, mm	Length of insulating part L, mm	Leakage distance, mm	Nominal voltage, kV	Standard mechanical load, kN	Lightning impulse withstand voltage, kV	Wet power frequency withstand voltage, kV	Fig.
154 (A) 154 (A)-01 154 (A)-02 154 (A)-03	LS-70/12-315	CS 70 S16 B16 - 190/315 CS 70 S16 T13L - 190/315 CS 70 T13L B16 - 190/315 CS 70 T13L T13L - 190/315	1.0 1.0 0.8 0.9	289 293 285 289	216.5	315	10	70	190	65	1
154V (B) 154V (B)-01 154V (B)-02 154V (B)-03	LS-70/12-315	CS 70 S16 B16 - 190/315 CS 70 S16 T13L - 190/315 CS 70 T13L B16 - 190/315 CS 70 T13L T13L - 190/315	1.0 1.0 0.8 0.9	321 325 317 321	216.5	315	10	70	190	65	2
155 (D) 155 (D)-01 155 (D)-02 155 (D)-03	LS-70/12-420	CS 70 S16 B16 - 190/420 CS 70 S16 T13L - 190/420 CS 70 T13L B16 - 190/420 CS 70 T13L T13L - 190/420	1.0 1.1 0.8 0.9	289 293 285 289	216.5	420	10	70	190	65	3
155V (B) 155V (B)-01 155V (B)-02 155V (B)-03	LS-70/12-420	CS 70 S16 B16 - 190/420 CS 70 S16 T13L - 190/420 CS 70 T13L B16 - 190/420 CS 70 T13L T13L - 190/420	1.0 1.1 0.8 0.9	321 325 317 321	216.5	420	10	70	190	65	4
101 101-04 101-05 101-06	LS-70/12-485	CS 70 S16 B16 - 190/485 CS 70 S16 T13L - 190/485 CS 70 T13L B16 - 190/485 CS 70 T13L T13L - 190/485	1.3 1.3 1.1 1.2	291 295 287 291	221	485	10	70	190	65	5

- Nominal voltage: 15–20 kV
- Class of mechanical load: 70 kN

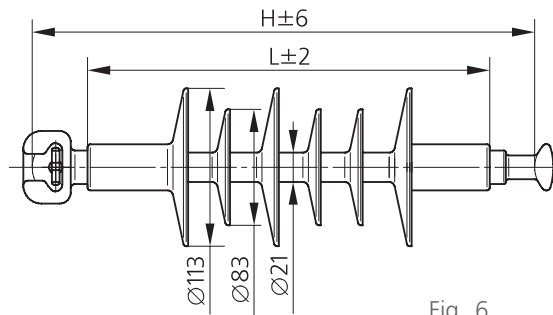


Fig. 6

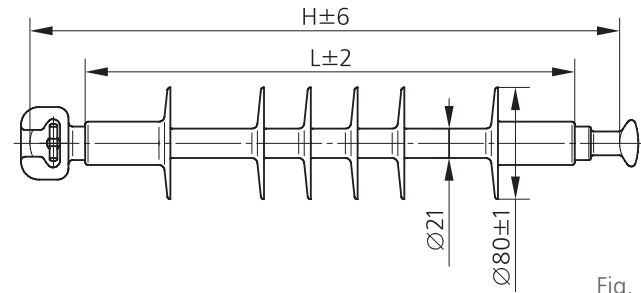


Fig. 7

In the design of the insulators used standard fittings, connection dimensions comply with standards: IEC 60120, IEC 60471, IEC 61466.

The pictures show the appearance of the insulators with socket-ball (SB) connection. Insulators can be equipped with bird protection device as per customer requirements.

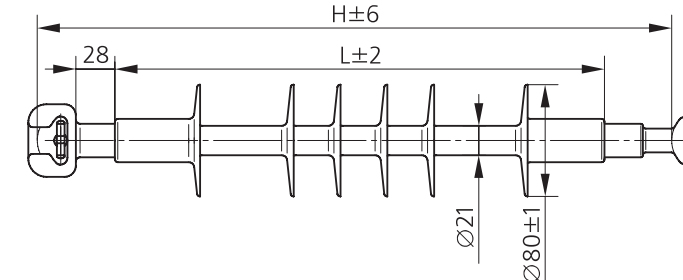


Fig. 8

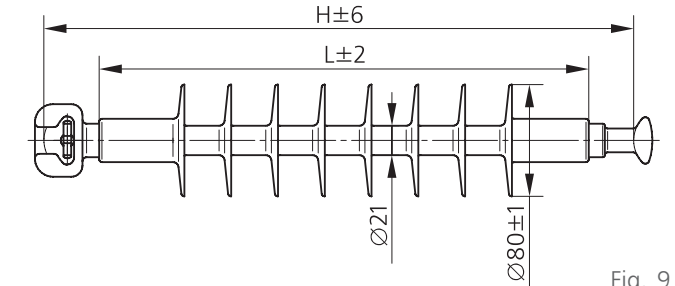


Fig. 9

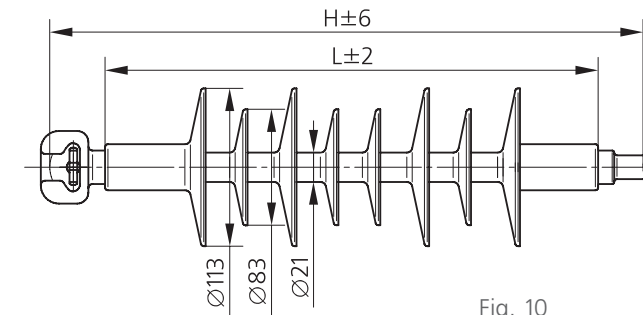


Fig. 10

Cat. No.	Reference designation	Type of insulator in accordance with IEC 61466-1	Weight, kg	Spacing H, mm	Length of insulating part L, mm	Leakage distance, mm	Nominal voltage, kV	Standard mechanical load, kN	Lightning impulse withstand voltage, kV	Wet power frequency withstand voltage, kV	Fig.
102 102-04 102-05 102-06	LS-70/15-685	CS 70 S16 B16 - 230/685 CS 70 S16 T13L - 230/685 CS 70 T13L B16 - 230/685 CS 70 T13L T13L - 230/685	1.3 1.4 1.2 1.2	356 360 352 356	286	685	15	70	230	70	6
156 (A) 156 (A)-01 156 (A)-02 156 (A)-03	LS-70/24-660	CS 70 S16 B16 - 250/660 CS 70 S16 T13L - 250/660 CS 70 T13L B16 - 250/660 CS 70 T13L T13L - 250/660	1.1 1.2 1.0 1.0	423 427 419 423	350.5	660	20	70	250	95	7
156V (B) 156V (B)-01 156V (B)-02 156V (B)-03	LS-70/24-660	CS 70 S16 B16 - 250/660 CS 70 S16 T13L - 250/660 CS 70 T13L B16 - 250/660 CS 70 T13L T13L - 250/660	1.1 1.2 1.0 1.0	455 459 451 455	350.5	660	20	70	250	95	8
157 157-01 157-02 157-03	LS-70/24-765	CS 70 S16 B16 - 250/765 CS 70 S16 T13L - 250/765 CS 70 T13L B16 - 250/765 CS 70 T13L T13L - 250/765	1.2 1.2 1.0 1.1	423 427 419 423	350.5	765	20	70	250	95	9
103 103-04 103-05 103-06	LS-70/24-890	CS 70 S16 B16 - 270/890 CS 70 S16 T13L - 270/890 CS 70 T13L B16 - 270/890 CS 70 T13L T13L - 270/890	1.5 1.5 1.3 1.4	421 425 417 421	351	890	20	70	270	95	10



- Nominal voltage: 35 kV
- Class of mechanical load: 70 kN

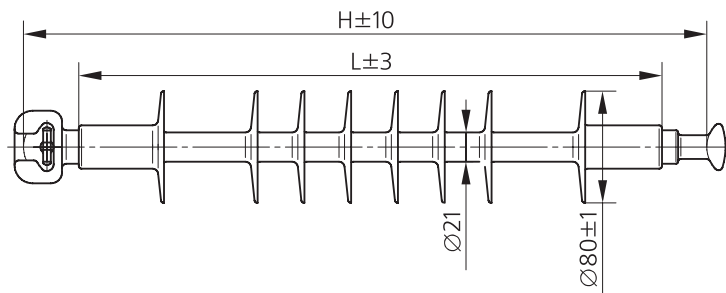


Fig. 11

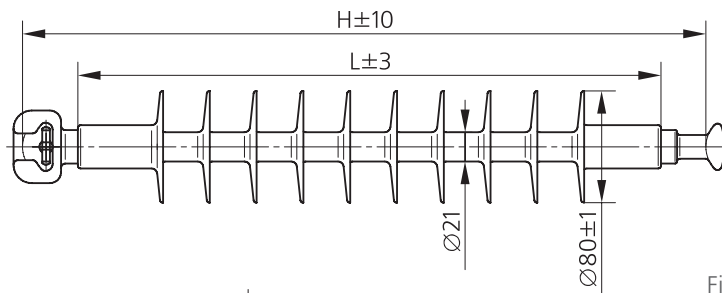


Fig. 12

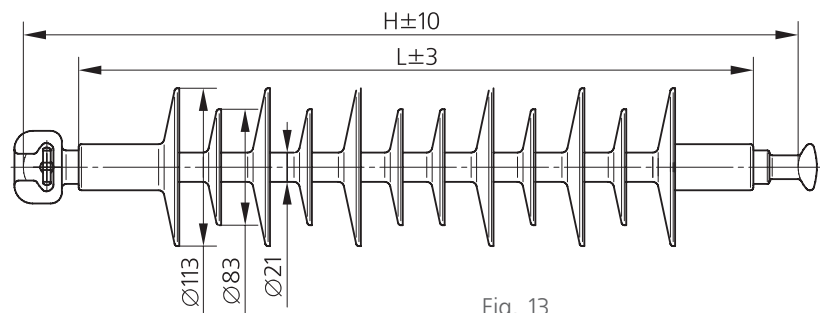


Fig. 13

In the design of the insulators used standard fittings, connection dimensions comply with standards: IEC 60120, IEC 60471, IEC 61466.

The pictures show the appearance of the insulators with socket-ball (SB) connection. Insulators can be equipped with bird protection device as per customer requirements.

Cat. No.	Reference designation	Type of insulator in accordance with IEC 61466-1	Weight, kg	Spacing H, mm	Length of insulating part L, mm	Leakage distance, mm	Nominal voltage, kV	Standard mechanical load, kN	Lightning impulse withstand voltage, kV	Wet power frequency withstand voltage, kV	Fig.
825 825-01 825-02 825-03	LS-70/36-840	CS 70 S16 B16 - 300/840 CS 70 S16 T13L - 300/840 CS 70 T13L B16 - 300/840 CS 70 T13L T13L - 300/840	1.2 1.3 1.1 1.1	490 494 486 490	417.5	840	35	70	300	105	11
826 826-01 826-02 826-03	LS-70/36-950	CS 70 S16 B16 - 300/950 CS 70 S16 T13L - 300/950 CS 70 T13L B16 - 300/950 CS 70 T13L T13L - 300/950	1.3 1.4 1.2 1.2	490 494 486 490	417.5	950	35	70	300	105	12
106 106-04 106-05 106-06	LS-70/36-1300	CS 70 S16 B16 - 330/1300 CS 70 S16 T13L - 330/1300 CS 70 T13L B16 - 330/1300 CS 70 T13L T13L - 330/1300	1.8 1.8 1.6 1.7	551 555 547 551	481	1300	35	70	330	105	13

- Nominal voltage: 110–220 kV
- Class of mechanical load: 70 kN

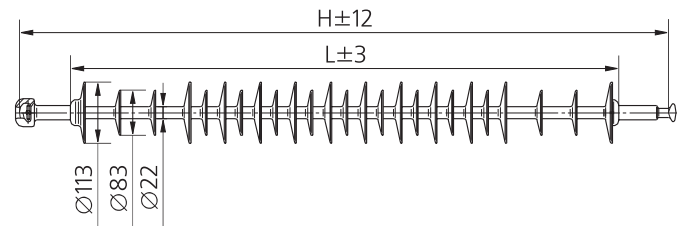


Fig. 14

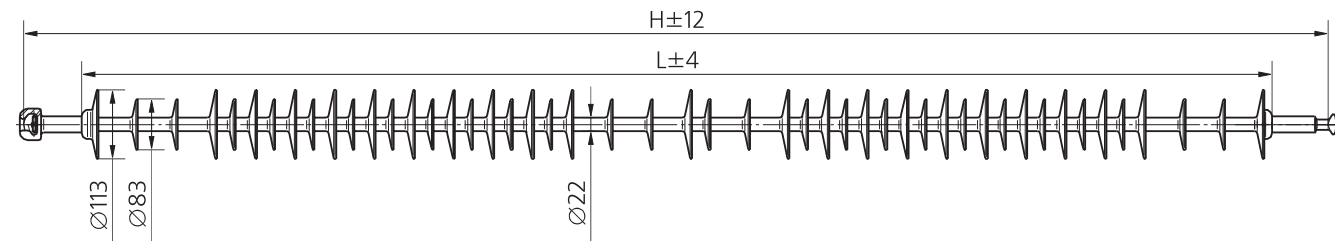
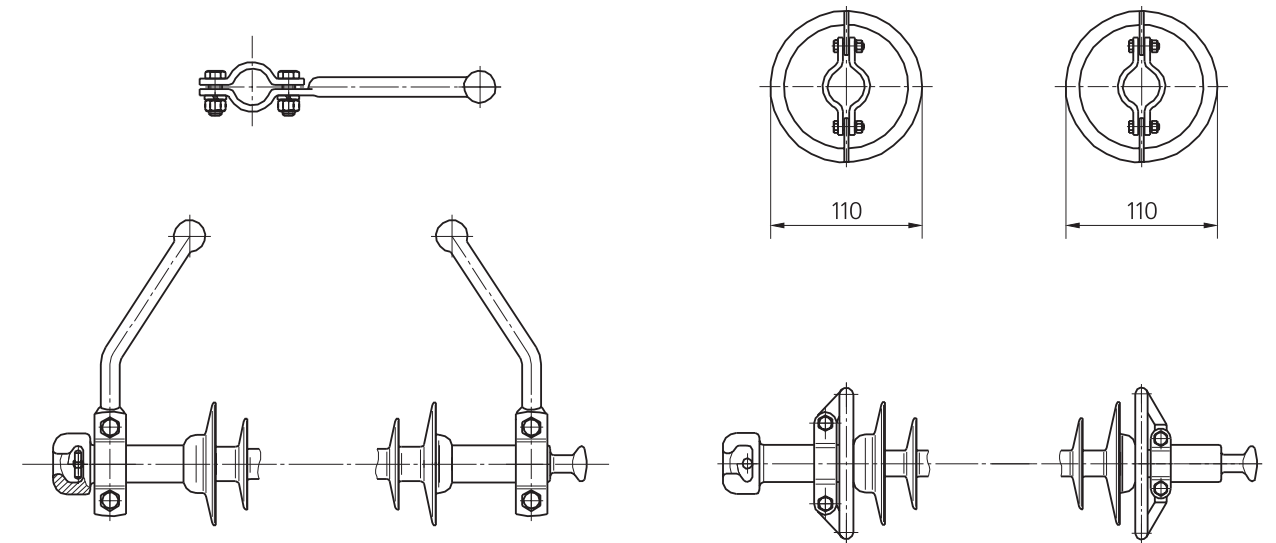


Fig. 15



Protective fittings for insulators with nominal voltage 110 kV

In the design of the insulators used standard fittings, connection dimensions comply with standards: IEC 60120, IEC 60471, IEC 61466.

The pictures show the appearance of the insulators with socket-ball (SB) connection.

Insulators can be equipped with bird protection device as per customer requirements.

Cat. No.	Reference designation	Type of insulator in accordance with IEC 61466-1	Weight, kg	Spacing H, mm	Length of insulating part L, mm	Leakage distance, mm	Nominal voltage, kV	Standard mechanical load, kN	Lightning impulse withstand voltage, kV	Wet power frequency withstand voltage, kV	Fig.
108 108-01 108-02 108-03	LS-70/110-2700	CS 70 S16 B16 - 630/2700 CS 70 S16 T13L - 630/2700 CS 70 T13L B16 - 630/2700 CS 70 T13L T13L - 630/2700	3.0 3.0 2.9 2.9	1196 1200 1199 1203	1015	2700	110	70	630	300	14
111 111-01 111-02 111-03	LS-70/220-5260	CS 70 S16 B16 - 960/5260 CS 70 S16 T13L - 960/5260 CS 70 T13L B16 - 960/5260 CS 70 T13L T13L - 960/5260	4.9 5.0 4.8 4.8	2136 2140 2139 2143	1955	5260	220	70	980	550	15

- Nominal voltage: 66–110 kV
- Class of mechanical load: 70 kN

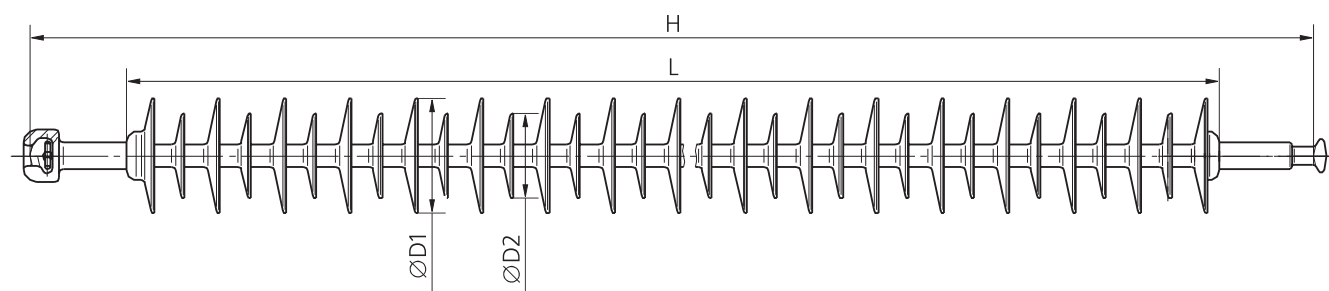


Fig. 16

In the design of the insulators used standard fittings, connection dimensions comply with standards: IEC 60120, IEC 60471, IEC 61466.

The pictures show the appearance of the insulators with socket-ball (SB) connection. Insulators can be equipped with bird protection device as per customer requirements.

Cat. No.	Reference designation	Type of insulator in accordance with IEC 61466-1	Weight, kg	Spacing H, mm	Length of insulating part L, mm	Leakage distance, mm	Diameter of sheds D1/D2, mm	Nominal voltage, kV	Standard mechanical load, kN	Lightning impulse withstand voltage, kV	Wet power frequency withstand voltage, kV
107 107-01 107-02 107-03	LS-70/66-2120	CS 70 S16 B16 - 460/2120 CS 70 S16 T13L - 460/2120 CS 70 T13L B16 - 460/2120 CS 70 T13L T13L - 460/2120	2.6 2.6 2.5 2.5	871 875 874 878	690	2120	113/83	66	70	460	150
109 109-01 109-02 109-03	LS-70/110-3140	CS 70 S16 B16 - 630/3140 CS 70 S16 T13L - 630/3140 CS 70 T13L B16 - 630/3140 CS 70 T13L T13L - 630/3140	3.4 3.4 3.2 3.3	1196 1200 1199 1203	1015	3140	113/83	110	70	630	300
110 110-01 110-02 110-03	LS-70/110-3545	CS 70 S16 B16 - 700/3545 CS 70 S16 T13L - 700/3545 CS 70 T13L B16 - 700/3545 CS 70 T13L T13L - 700/3545	3.7 3.7 3.6 3.6	1326 1330 1329 1333	1145	3545	113/83	110	70	700	300



### Railway insulators (trolley wire insulators for overhead railroad systems)

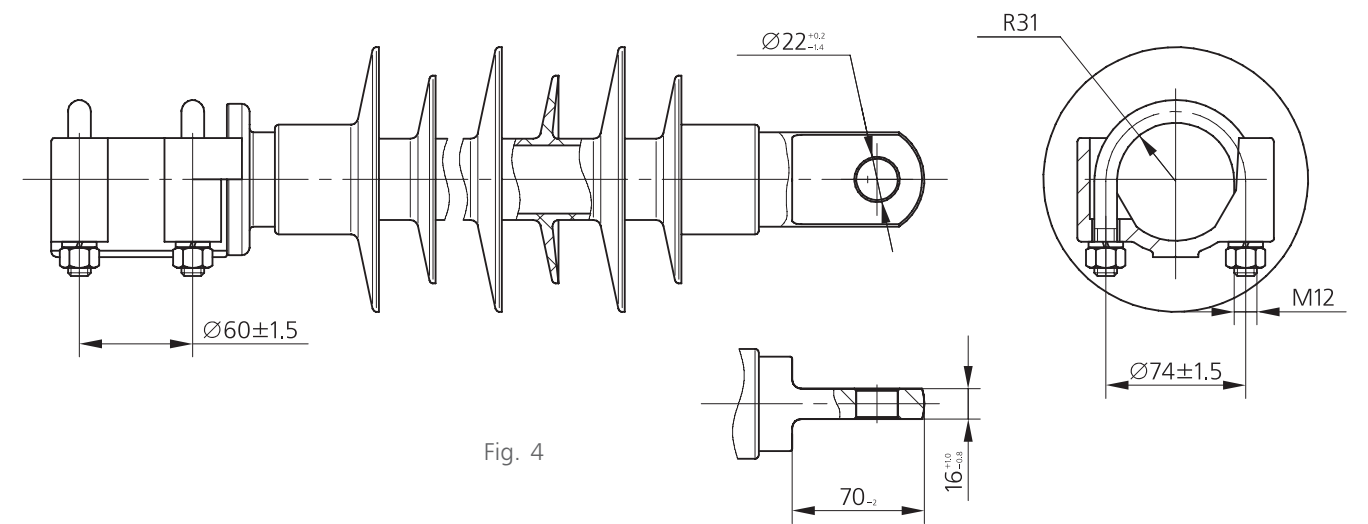
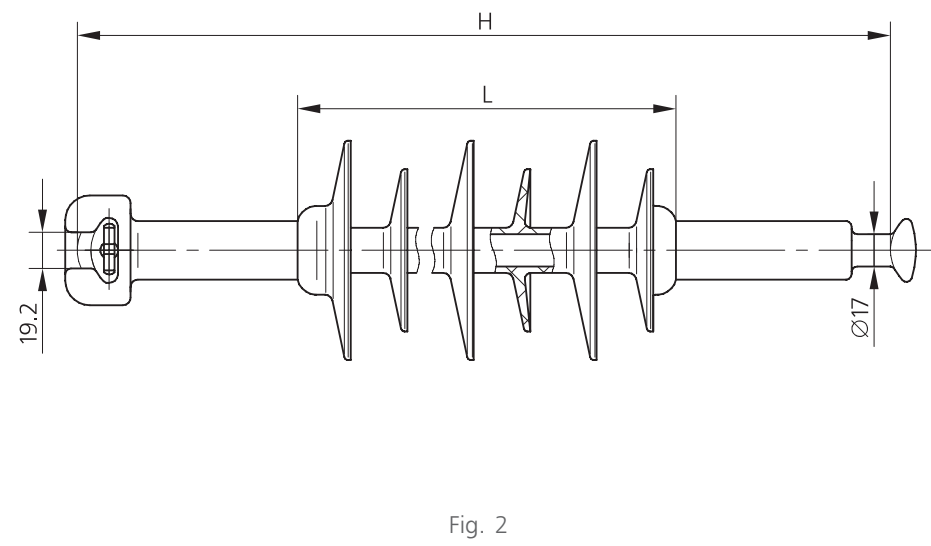
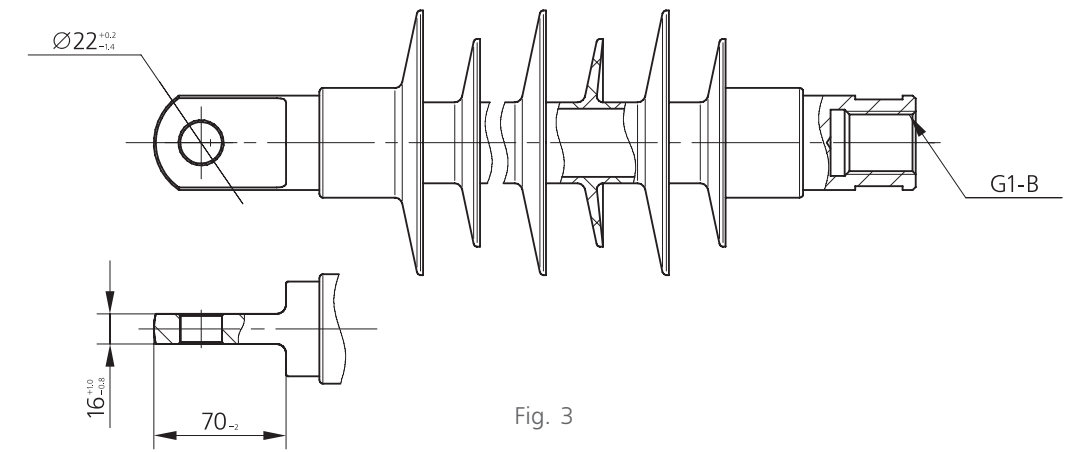
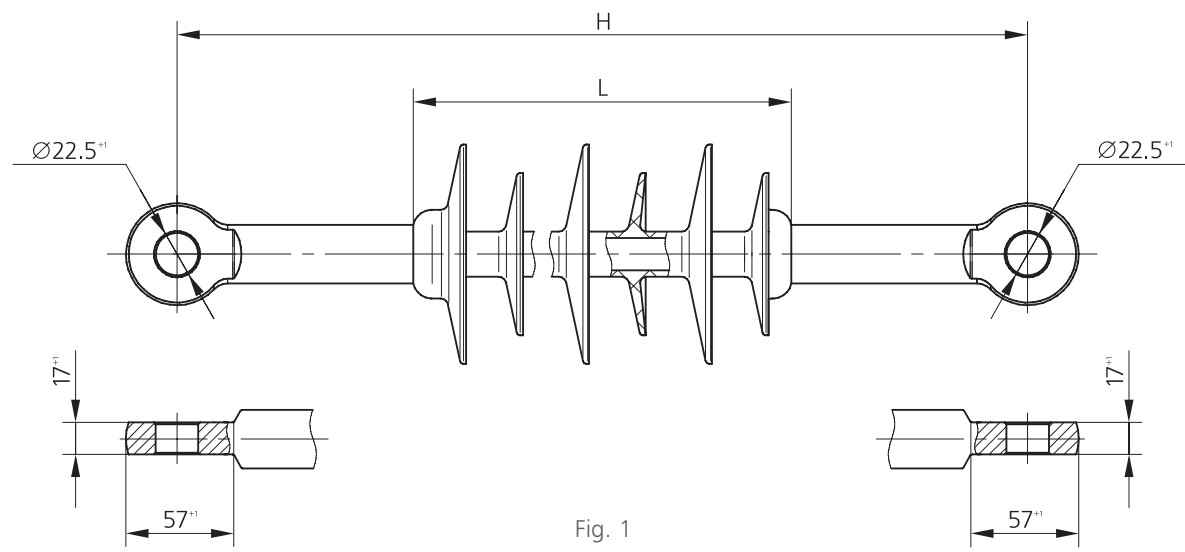
Designed for insulating and fixing the contact wires and for usage in insulating nodes, suspensions, switchgears and substations electrified DC railways with voltage 3 (3.3) kV and AC with voltage 25 (27.5) kV and frequency 50 Hz at an ambient temperature -60°C to +70°C.

The insulators have successfully passed certification tests and type tests.

Insulators can be equipped with bird protection device as per customer requirements.

Cat. No.	Designation	Nominal voltage, kV	Spacing H, mm	Length of insulating part L, mm	Leakage distance, mm, not less than	Weight, kg, not more than	Tension load withstand, kN	Cantilever load withstand, kN	Bending moment withstand, kN·m, not less than	Lightning impulse withstand voltage 1.2/50, kV, not less than		Dry power frequency withstand voltage, kV, not less than	Wet power frequency withstand voltage, kV, not less than		50% power frequency discharge voltage in polluted condition, kV, not less than, under the specific surface conductivity of pollution layer		Wet power frequency withstand voltage in polluted condition, kV, not less than, under the specific surface conductivity of pollution layer		Radio interference level, dB, not more than	Tracking and erosion test, hours, not less than	Fig.
													horizontally	vertically	20±2 μS	50±5 μS	20±2 μS	50±5 μS			
201	CST 120-3.3-7	3/3.3	416	200	600	2.1	120	-	-	125		80	70	60	-	10	-	15	15	500	1
202	CST 120-3.3-7	3/3.3	481	265	800	2.3	120	-	-	140		80	70	60	-	10	-	20	15	500	1
227	CST 120-25-3	25/27.5	548	332	950	2.4	120	-	-	170		145	125	110	42	-	40	-	15	500	1
203	CST 120-27.5-5	25/27.5	581	365	1130	2.5	120	-	-	240		145	140	110	42	-	40	-	15	500	1
204	CSS 70-3.3-7	3/3.3	401	200	600	2.1	70	-	-	125		80	70	60	-	10	-	15	15	500	2
204-01	CSS 70-3.3-7	3/3.3	408	200	600	2.0	70	-	-	125		80	70	60	-	10	-	15	15	500	2
204-02	CSS 70-3.3-7	3/3.3	410	200	600	2.3	70	-	-	125		80	70	60	-	10	-	15	15	500	2
205	CSS 120-3.3-7	3/3.3	401	200	600	2.1	120	-	-	125		80	70	60	-	10	-	15	15	500	2
205-01	CSS 120-3.3-7	3/3.3	408	200	600	2.0	120	-	-	125		80	70	60	-	10	-	15	15	500	2
205-02	CSS 120-3.3-7	3/3.3	410	200	600	2.3	120	-	-	125		80	70	60	-	10	-	15	15	500	2
221	CSS 70-27.5-5	25/27.5	533	332	950	2.5	70	-	-	170		145	125	110	42	-	40	-	15	500	2
221-01	CSS 70-27.5-5	25/27.5	540	332	950	2.4	70	-	-	170		145	125	110	42	-	40	-	15	500	2
221-02	CSS 70-27.5-5	25/27.5	542	332	950	2.6	70	-	-	170		145	125	110	42	-	40	-	15	500	2
222	CSS 120-27.5-5	25/27.5	533	332	950	2.5	120	-	-	170		145	125	110	42	-	40	-	15	500	2
222-01	CSS 120-27.5-5	25/27.5	540	332	950	2.4	120	-	-	170		145	125	110	42	-	40	-	15	500	2
222-02	CSS 120-27.5-5	25/27.5	542	332	950	2.6	120	-	-	170		145	125	110	42	-	40	-	15	500	2
206	CSS 70-27.5-5	25/27.5	566	365	1130	2.5	70	-	-	240		145	140	110	42	-	40	-	15	500	2
206-01	CSS 70-27.5-5	25/27.5	573	365	1130	2.4	70	-	-	240		145	140	110	42	-	40	-	15	500	2
206-02	CSS 70-27.5-5	25/27.5	575	365	1130	2.6	70	-	-	240		145	140	110	42	-	40	-	15	500	2

Cat. No.	Designation	Nominal voltage, kV	Spacing H, mm	Length of insulating part L, mm	Leakage distance, mm, not less than	Weight, kg, not more than	Tension load withstand, kN	Cantilever load withstand, kN	Bending moment withstand, kN·m, not less than	Lightning impulse withstand voltage 1.2/50, kV, not less than		Dry power frequency withstand voltage, kV, not less than	Wet power frequency withstand voltage, kV, not less than		50% power frequency discharge voltage in polluted condition, kV, not less than, under the specific surface conductivity of pollution layer		Wet power frequency withstand voltage in polluted condition, kV, not less than, under the specific surface conductivity of pollution layer		Radio interference level, dB, not more than	Tracking and erosion test, hours, not less than	Fig.
													horizontally	vertically	20±2 μS	50±5 μS	20±2 μS	50±5 μS			
207	CSS 120-27.5-5	25/27.5	566	365	1130	2.5	120	—	—	240		145	140	110	42	—	40	—	15	500	2
207-01	CSS 120-27.5-5	25/27.5	573	365	1130	2.4	120	—	—	240		145	140	110	42	—	40	—	15	500	2
207-02	CSS 120-27.5-5	25/27.5	575	365	1130	2.6	120	—	—	240		145	140	110	42	—	40	—	15	500	2
208	CSF 70-8-3.3-7	3/3.3	378	256	690	3.1	70	8	3.5	125		80	70	60	—	10	—	15	15	500	3
209	CSF 120-8-3.3-7	3/3.3	368	246	690	4.2	120	8	6	125		80	70	60	—	10	—	15	15	500	3
226	CSF 70-8-27.5-5	25/27.5	478	353	950	3.7	70	8	3.5	170		145	125	110	42	—	40	—	15	500	3
228	CSF 120-8-27.5-5	25/27.5	455	308	950	4.2	120	8	6	170		145	125	110	42	—	40	—	15	500	3
210	CSF 70-8-27.5-5	25/27.5	508	386	1120	3.8	70	8	3.5	240		145	140	110	42	—	40	—	15	500	3
211	CSF 120-8-27.5-5	25/27.5	461	340	1120	4.5	120	8	6	240		145	125	110	42	—	40	—	15	500	3
229A	CSF 70-8-27.5-7	25/27.5	585	464	1500	5.8	70	8	3.5	240		210	200	140	—	42	—	40	15	500	3
229	CSF 120-8-27.5-7	25/27.5	585	464	1500	5.8	120	8	6	240		210	200	140	—	42	—	40	15	500	3
212	CSC 120-8-3.3-7	3/3.3	427	246	690	5.8	120	8	6	125		80	70	60	—	10	—	15	15	500	4
230	CSC 120-8-27.5-5	3/3.3	489	308	950	6.3	120	8	6	170		145	125	110	42	—	40	—	15	500	4
213	CSC 120-8-27.5-5	25/27.5	520	340	1120	6.8	120	8	6	240		145	140	110	42	—	40	—	15	500	4
231	CSC 120-8-27.5-7	25/27.5	644	464	1500	7.4	120	8	6	240		210	200	140	—	42	—	40	15	500	4



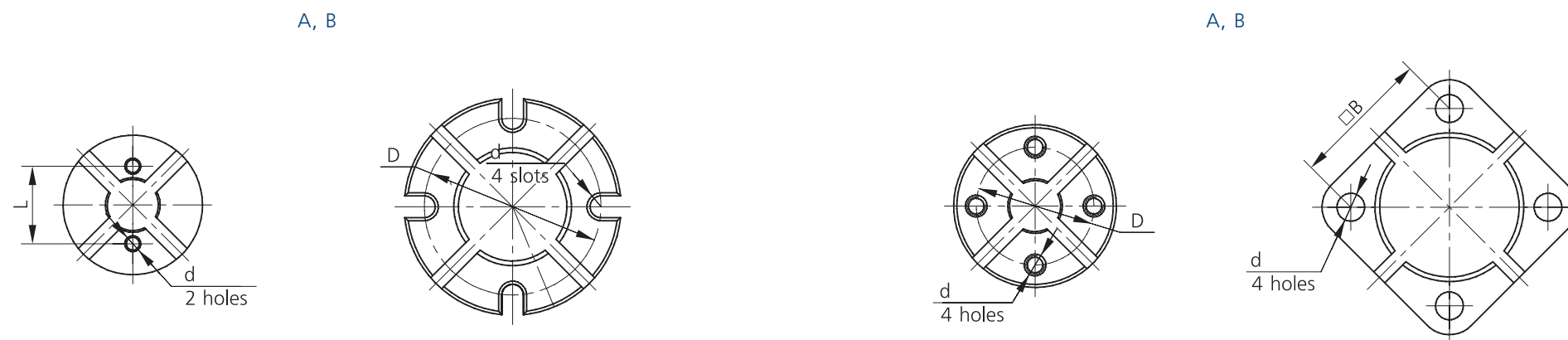
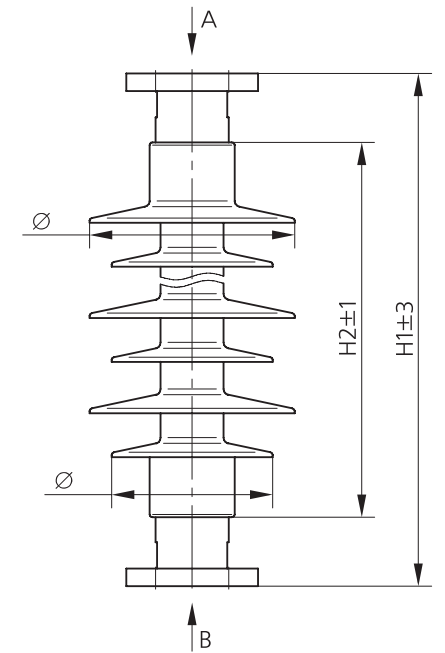
**Post insulators for outdoor installation**

Designed for insulating and fixing the live parts in electric and distribution devices, power stations and AC substations with voltages 10–110 kV and up to 100 Hz.

Cat. No.	Reference designation	Flange connection dimensions, mm					Spacing H1, mm	Nominal voltage, kV	Specified cantilever load withstand, kN	Length of insulating part H2, mm, not less than	Leakage distance, mm, not less than	Lightning impulse withstand voltage, kV	Power frequency withstand voltage, kV	50% power frequency discharge voltage in polluted condition, kV	Weight, kg, not more than
		version number*	top		bottom										
451	CSP 12/10-170	–	50	M10	50	M10	350	10	10	256	690	170	85	13	2.5
		-01	∅76	M12	∅76	M12	315								
460	OSK 12.5-10-A-4	–	∅76	M12	∅76	M12	285	10	12.5	196	615	170	70	13	4.5
		-01	∅76	∅13	∅76	∅13									
460B	OSK 20-10-B-4	–	∅127	∅13	∅127	∅13	280	10	20	196	615	170	70	13	5.2
		-01	∅140	M16	∅140	∅18									
460V	OSK 20-10-V-4	–	□160	∅18	□160	∅18	284	10	20	196	615	170	70	13	5.4
453	CSP 24/12.5-205	–	50	M10	50	M10	415	20	12.5	321	905	205	105	26	2.6
		-01	∅76	M12	∅76	M12	380								
		-04	50	M10	70	M12	415								
461	OSK 16-20-A-4	–	∅76	M12	∅76	M12	355	20	16	288	970	205	90	26	13.3
		-01	□99	M12	□160	∅18									
		-02	□140	M12	□160	∅18									
461B	OSK 16-20-B-4	–	□160	∅18	□160	∅18	360	20	16	288	970	205	90	26	13.4
		-01	□140	M12	□160	∅18									

\* The version number is indicated in the name of the insulator.

Appearance of OSK insulators for a voltage of 10–35 kV



Cat. No.	Reference designation	Flange connection dimensions, mm					Spacing H1, mm	Nominal voltage, kV		Specified cantilever load withstand, kN	Length of insulating part H2, mm, not less than	Leakage distance, mm, not less than	Lightning impulse withstand voltage, kV	Power frequency withstand voltage, kV	50% power frequency discharge voltage in polluted condition, kV	Weight, kg, not more than
		version number*	top		bottom											
1410	OSK 20-20-V-4	–	□140	M16	□140	Ø18	280	20		20	196	645	170	70	26	8.2
		-01	□140	M12	□140	Ø18										
		-02	□140	M12	□140	Ø15										
1423	OSK 12.5-35-K-2	–	□140	M12	□140	M12	420	35		12.5	340	1110	240	125	42	7.8
469	OSK 16-35-A-3	–	Ø140	M12	Ø140	M12	400	35		16	330	1100	210	100	42	9.1
		-01	Ø140	M12	Ø140	Ø18										
		-02	Ø140	M16	Ø140	M16										
		-03	Ø140	M16	Ø140	M16										
		-04	Ø140	M12	□155	Ø18										
		-05	Ø140	Ø14	Ø140	Ø14										
		-06	Ø140	M12	Ø140	Ø14										
1411	OSK 20-35-A-2	–	Ø140	M12	Ø140	M12	400	35		16	330	1100	210	100	42	9.0
		-01	Ø140	M12	Ø140	Ø18										
		-02	Ø140	M16	Ø140	Ø18										
		-03	Ø140	M16	Ø140	M16										
		-04	Ø140	M12	□155	Ø18										
		-05	Ø140	Ø14	Ø140	Ø14										
		-06	Ø140	M12	Ø140	Ø14										

\* The version number is indicated in the name of the insulator.

Cat. No.	Reference designation	Flange connection dimensions, mm					Spacing H1, mm	Nominal voltage, kV		Specified cantilever load withstand, kN	Length of insulating part H2, mm, not less than	Leakage distance, mm, not less than	Lightning impulse withstand voltage, kV	Power frequency withstand voltage, kV	50% power frequency discharge voltage in polluted condition, kV	Weight, kg, not more than
		version number*	top		bottom											
454	OSK 20-35-A-3	–	Ø140	M12	Ø140	M12	500	35		20	366	1100	190	80	42	24.4
		-01	□160	Ø18	□160	Ø18										
		-02	□160	Ø18	□180	Ø18										
		-03	□100	M12	□180	Ø18										
		-04	□140	Ø18	□140	Ø18										
		-05	Ø140	M12	□160	Ø18										
		-06	□140	M16	□140	Ø18										
		-07	Ø225	Ø18	Ø225	Ø18										
454B	OSK 20-35-B-3	–	Ø127	M12	Ø127	M12	560	35		20	366	1100	190	80	42	19
		-01	Ø127	M12	Ø127	Ø18										
		-02	Ø127	M16	Ø178	Ø18										
454V	OSK 20-35-V-3	–	□140	M16	□140	Ø18	570	35		20	366	1100	190	80	42	20
		-01	□140	M16	□140	M16										
		-02	Ø140	M12	Ø198	Ø18										
		-03	□99	M12	□140	Ø18										

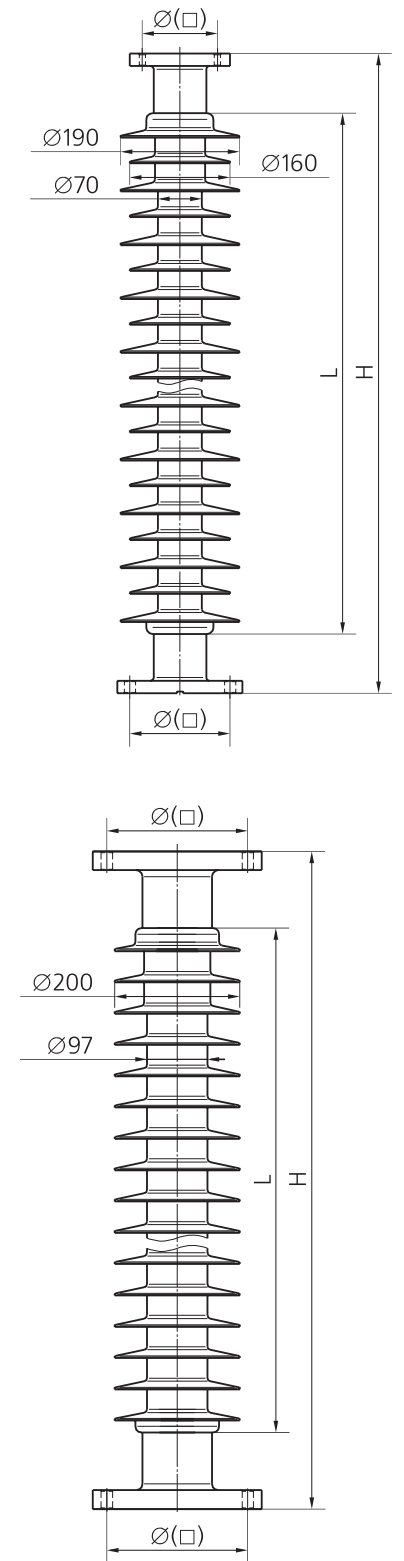
\* The version number is indicated in the name of the insulator.



Cat. No.	Reference designation	Flange connection dimensions, mm					Nominal voltage, kV	Specified cantilever load withstand, kN	Length of insulating part H2, mm, not less than	Spacing H1, mm	Leakage distance, mm, not less than	Lightning impulse withstand voltage, kV	Power frequency withstand voltage, kV	50% power frequency discharge voltage in polluted condition, kV	Weight, kg, not more than
		version number*	top		bottom										
401	OSK 10-110-A-2	-	Ø127	M16	Ø127	M16	110	10	832	1020±2	2650	450	230	110	25.8
		-01	Ø127	M16	Ø178	Ø18									
		-02	□90	M16	□90	M16									
		-03	□90	M16	□126	Ø18									
		-04	Ø127	M16	Ø200	Ø18									
		-05	□90	M16	□140	Ø18									
		-06	Ø178	Ø18	Ø178	Ø18									
		-07	Ø127	M16	Ø127	Ø18									
		-08	□120	M12	□160	Ø18									
		-09	□90	M16	□90	Ø18									
402	OSK 10-110-B-2	-	Ø127	M16	Ø178	Ø18	110	10	860	1050±2	2870	450	230	110	29
		-01	□120	M12	□160	Ø18									
		-02	□100	M10	□160	Ø18									
		-03	□100	M12	□160	Ø18									
		-04	□100	Ø18	□160	Ø18									
		-05	□120	Ø18	□160	Ø18									
		-06	□120	M16	□160	Ø18									
		-07	□140	Ø18	Ø225	Ø18									
		-08	□160	Ø18	□160	Ø18									
		-09	□100	M12	Ø178	Ø18									
		-10	Ø127	M16	□160	Ø18									
		-11	Ø170	Ø18	Ø225	Ø18									
		-12	□160	Ø18	□194	Ø20									
		-14	□160	Ø18	□180	Ø18									
		-15	Ø127	M12	Ø178	Ø18									
		-16	□90	M12	□130	Ø18									
		-17	Ø170	M12	Ø225	Ø18									

\* The version number is indicated in the name of the insulator.

Appearance of OSK insulators for a voltage 110 kV



Cat. No.	Reference designation	Flange connection dimensions, mm					Nominal voltage, kV	Specified cantilever load withstand, kN	Length of insulating part H2, mm, not less than	Spacing H1, mm	Leakage distance, mm, not less than	Lightning impulse withstand voltage, kV	Power frequency withstand voltage, kV	50% power frequency discharge voltage in polluted condition, kV	Weight, kg, not more than
		version number*	top		bottom										
402A	OSK 10-110-B-4	-	Ø127	M16	Ø178	Ø18	110	10	860	1050±2	2870	450	230	110	29
		-01	□120	M12	□160	Ø18									
		-02	□100	M10	□160	Ø18									
		-03	□100	M12	□160	Ø18									
		-04	□100	Ø18	□160	Ø18									
		-05	□120	Ø18	□160	Ø18									
		-06	□120	M16	□160	Ø18									
		-07	□140	Ø18	Ø225	Ø18									
		-08	□160	Ø18	□160	Ø18									
		-09	□100	M12	Ø178	Ø18									
		-10	Ø127	M16	□160	Ø18									
		-11	Ø170	Ø18	Ø225	Ø18									
		-12	□160	Ø18	□194	Ø20									
		-14	□160	Ø18	□180	Ø18									
		-15	Ø127	M12	Ø178	Ø18									
		-16	□90	M12	□130	Ø18									
		-17	Ø170	M12	Ø225	Ø18									
403	OSK 10-110-V-2	-	□160	Ø18	□160	Ø18	110	10	914	1100±2	2910	450	230	110	34
		-01	Ø127	M16	Ø178	Ø18									
		-02	Ø127	M16	□160	Ø18									
		-03	Ø225	Ø18	Ø225	Ø18									
		-04	Ø225	Ø18	Ø254	Ø18									
		-05	□140	Ø18	□160	Ø18									
		-06	□160	Ø18	□194	Ø20									
		-07	□160	Ø18	□180	Ø18									
		-08	□160	M18	□160	Ø18									
		-09	□100	M12	□160	Ø18									
		-10	□120	M12	□160	Ø18									
		-11	Ø170	M16	Ø225	Ø18									

\* The version number is indicated in the name of the insulator.

Cat. No.	Reference designation	Flange connection dimensions, mm					Nominal voltage, kV	Specified cantilever load withstand, kN		Length of insulating part H2, mm, not less than	Spacing H1, mm	Leakage distance, mm, not less than	Lightning impulse withstand voltage, kV	Power frequency withstand voltage, kV	50% power frequency discharge voltage in polluted condition, kV	Weight, kg, not more than
		version number*	top		bottom											
1401	OSK 10-110-V-3	-	□160	Ø18	□160	Ø18	110	10		914	1100±2	2910	450	230	110	34
		-01	Ø127	M16	Ø178	Ø18										
		-02	Ø127	M16	□160	Ø18										
		-03	Ø225	Ø18	Ø225	Ø18										
		-04	Ø225	Ø18	Ø254	Ø18										
		-05	□140	Ø18	□160	Ø18										
		-06	□160	Ø18	□194	Ø20										
		-07	□160	Ø18	□180	Ø18										
		-08	□160	M18	□160	Ø18										
		-09	□100	M12	□160	Ø18										
		-10	□120	M12	□160	Ø18										
404	OSK 20-110-V-2 (CSP 110/20-450)	-	□180	Ø18	□194	Ø20	110	20		856	1100±2	2750	450	230	110	53
		-01	□194	Ø20	□194	Ø20										
		-02	Ø225	Ø18	Ø225	Ø18										
		-03	□160	Ø18	□194	Ø20										
		-04	□160	Ø18	□180	Ø18										
		-05	Ø225	Ø18	Ø254	Ø18										
		-06	□160	Ø18	□160	Ø18										
		-07	□180	Ø18	□180	Ø18										
1403	OSK 8-110-G-2 (CSP 110/8-550)	-	Ø127	M16	Ø127	M16	110	8		1032	1220±1	3200	550	230	110	33
		-01	Ø127	M16	Ø178	Ø18										
		-02	Ø127	M16	Ø200	Ø18										
		-03	Ø127	M16	□140	Ø18										
		-04	□90	M16	□90	M16										
		-05	□90	M16	□140	Ø18										
		-06	Ø200	Ø18	Ø200	Ø18										
		-07	□200	Ø18	□200	Ø18										
		-08	Ø127	M16	□160	Ø18										
		-09	Ø127	M16	Ø170	Ø18										

\* The version number is indicated in the name of the insulator.

Cat. No.	Reference designation	Flange connection dimensions, mm					Nominal voltage, kV	Specified cantilever load withstand, kN		Length of insulating part H2, mm, not less than	Spacing H1, mm	Leakage distance, mm, not less than	Lightning impulse withstand voltage, kV	Power frequency withstand voltage, kV	50% power frequency discharge voltage in polluted condition, kV	Weight, kg, not more than
		version number*	top		bottom											
406	OSK 8-110-G-3 (CSP 110/8-550)	-	Ø127	M16	Ø127	M16	110	8		1032	1220±1	3200	550	230	110	33
		-01	Ø127	M16	Ø178	Ø18										
		-02	Ø127	M16	Ø200	Ø18										
		-03	Ø127	M16	□140	Ø18										
		-04	□90	M16	□90	M16										
		-05	□90	M16	□140	Ø18										
		-06	Ø200	Ø18	Ø200	Ø18										
		-07	□200	Ø18	□200	Ø18										
		-08	Ø127	M16	□160	Ø18										
		-09	Ø127	M16	Ø170	Ø18										
1404	OSK 20-110-G-2 (CSP 110/20-550)	-	Ø127	M16	Ø127	M16	110	20		1006	1220±1	2875	550	230	110	57
		-01	Ø140	M16	Ø140	Ø18										
		-02	Ø127	M16	Ø178	Ø18										
		-03	Ø127	M16	□160	Ø18										
		-04	Ø127	M16	□120	Ø18										
		-05	Ø127	M12	Ø178	Ø18										
		-06	□100	M12	□160	Ø18										
		-07	□120	M12	□160	Ø18										
		-08	Ø127	M16	Ø200	Ø18										
		-09	Ø127	M12	□120	Ø17										
		-10	Ø225	Ø18	Ø225	Ø18										
		-11	Ø225	Ø18	Ø275	Ø18										
		-12	□160	Ø18	□160	Ø18										
		-13	□160	Ø18	□194	Ø18										
		-14	Ø140	M12	Ø140	Ø14										

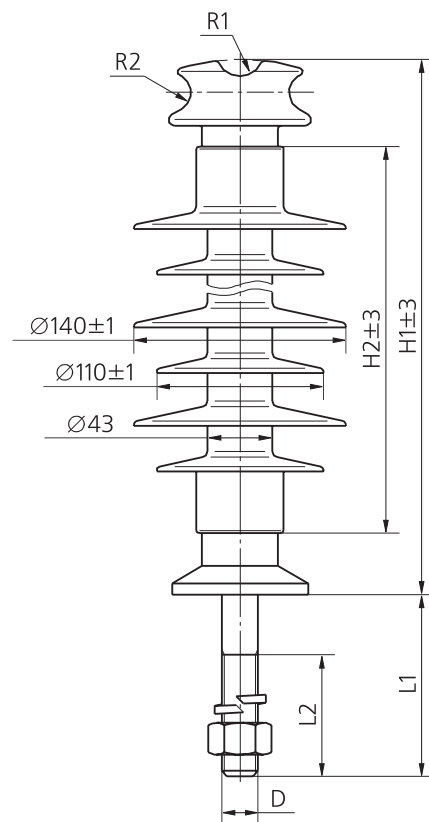
\* The version number is indicated in the name of the insulator.

Cat. No.	Reference designation	Flange connection dimensions, mm				Nominal voltage, kV	Specified cantilever load withstand, kN		Length of insulating part H2, mm, not less than	Spacing H1, mm	Leakage distance, mm, not less than	Lightning impulse withstand voltage, kV	Power frequency withstand voltage, kV	50% power frequency discharge voltage in polluted condition, kV	Weight, kg, not more than
		version number*	top		bottom										
407	OSK 20-110-G-3 (CSP 110/20-550)	-	Ø127	M16	Ø127	M16	110	20	1006	1220±1	2875	550	230	110	57
		-01	Ø140	M16	Ø140	Ø18									
		-02	Ø127	M16	Ø178	Ø18									
		-03	Ø127	M16	□160	Ø18									
		-04	Ø127	M16	□120	Ø18									
		-05	Ø127	M16	Ø178	Ø18									
		-06	□100	M12	□160	Ø18									
		-07	□120	M12	□160	Ø18									
		-08	Ø127	M16	Ø200	Ø18									
		-09	Ø127	M12	□120	Ø17									
		-10	Ø225	Ø18	Ø225	Ø18									
		-11	Ø225	Ø18	Ø275	Ø18									
		-12	□160	Ø18	□160	Ø18									
		-13	□160	Ø18	□194	Ø18									
		-14	Ø140	M12	Ø140	Ø14									

\* The version number is indicated in the name of the insulator.

### Line post insulators

Designed for mounting and insulation of non insulated and insulated wires of overhead transmission lines and in switchgear power stations and AC substations with voltage 6–35 kV and frequency up to 100 Hz, at an ambient temperature from –60°C to +50°C.



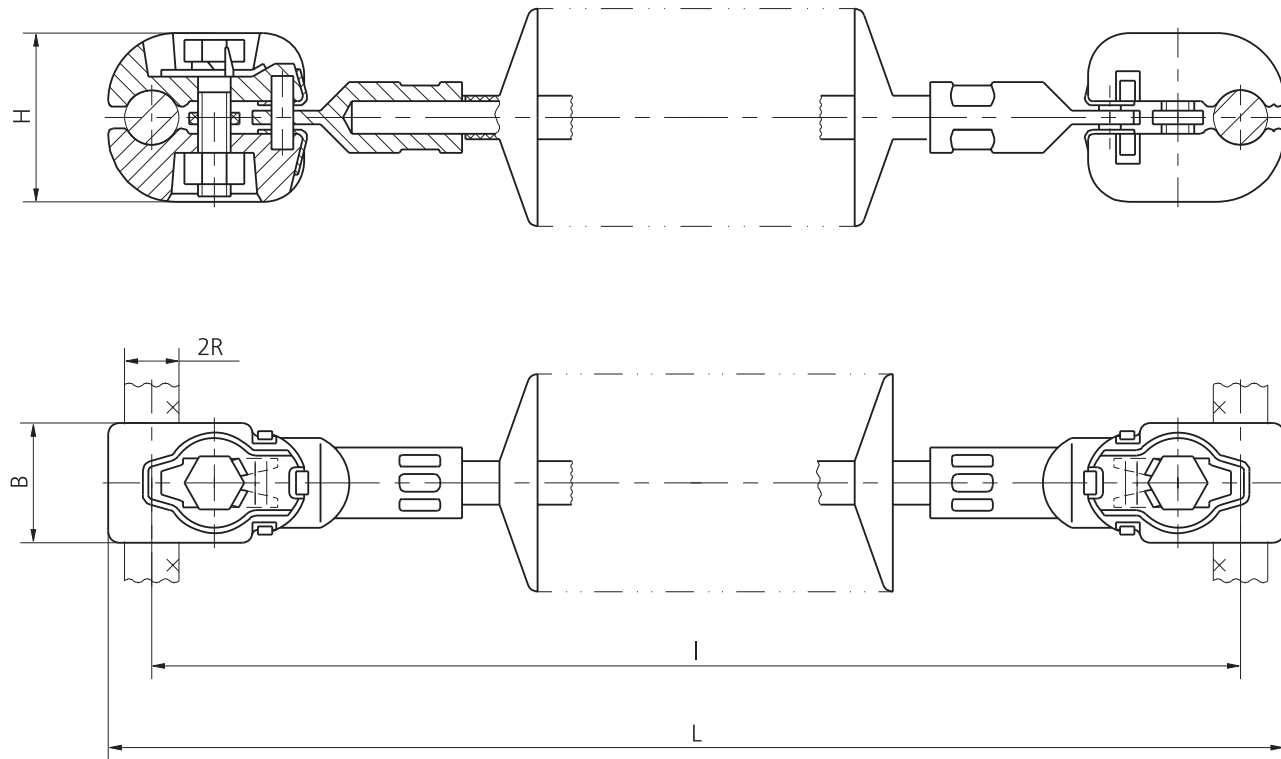
Cat. No.	Designation	Nominal voltage, kV	Spacing H1, mm	Length of insulating part H2, mm	Leakage distance, mm	L1, mm	L2, mm		R1, mm	R2, mm	D, mm	Weight, kg	Cantilever load withstand, kN	Lightning impulse withstand voltage 1.2/50, kV, not less than	Wet power frequency withstand voltage, kV, not less than
301	CSLP 12.5/12-690	10	354±3	256±3	690	120	80		R16	R12.5	M24-8g	3.8	12.5	170	85
301-01	CSLP 12.5/12-690-01	10	353±3	256±3	690	50	45		R14	R15	M20-8g	3.6	12.5	170	85
301-02	CSLP 12.5/12-690-02	10	380±3	256±3	690	135	130		R25	R14	M22-8g	3.9	12.5	170	85
301-03	CSLP 12.5/12-690-03	10	392±3	256±3	690	120	80		R25	R25	M24-8g	4.9	12.5	170	85
302	CSLP 10/24-905	20	419±3	321±3	905	120	80		R16	R12.5	M24-8g	4.1	10	205	105
302-01	CSLP 10/24-905-01	20	418±3	321±3	905	50	45		R14	R15	M20-8g	4.0	10	205	105
302-02	CSLP 10/24-905-02	20	445±3	321±3	905	135	130		R25	R14	M22-8g	4.3	10	205	105
302-03	CSLP 10/24-905-03	20	457±3	321±3	905	120	80		R25	R25	M24-8g	5.2	10	205	105
303	CSLP 10/36-1120	35	484±3	386±3	1120	120	80		R16	R12.5	M24-8g	4.5	10	240	125
303-01	CSLP 10/36-1120-01	35	483±3	386±3	1120	50	45		R14	R15	M20-8g	4.3	10	240	125
303-02	CSLP 10/36-1120-02	35	510±3	386±3	1120	135	130		R25	R14	M22-8g	4.6	10	240	125
303-03	CSLP 10/36-1120-03	35	522±3	386±3	1120	120	80		R25	R25	M24-8g	5.6	10	240	125



### Insulating spacers with composite coating of Rml-P type

Upgraded dead end spacers with composite coating of Rml-P type are intended for insulation fixation of aluminum conductor steel supported phase and ground wire.

Insulating spacers with composite coating meet TU 27.90.40.190-286-76935199-2016 requirements.



Designation	Dimensions, mm					Withstand voltage, kV, not less than	Conductor, wire diameter, mm	Weight, kg, not more than
	2R	B	H	L	I			
Rml-2-400P	25	65	72	432	400	50	21.6...26.6	2.3
Rml-2-500P	25	65	72	532	500	80	21.6...26.6	2.4
Rml-2-600P	25	65	72	632	600	120	21.6...26.6	2.5
Rml-3-400P	30	65	72	438	400	50	27.5...30.6	2.3
Rml-3-500P	30	65	72	538	500	80	27.5...30.6	2.4
Rml-3-600P	30	65	72	638	600	120	27.5...30.6	2.5

### LS-70/12-485

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)

Test report No. 7591/VNL

Date of tests: 09.10.2013

Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/15-685

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)

Test report No. 7789/VNL

Date of tests: 09.10.2013

Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/15-685 SB

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)

Test report No. 8074/VNL

Date of tests: 13.12.2013-07.03.2014

Test specification: IEC 61109:2008 Sub-Clause 9.1, 10.2.2 and IEC 62217:2005 Sub-Clause 9.3.3



### LS-70/24-890

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)

Test report No. 7592/VNL

Date of tests: 09.10.2013

Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/36-980

**VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)**  
 Test report No. 7778/VNL  
 Date of tests: 10.10.2013–23.01.2014  
 Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/36-1095

**VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)**  
 Test report No. 7593/VNL  
 Date of tests: 10.10.2013  
 Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/110 SB

**VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)**  
 Test report No. 8071/VNL  
 Date of tests: 17.09.2013–21.03.2014  
 Test specification: IEC 61109:2008 Sub-Clause 9.1, 10.2.1, 10.3.1, 20.3.2 and IEC 62217:2005 Sub-Clause 9.2



### LS-70/110 SB

**VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)**  
 Test report No. 8072/VNL  
 Date of tests: 10.09.2013–16.09.2013  
 Test specification: IEC 61109:2008 Sub-Clause 9.1, 10.4



### LS-70/36-1300

**VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)**  
 Test report No. 7779/VNL  
 Date of tests: 10.10.2013  
 Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/66-2120

**VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)**  
 Test report No. 7594/VNL  
 Date of tests: 10.10.2013  
 Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/110-2700

**VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)**  
 Test report No. 7595/VNL  
 Date of tests: 10.10.2013  
 Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/110-3140

**VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)**  
 Test report No. 7596/VNL  
 Date of tests: 10.10.2013  
 Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/110-3545

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)  
 Test report No. 7597/VNL  
 Date of tests: 10.10.2013  
 Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/220-5200

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)  
 Test report No. 7790/VNL  
 Date of tests: 17.09.2013  
 Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/220-5770

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)  
 Test report No. 7791/VNL  
 Date of tests: 18.09.2013  
 Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/220-6580

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)  
 Test report No. 7792/VNL  
 Date of tests: 17.09.2013  
 Test specification: IEC 61109:2008 Sub-Clause 11.1



### LS-70/12-485, LS-70/15-685, LS-70/24-890, LS-70/36-980, LS-70/36-1095, LS-70/36-1300, LS-70/66-2120, LS-70/110-2700, LS-70/110-3140, LS-70/110-3545, LS-70/220-5200, LS-70/220-5770, LS-70/220-6580

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)  
 Test report No. 7852/VNL  
 Date of tests: 14.01.2014  
 Test specification: IEC 61109:2008 Sub-Clause 11.2



### Housing and core materials of polymer insulators LS-70

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)  
 Test report No. 8073/VNL  
 Date of tests: 17.09.2013–21.03.2014  
 Test specification: IEC 61109:2008 Sub-Clause 9.1 and IEC 62217:2005 Sub-Clause 9.3.1, 9.3.2, 9.3.4, 9.4





**LS-120/110-3340 SB, LS-120/110-3745 SB, LS-120/220-5770 SB, LS-120/220-6170 SB, LS-120/400-9000 SB, LS-120/400-10015 SB**

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)

Test report No.7902/VNL  
Date of tests: 17.09.2013–21.03.2014  
Test specification: IEC 61109:2008



European certificate of compliance with the requirements of IEC 61109:2008 and IEC 62217:2005

**LS-120/110-2790 SB, LS-120/110-3340 SB, LS-120/110-3745 SB, LS-120/220-5770 SB, LS-120/220-6170 SB, LS-120/400-9000 SB, LS-120/400-10015 SB**

VEIKI-VNL Electric Large Laboratories Ltd. (Hungary)

Test report No.7853/VNL  
Date of tests: 24.01.2014–27.01.2014  
Test specification: IEC 61109:2008 Sub-Clause 11.1



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