

LEADING IN INSULATION TECHNOLOGY

KUVAG



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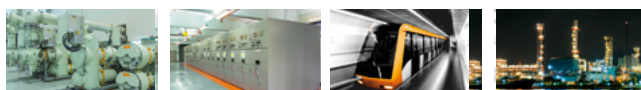


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Indoor post insulators up to 4 kV

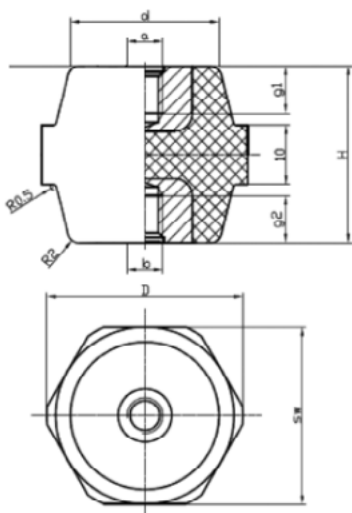


Fig. 1

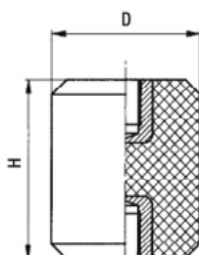
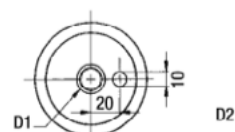


Fig. 2



Bottom

Type	Fig.	Art. No.	H	D	D1	Bending strength	Tensile strength	Weight	Maximum operating voltage	SW
			mm	mm		> kN	> kN	kg/100	kV	mm
NSS 30/30-M6	1	004870-00	30	33	M6x8	3	6	5,8	2	30
NSS 30/30-M8	1	004871-00	30	33	M8x8	3	6	5,8	2	30
NSS 40/40-M8	1	004872-00	40	45	M8x10	6	12,5	12,3	2	40
NSS 40/40-M10	1	004873-00	40	45	M10x12	6	12,5	12,3	2	40
NSS 40/40-M12	1	004874-00	40	40	M12x12	6	12,5	12,3	2	40
NSS 50/50-M10	1	004875-00	50	55	M10x15	9	17,5	20	3	50
NSS 50/50-M12	1	004876-00	50	55	M12x12	9	17,5	20	3	50
NSS 60/60-M12	2	000714-00	60	60	M12x18	12,5	22,5	33	3	
NSS 60/60-M16	2	000516-00	60	60	M16x18	15	25	33	3	
NSS80/60-M12	2	004051-00	80	60	M12x18	7,5	19	42	3	
NSS 80/60-M16	2	004039-00	80	60	M16x22	9,5	20	42	3	
NSS 100/80-M16	2	004052-00	100	80	M16x22	12,5	25	95	4	

* Item on stock, dependent on demand

Indoor post insulators up to 7,2 kV

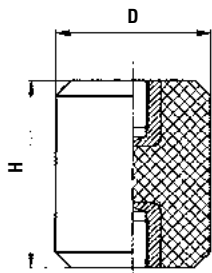
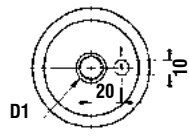


Fig. 1



Bottom

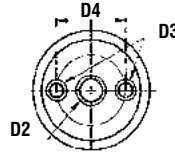


Fig. 2

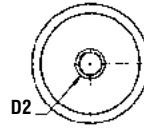


Fig. 3

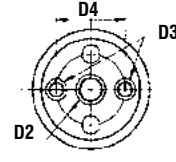


Fig. 4

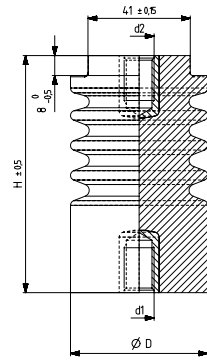


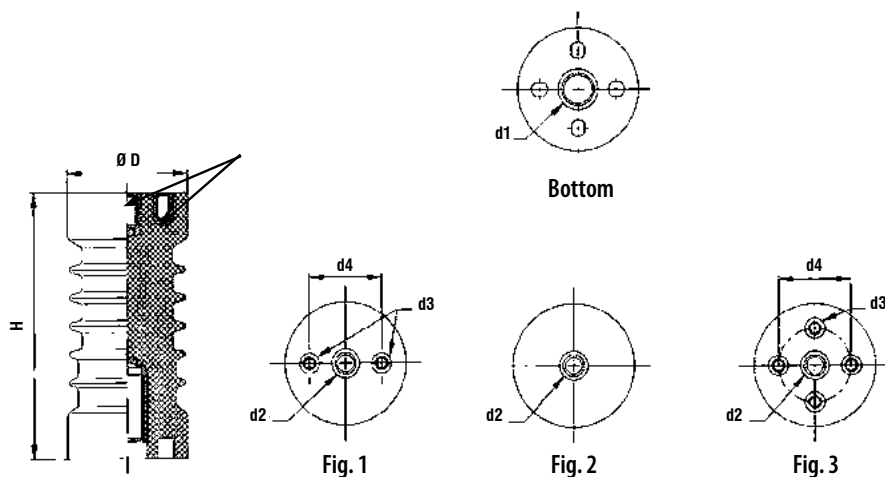
Fig. 5

Fig. 6

Type	Fig.	Art. No.	Drawing No.	Creepage distance	Bending strength	H	D	d1	d2	d3	d4	Weight	Maximum operating voltage
				mm	> kN	mm	mm				mm	kg	kV
SGA 1/40	1	000491-00	M0130	67	5	40	60	M10x12	M10x12	M6x5 3	36	0,18	6
SGA 1/40	2	000109-00	M0130	67	5	40	60	M10x12	M10x12			0,18	6
SGA 1/45	3	000113-00	M0130	72	5	45	60	M10x12	M10x12	M6x8 3	36	0,22	6
SGA 1/50	2	000464-00	M0130	77	5	50	60	M12x18	M12x18			0,26	6
* SGA 3/60	1	000314-00	M0130	87	5	60	60	M12x18	M12x18	M6x12	36	0,31	6
* SGA 3/60	2	000311-00	M0130	87	5	60	60	M12x18	M12x18			0,31	6
* SGB 1R	3	000114-00	M0131	60	7,5	45	66	M16x15	M16x15	M10x16	46	0,34	6
SGC 1R	3	000115-00	M0132	59	12,5	45	86	M16x15	M16x15	M10x16	66	0,54	6
SGB 3/65	2	000312-00	M0134	85	7,5	65	66	M16x20	M16x20			0,46	6
* SGB 3/70	1	000117-00	M0134	90	7,5	70	66	M16x20	M16x20	M10x16	46	0,49	6
SGB 3/70	2	000653-00	M0134	90	7,5	70	66	M16x20	M16x20			0,49	6
SGB 3/87	1	000333-00	M1169	107	7,5	87	75	M16x20	M16x20	M10x16	46	0,57	7,2
SGB 3/87	2	000313-00	M0134	107	7,5	87	66	M16x20	M16x20			0,57	7,2
SGB 3/87	1	000540-00	M0135	107	7,5	87	66	M10x23	M10x23	M6x12	36	0,57	7,2
SGD 7,2N	2	000321-00	M0136	115	20	80	88	M16x20	M16x20			1,22	7,2
J08-60 So H65	5	021813-00	NP_111_2498_1	105	8,2	65	55	M12x18	M12x18			0,23	6
J08-60 So H95	6	1424	NP_111_2497_1	135	5,3	95	55	M12x18	M12x18			0,33	7,2

* Item on stock, dependent on demand

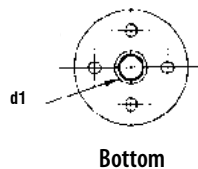
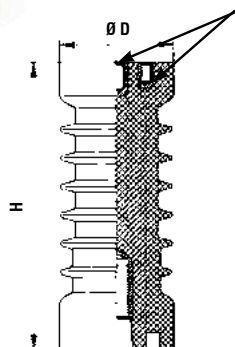
Indoor post insulators 12 kV



Type	Fig.	Art. No.	Drawing No.	Lightning impulse withstand voltage	Creepage distance	Bending strength	Weight	H	D	d1	d2	d3	d4
				kV	mm	kN	kg	mm	mm				mm
* SGA12S	1	000118-00	M0020-0	60	133	5	0,45	95	60	M16x33	M10x16	M6x12	36
* SGA12S	1	000119-00	M0020-2	60	133	5	0,45	95	60	M12x30	M10x16	M6x12	36
* SGA12S	2	000121-00	M0020-0	60	133	5	0,45	95	60	M16x33	M10x16		
SGA12S	2	004238-00	M0020-2	60	133	5	0,45	95	60	M12x25	M12x18		
SGA12S	3	000374-00	M0020-0	60	133	5	0,45	95	60	M16x33	M10x16	M6x12	36
* SGA12S	1	000645-00	M0020-1	60	133	5	0,45	95	60	M16x33	M12x18	M6x12	36
* SGA12N	1	000001-00	M0021-0	75	174	5	0,58	130	60	M16x33	M10x20	M6x12	36
* SGA12N	2	000251-00	M0021-0	75	174	5	0,58	130	60	M16x33	M10x20		
* SGA12N	3	000376-00	M0021-0	75	174	5	0,58	130	60	M16x33	M10x20	M6x12	36
* SGA12N	1	000542-00	M0021-1	75	174	5	0,58	130	60	M16x33	M12x18	M6x12	36
* SGB12S	1	000668-00	M0240	60	133	10	0,55	95	72	M16x25	M16x25	M10x16	46
* SGB12N	1	020028-00	M0022-0	75	187	10	0,87	130	72	M20x34	M16x33	M10x16	46
* SGB12N	2	000126-00	M0022-0	75	187	10	0,87	130	72	M20x34	M16x33		
* SGB12N	3	000127-00	M0022-0	75	187	10	0,87	130	72	M20x34	M16x33	M10x16	46
* SGB12N	1	000544-00	M0022-K1	75	187	10	0,95	130	77	M20x34	M16x33	M10x16	46
* SGB12F	1	000983-00	M0627	110	322	10	1,3	130	98	M20x34	M16x33	M10x16	46
* SGC12N	1	000644-00	M0023-0	75	195	16	1,32	130	90	M20x34	M16x33	M10x16	66
SGC12N	2	000131-00	M0023-0	75	195	16	1,32	130	90	M20x34	M16x33		
SGC12N	3	000132-00	M0023-0	75	195	16	1,32	130	90	M20x34	M16x33	M10x16	66
SGD12N	2	000136-00	M0024-0	75	261	25	2,85	130	130	M20x34	M16x33		
SGD12N	2	000137-00	M0024-K1	75	261	25	2,74	125	130	M20x34	M16x33		
* SGD12N	3	000545-00	M0024-0	75	261	25	2,85	130	130	M24x35	M16x33	M10x16	66
SGB12N		KT037	NP1120690	85	181	8	0,85	124	72	M16x33		M10x16	23

* Item on stock, dependent on demand

Indoor post insulators 17,5 kV - 38,5 kV



Bottom

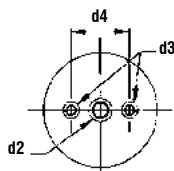


Fig. 1

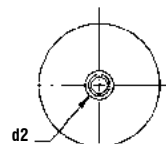


Fig. 2

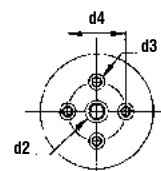


Fig. 3

Type	Fig.	Art. No.	Drawing No.	Lightning impulse withstand voltage	Creepage distance	Bending strength	Weight	H	D	d1	d2	d3	d4
				kV	mm	> kN	kg	mm	mm				mm
SGB17,5F	1	004243-00	M0838	110	328	10	1,60	160	98	M20x34	M16x33	M10x16	46
* SGA24S	1	000096-00	M0025-0	95	258	5	1,00	175	70	M16x33	M10x16	M6x12	36
SGA24S	2	000138-00	M0025-0	95	258	5	1,00	175	70	M16x33	M10x16		
SGA24S	3	000378-00	M0025-0	95	258	5	1,00	175	70	M16x33	M10x16	M6x12	36
* SGA24S	1	000546-00	M0025-1	95	258	5	1,00	175	70	M16x33	M12x18	M6x12	36
* SGA24N	1	000095-00	M0026-0	125	296	5	1,20	210	70	M16x33	M10x16	M6x12	36
SGA24N	2	000143-00	M0026-0	125	296	5	1,20	210	70	M16x33	M10x16		
SGA24N	3	000380-00	M0026-0	125	296	5	1,20	210	70	M16x33	M10x16	M6x12	36
* SGA24N	1	000547-00	M0026-1	125	296	5	1,20	210	70	M16x33	M12x18	M6x12	36
* SGB24S	1	000228-00	M0027	95	259	10	1,35	175	80	M20x34	M16x33	M10x16	46
* SGB24N	1	000550-00	M0028-0	125	308	10	1,85	210	85	M20x34	M16x33	M10x16	46
* SGB24N	2	000221-00	M0028-0	125	308	10	1,85	210	85	M20x34	M16x33		
SGB24N	3	000220-00	M0028-0	125	308	10	1,85	210	85	M20x34	M16x33	M10x16	46
* SGB24F	1	004541-00	M0626	125	417	10	2,10	210	98	M20x34	M16x33	M10x16	46
SGB 24F-L,A04		1430	NP110 2730 1	125	505	8	2,20	225	98	M20x34	M16x42		
SGB 24F-L,A05		1433	NP110 2731 1	125	505	8	2,20	225	98	M20x34	M16x42	M10x16	46
SGC24N	1	000553-00	M0029-0	125	275	10	2,55	210	89	M24x35	M16x33	M10x16	66
SGD24N	1	000687-00	M2048	125	404	25	4,15	210	130	M24x35	M16x33	M10x16	66
* SGA36N	1	000231-00	M0039-0	170	434	5	2,10	300	80	M16x33	M10x16	M6x12	36
* SGA36N	2	000232-00	M0039-0	170	434	5	2,10	300	80	M16x33	M10x16		
SGA36N	3	000381-00	M0039-0	170	434	5	2,10	300	80	M16x33	M10x16	M6x12	36
SGA36N	1	000551-00	M0039-1	170	434	5	2,10	300	80	M16x33	M12x18	M6x12	36
* SGB36N	1	000233-00	M0040-0	170	434	7,5	3,20	300	95	M24x35	M16x33	M10x16	46
SGB36N	2	000235-00	M0040-0	170	434	7,5	3,20	300	95	M24x35	M16x33		
SGC36N	1	000242-00	M0041-1	170	601	16	5,87	300	130	M24x35	M16x33	M10x16	66
* SGB38,5F	1	004185-00	M0629	180	546	10	3,20	325	98	M24x35	M16x33	M10x16	46
IO 8-195	1	004929-00	NP1121468 2	195	535	7	4,90	350	110	M24x35	M16x33	M10x20	46

* Item on stock, dependent on demand

Capacitive post insulators 3 kV - 38,5 kV

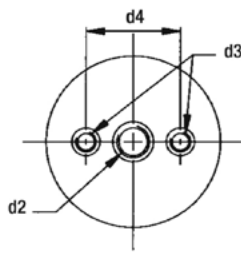
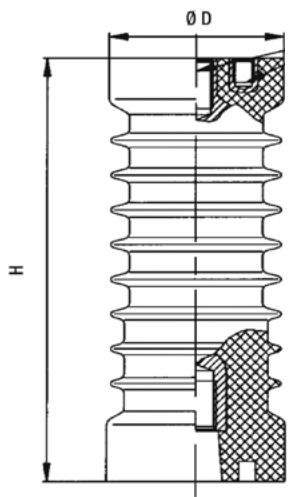
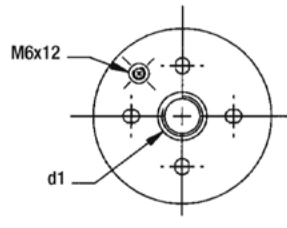


Fig. 1



Bottom

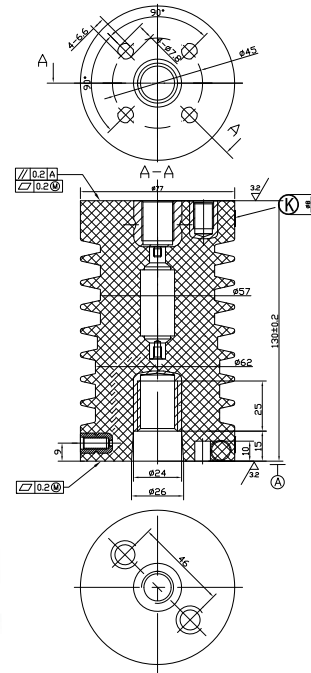


Fig. 2

Type	Fig.	Art. No.	Drawing No.	Lightning impulse withstand voltage	Creepage distance	Bending strength	weight	H	D	d1	d2	d3	d4
				kV	mm	>kN	kg	mm	mm				mm
* SGA 12N-kap	1	000703-00	M0435	75	187	5	1,30	130	77	M16x25	M12x18	M6x12	36
SGB 3N-kap	1	021470-00	NP1123114	40	187	10	1,03	130	77	M20x25	M16x18,5	M10x12	46
* SGB 6N-kap	1	021053-00	NP1123114	75	187	10	1,03	130	77	M20x25	M16x18,5	M10x12	46
SGB 12N-kap	1	000383-00	M0091	75	187	10	1,25	130	77	M20x25	M16x20	M10x12	46
B10N-1000C	2	KT051	KXl.B10.213	75	240	7,5	1,50	130	77	M20x25	M16x29	M10x14	46
SGC 12N-kap	1	004087-00	M0092	75	177	16	1,55	130	90	M20x25	M16x20	M10x12	66
SGD 12N-kap	1	000704-00	M0436	75	261	25	3,00	130	130	M20x25	M16x20	M10x12	66
SGB 17,5-kap	1	021207-00	NP11230151	85	328	9,6	1,60	160	98	M20x25	M16x25	M10x16	46
* SGA 24N-kap	1	000705-00	M0437	125	296	5	1,80	210	77	M16x33	M12x18	M6x12	36
* SGB 24N-kap	1	000385-00	M0093	125	308	10	2,05	210	85	M20x34	M16x25	M10x12	46
SGB 24L-kap	1	1428	NP11220381	125	339	6,8	2,10	225	86	M16x33	M12x20		
SGA 36N-kap	1	000706-00	M0438	170	434	5	2,10	300	80	M16x33	M12x18	M6x12	36
SGB 36N-kap	1	000482-00	M0202	170	434	7,5	3,20	300	95	M24x35	M16x25	M10x12	46
SGB 38,5F-kap	1	004418-00	M1517	180	546	7,5	3,20	325	98	M24x35	M16x25	M10x16	46
IO 8-195-kap	1	1370	NP11213701	195	535	8	4,90	350	110	M24x35	M16x25	M10x20	46

* Item on stock, dependent on demand

Capacitor for rated voltage

3 kV -> 100 pF
 6 kV -> 50 pF
 12 kV -> 20 pF
 24 kV -> 15 pF
 36 kV -> 10 pF

Indoor bushings type BWS 12 kV



Fig. 1

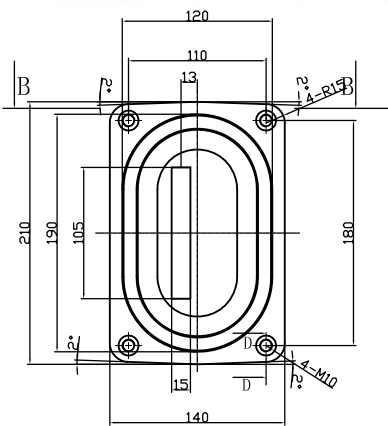


Fig. 3

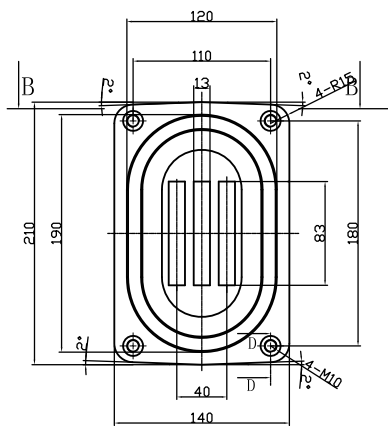


Fig. 2

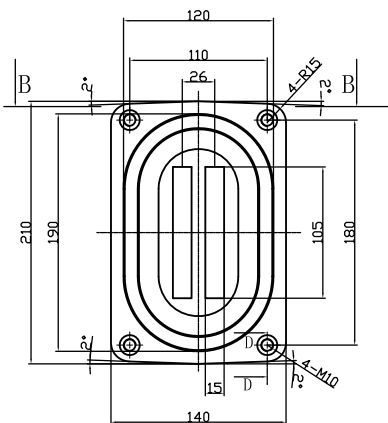
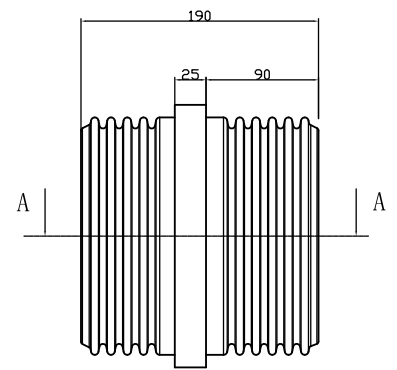
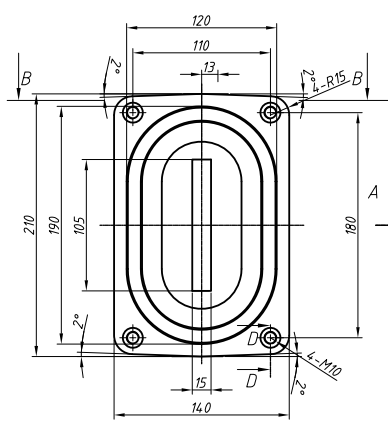
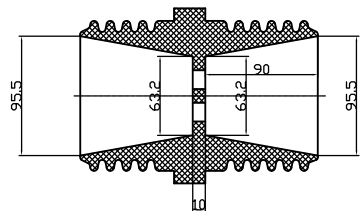


Fig. 4

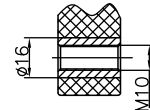


A-A



D-D

1:2

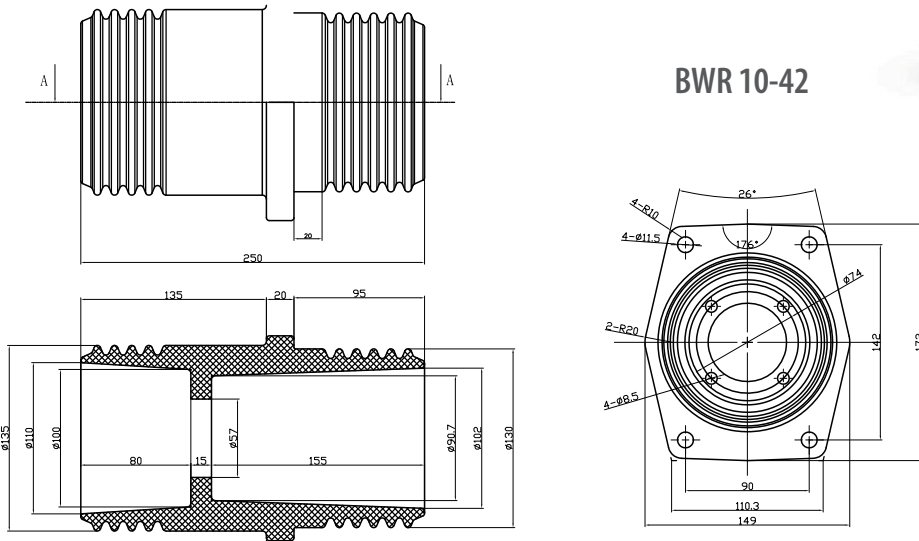


Type	Fig.	Art. No.	Rated voltage kV	Test voltage kV	Weight kg
BWS 10-42 des. 1	1	KT047	12	42	3,37
BWS 10-42 des. 2	2	KT046	12	42	3,36
BWS 10-42 des. 3	3	KT048	12	42	3,35
BWS 10-42 des. 4	4	KT073	12	42	3,38

Indoor bushings type BWR 12 kV



Fig. 1



BWR 10-42

Type	Fig.	Art. No.	Rated voltage	Test voltage	Weight
			kV	kV	kg
BWR 10 - 42	1	KT049	12	42	2,70

Spout type B12

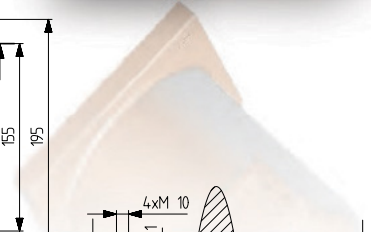
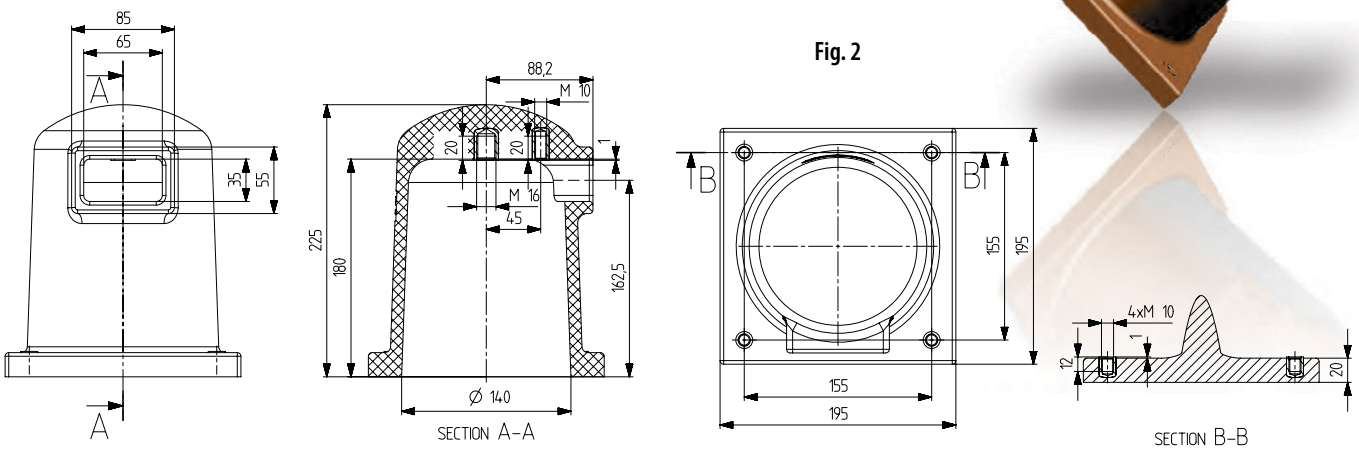


Fig. 2



Type	Fig.	Art. No.	Rated voltage	Test voltage	Weight
			kV	kV	kg
Spout B12-2	2	CZ7225	12	42	3,20

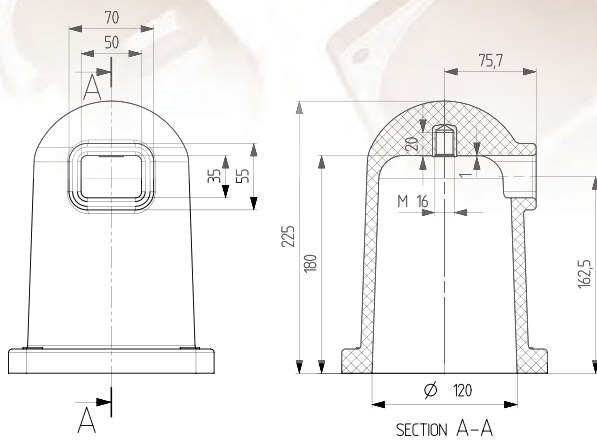
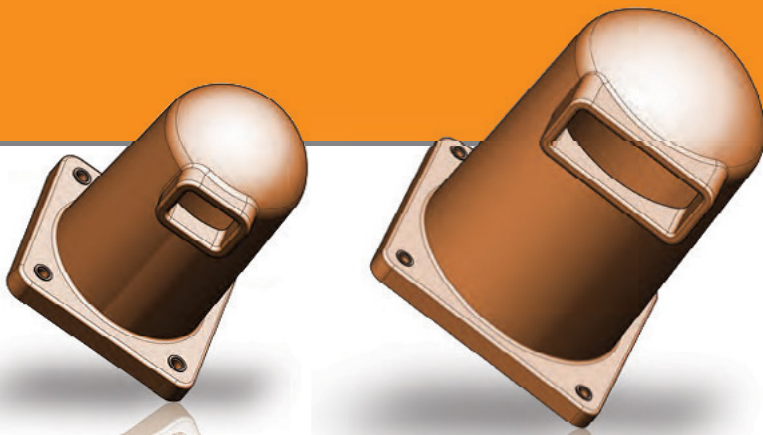


Fig. 1

B12-1

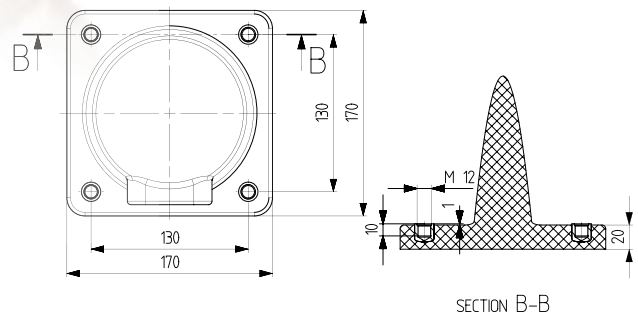
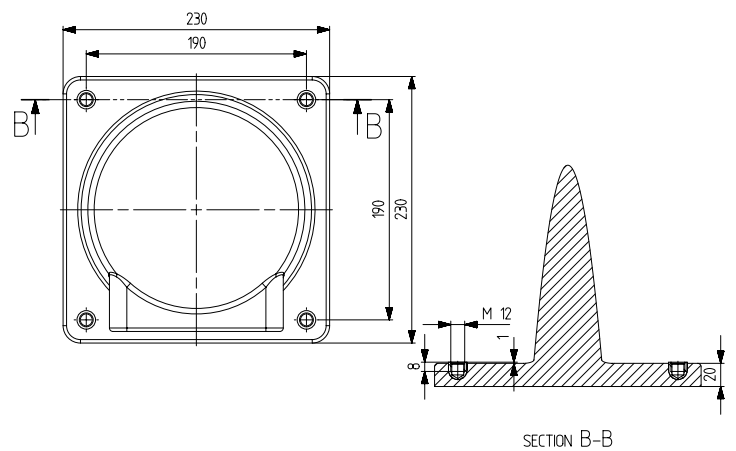
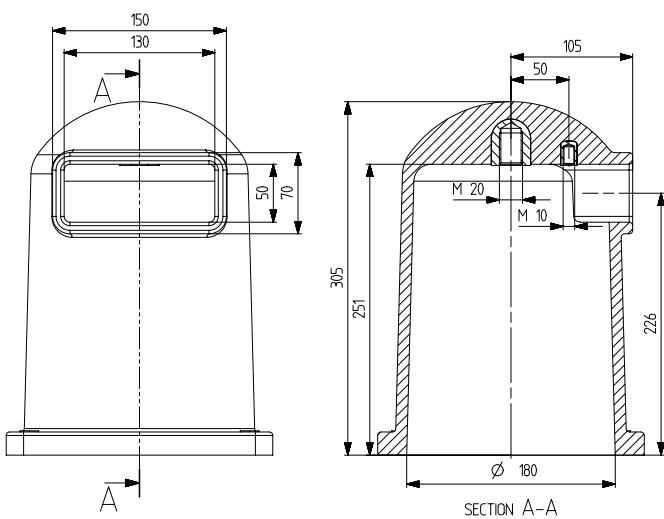


Fig. 2

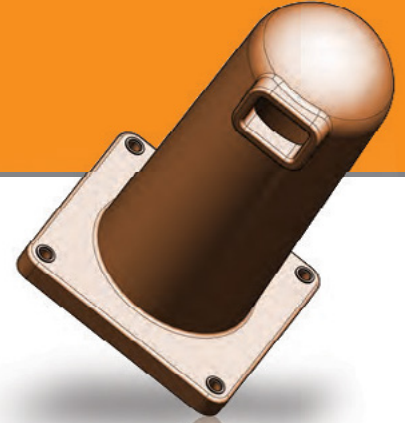
B17,5-2

Type	Fig.	Art. No.	Rated voltage kV	Test voltage kV	Weight kg
Spout B12-1	1	000590-00	12	42	2,58



Type	Fig.	Art. No.	Rated voltage kV	Test voltage kV	Weight kg
Spout B17,5-2	2	000768-00	15	55	5,24

Spouts B24



B24-1250

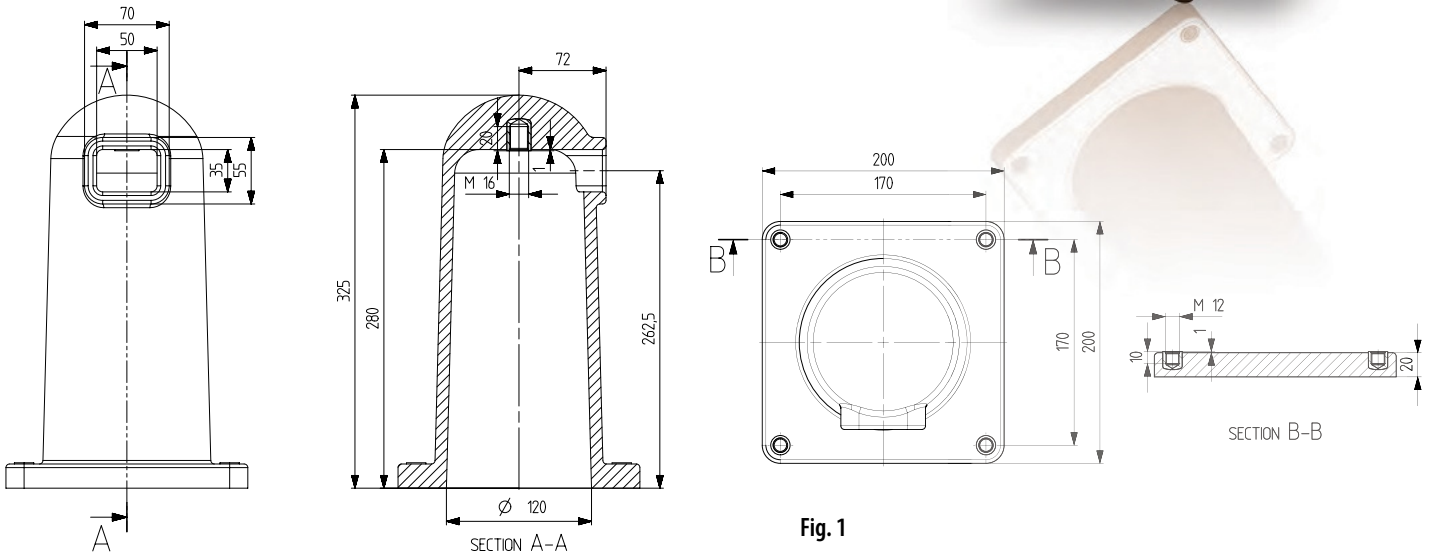


Fig. 1

Type	Fig.	Art. No.	Rated voltage kV	Test voltage kV	Weight kg
Spout B24-1250	1	000591-00	24	65	3,66

Spout24 des.01

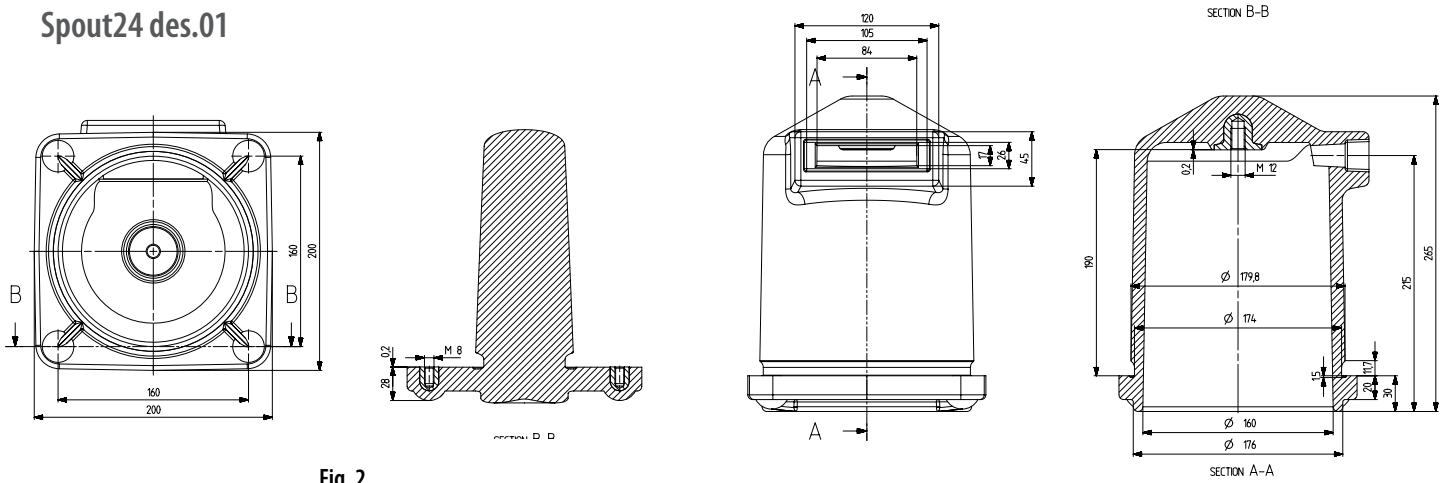
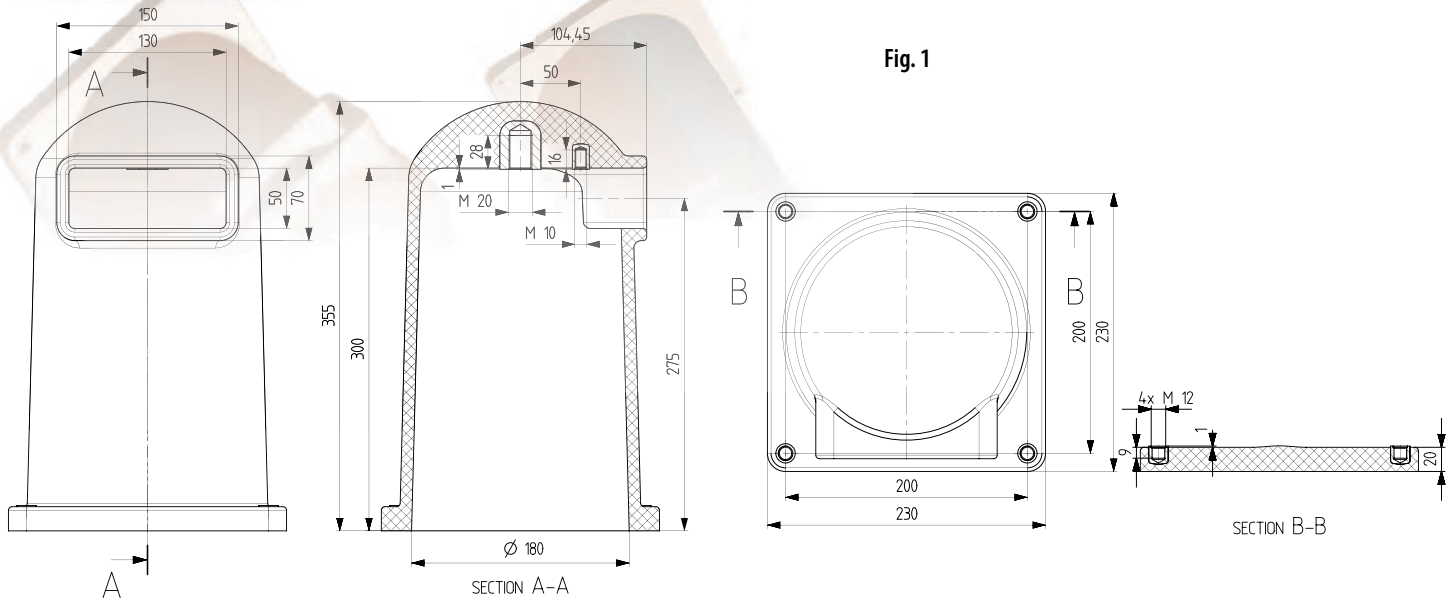
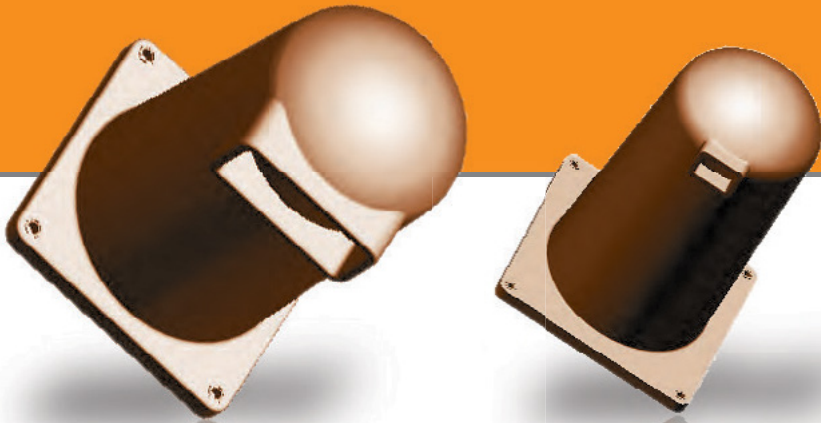
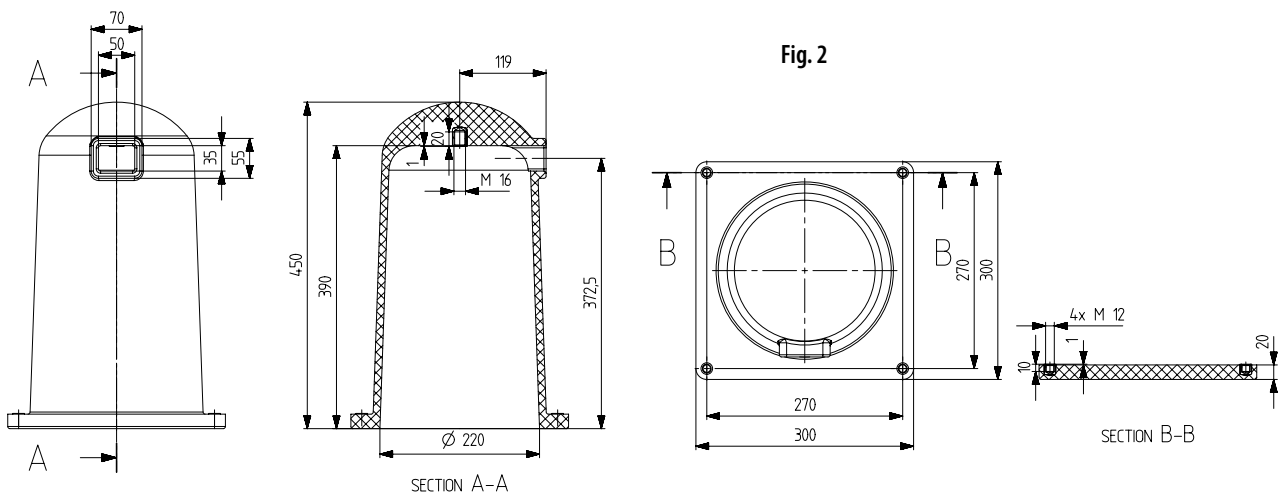


Fig. 2

Type	Fig.	Art. No.	Rated voltage kV	Test voltage kV	Weight kg
Spout B24 des. 1	2	CZ7139	24	65	3,95



Type	Fig.	Art. No.	Rated voltage kV	Test voltage kV	Weight kg
Spout B24-2	1	004053-00	24	65	5,89



Type	Fig.	Art. No.	Rated voltage kV	Test voltage kV	Weight kg
Spout B36	2	000592-00	36	85	9,22

Indoor bushings type DR up to 36 kV

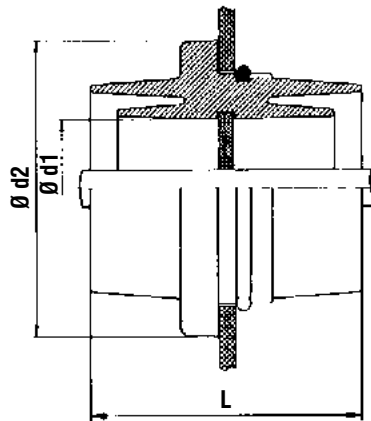


Fig. 1

Type	Fig.	Art. No.	Drawing No.	Rated voltage	Creepage distance	Weight	L	d1	d2
				kV	mm	kg	mm	mm	mm
DR 12/55	1	000912-00	M0746	6 (12)*	120	0,80	120	55	110
DR 12/75	1	000908-00	M0746	6 (12)*	120	1,00	120	75	130
DR 12/95	1	000916-00	M0746	6 (12)*	120	1,20	120	95	150
DR 12/115	1	000920-00	M0746	6 (12)*	120	1,55	120	115	170
DR 24-36/55	1	000964-00	M0318	24 (36)*	225	1,10	150	55	120
DR 24-36/75	1	000969-00	M0318	24 (36)*	225	1,30	150	75	140
DR 24-36/95	1	000953-00	M0318	24 (36)*	225	1,60	150	95	160
DR 24-36/115	1	000974-00	M0318	24 (36)*	225	2,10	150	115	180

*Installation with an insulating plate

Screwable bushings type GD up to 36 kV

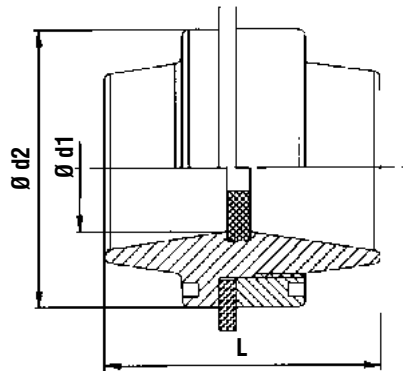


Fig. 1

Type	Fig.	Art. No.	Drawing No.	Rated voltage	Creepage distance	Weight	L	d1	d2
				kV	mm	kg	mm	mm	mm
GD 1,2/55	1	000248-00	M0063	1,2	55	0,45	46-52	55	101,5
* GD 12/55	1	000740-00	M0204	6 (12)**	120	1,10	120	55	120
* GD 12/75	1	000707-00	M0204	6 (12)**	120	1,30	120	75	140
* GD 12/95	1	000708-00	M0204	6 (12)**	120	1,60	120	95	160
GD 12/115	1	004054-00	M0204	6 (12)**	120	1,85	120	115	180
GD 12/145	1	004055-00	M0204	6 (12)**	120	2,20	120	145	210
* GD 24-36/55	1	000741-00	M0065	24 (36)**	230	1,65	150	55	140
* GD 24-36/75	1	000742-00	M0065	24 (36)**	230	1,96	150	75	160
GD 24-36/95	1	000709-00	M0065	24 (36)**	230	2,30	150	95	180
* GD 24-36/115	1	004056-00	M0065	24 (36)**	230	2,60	150	115	200
* GD 24-36/145	1	004057-00	M0065	24 (36)**	230	3,00	150	145	230

* Item on stock, dependent on demand

**Installation with an insulating plate

Indoor bushings type DGFI 12 kV - 36 kV

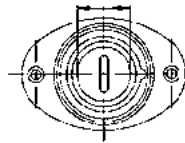
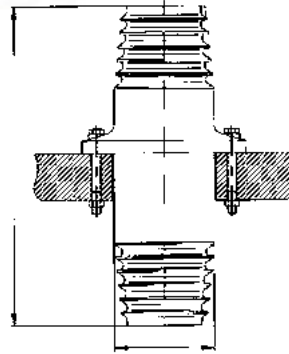
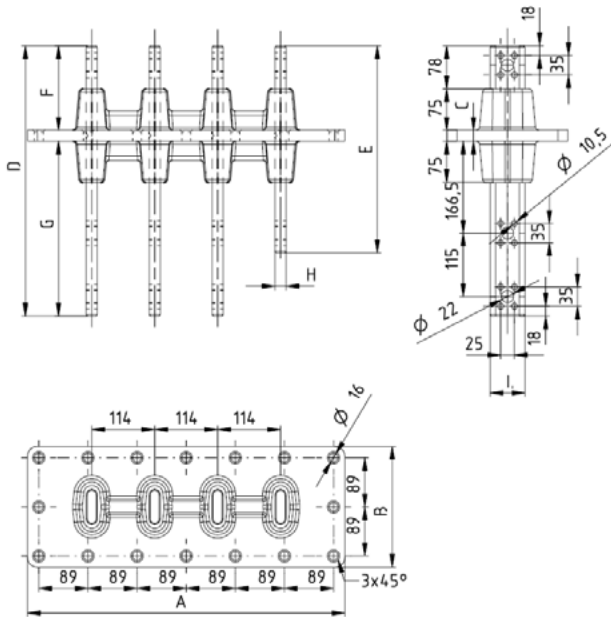


Fig. 1



Type	Fig.	Art. No.	Drawing No.	Rated voltage	Creepage distance	Weight	L	d1	d2
				kV	mm	kg	mm	mm	mm
DGFI 12/55	1	000323-00	M0066	12	140	3,00	285	55	100
DGFI 12/75	1	000324-00	M0066	12	140	3,30	285	75	120
DGFI 12/95	1	000325-00	M0066	12	140	3,60	285	95	140
DGFI 12/145	1	000326-00	M0066	12	140	4,20	285	145	190
DGFI 24/55	1	000327-00	M0067	24	250	6,50	440	55	120
DGFI 24/75	1	000328-00	M0067	24	250	7,20	440	75	140
DGFI 24/95	1	000329-00	M0067	24	250	7,80	440	95	160
GDFI 36/55	1	000330-00	M0068	36	350	9,40	570	55	134
DGFI 36/75	1	000331-00	M0068	36	350	10,20	570	75	154
DGFI 36/115	1	000720-00	M0068	36	350	15,30	570	115	194



Art. No.	Drawing No.	Rated current	A	B	C	D	E	F	G	H	I
		A	mm	mm	mm	mm	mm	mm	mm	mm	mm
000902-00	M0710	800	575	219	20	375	375	158	197	12,5	63
020088-00	M2467	800	575	219	20	380	380	158	202	12,5	63
000901-00	M0711	1400	575	219	20	490	375	158	312	12,5	63
004126-00	M1078	1400	575	219	20	375	375	158	197	12,5	63
004127-00	M1085	1400	575	219	20	490	490	158	312	12,5	63
004371-00	M1470	1400	575	219	20	490	490	158	312	12,5	63
004743-00	M2232	1400	575	219	20	375	375	197	158	12,5	63
004824-00	M2410	1400	575	219	20	500	500	158	322	12,5	63
000950-00	M0857	1400	575	219	20	466,5	383,5	144,5	302	12,5	63
000949-00	M0859	1444	575	219	20	385	385	164	201	12,5	63
004109-00	M0164	1444	575	219	20	427	427	263	144	12,5	63
004161-00	M1160	1450	575	219	20	490	490	158	312	12,5	63
004282-00	M1236	2500	575	219	20	490	490	153	317	20	63
000903-00	M0712	2100	575	219	20	620	505	153	447	20	63
004090-00	M1050	2500	575	219	20	540	540	339,5	180,5	20	63
004207-00	M1205	2500	575	219	20	490	375	153	317	20	63
004281-00	M1304	2500	575	219	20	532,5	417,5	195,5	317	20	63
004372-00	M1469	2500	575	219	20	605	605	153	432	20	63
004819-00	M2387	2500	575	219	20	529	529	319	190	20	63
004820-00	M2385	2500	575	219	20	615	615	160	435	20	63
004125-00	M1083	2600	575	219	20	605	605	153	432	20	63
000951-00	M0858	3150	575	219	20	415	415	195,5	199,5	20	63
004280-00	M1303	3150	575	219	20	647,5	317	195,5	452	20	63

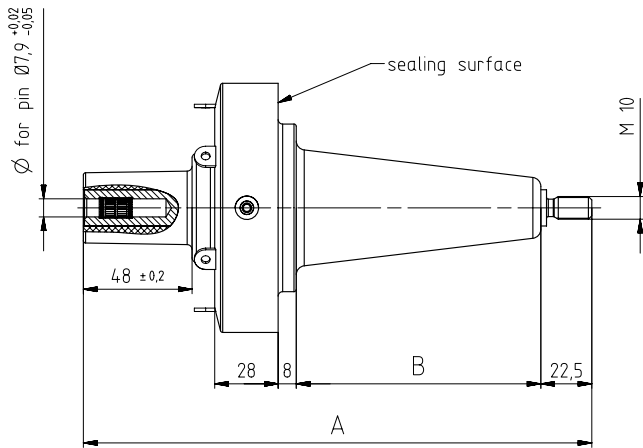
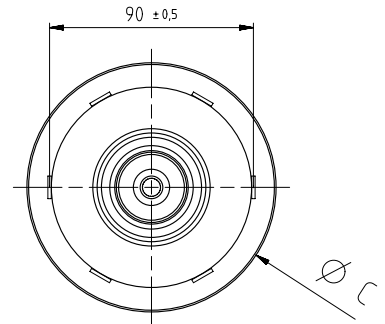
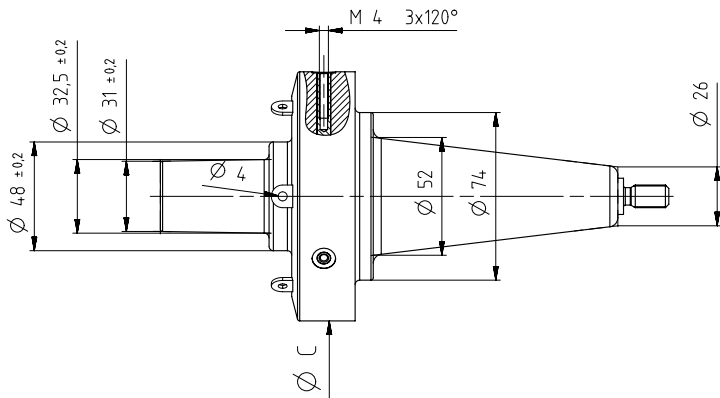
Bushing plugs up to 52 kV



Type	Drawing No.	Art. No.	Size	Rated current	Max. operating voltage	Power frequency test *	Capacitance voltage tap	Weight
				A	Um (kV)		pF	kg
Bushing plug	M3015	021431-00	2	800	42	70kV / 1 min	-	1,86
Bushing with voltage tap	M3120	021432-00	2	800	42	70kV / 1 min	6,7 ± 1,5	1,88
Bushing plug	M3123	021433-00	3	1250	52	95kV / 1 min	-	4,45
Bushing with voltage tap	M3124	021434-00	3	1250	52	95kV / 1 min	8,3 ± 1,5	4,45
Bushing with voltage tap	M3268	021703-00	3	1250	52	95kV / 1 min	8,3 ± 1,5	4,45

* PD level at 1,1 x Um ≤ 5pC

Transformer bushings up to 36 kV



Type	Drawing No.	Art. No.	Interface	Rated voltage	Rated current	Thread	A	B	Weight
				kV	A		mm	mm	kg
TB 24-250-R	M3188	021353-00	A	24	250	M10	189,5	73	1,06
TB 24-250-N	M3187	021352-00	A	24	250	M10	224,5	108	1,20
TB 24-250-L	M3186	021351-00	A	24	250	M10	284,5	168	1,43
TB 36-630	M3185	021350-00	C	36	630	M16	330	150	2,50

Busbar holder

Holders for horizontally and vertically installed busbars

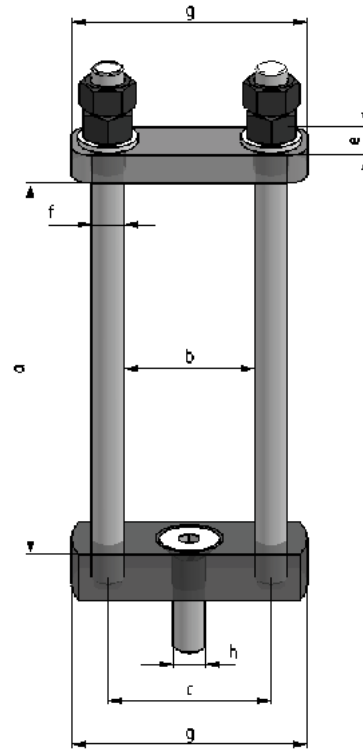
ALH type

ALF type

Material

Top & bottom plate: Aluminium

Threaded bolt: Stainless steel



Busbar holders for vertical position								
Typ/Type	a	b	c	d	e	f	g	h
Alh 10	30	28	36	80	25	M8	55	M10
Alh 11	40	28	36	90	25	M8	55	M10
Alh 13	50	37	45	100	25	M8	70	M10
Alh 14	60	37	45	110	25	M8	70	M10
Alh 16	80	40	50	135	35	M10	70	M10
Alh 20	50	40	50	105	35	M10	70	M16
Alh 21	60	40	50	115	35	M10	70	M16
Alh 22	80	40	50	135	35	M10	70	M16
Alh 23	100	40	50	155	35	M10	70	M16
Alh 25.1	80	85	95	135	35	M10	120	M16
Alh 25.2	80	85	95	135	35	M10	120	M12
Alh 26.1	100	85	95	155	35	M10	120	M16
Alh 26.2	100	85	95	155	35	M10	120	M12
Alh 27	120	40	50	175	35	M10	70	M16
Alh 28	120	50	60	175	35	M10	80	M16
Alh 29	160	85	95	215	35	M10	120	M16
Alh 30	160	40	50	215	35	M10	70	M16

Busbar holders for horizontal position								
Typ/Type	a	b	c	d	e	f	g	h
Alf 10	5	32	40	55	25	M8	70	M10
Alf 12.1	10	55	63	60	25	M8	85	M10
Alf 12.2	10	55	63	60	25	M8	85	M12
Alf 12.3	10	55	63	60	25	M8	85	M20
Alf 14	15	65	75	70	35	M10	100	M10
Alf 15	10	65	75	65	35	M10	100	M10
Alf 16	30	65	75	85	35	M10	100	M10
Alf 20.1	10	65	75	65	35	M10	100	M16
Alf 20.2	10	65	75	65	35	M10	100	M12
Alf 21	30	65	75	85	35	M10	100	M16
Alf 25	10	105	115	65	35	M10	140	M16
Alf 26	30	105	115	85	35	M10	140	M16
Alf 27	50	105	115	105	35	M10	140	M16
Alf 28	70	105	115	125	35	M10	140	M16
Alf 29	30	125	135	85	35	M10	160	M16
Alf 30	35	125	135	90	35	M10	160	M16
Alf 31	30	85	95	85	35	M10	120	M16
Alf 32	120	125	135	85	35	M10	160	M16



The CPI plus device is a capacitive voltage indicator for permanent monitoring of voltage presence of all 3 phases in electrical equipment. Two basic alternatives are available: A standard device with visual indication of voltage condition as well as a version with a built-in relay to allow remote monitoring and further use of signals. The indicator contains a LRM interface to check functionality and phase sequence. The CPI+ combines proven and reliable technology at reasonable cost.

! HIGHLIGHTS

- Integrated system for detection and indication of voltage condition in MV/HV equipment
- Full accordance with requirements of IEC 61243-5 and VDE 0682-415
- Visual output of voltage condition with flashing LEDs
- System available with output relay for remote monitoring of condition and transfer of signal (e.g. locking of cubicle)
- Easy installation through use of FAST-ON cable connections; all cables available as add-on
- Possibility for simple functionality test using external tester at LRM interfaces
- Robust design and reliable indication even in harsh environment (IP 54; wide temperature range)

Technical specification

Electrical details

Nominal frequency	50 - 60 Hz
Rated voltage of insulators	3,0 – 38,5 kV (other upon request)
Power input _{max}	1,0 W
Coupling capacity	KUVAG sensors: 20 - 15 - 10 pF (12 - 24 - 36 kV) 50 pF (for system voltage 6,0 – 7,2 kV) 100 pF (for system voltage 3,0 kV) customized sensors: various range available upon request

Contact ratings	AC 250 V / 8 A
	DC 24 V / 8 A

Protection class	Standard IP 54
Testing interfaces	LRM interface

Specification of relay

Auxiliary voltage	24 - 230 V, ±10 % (AC/DC) Polarity reversal of DC auxiliary voltage: built-in protection; permanently resistant; undisturbed function
Output logic of relay	The CPI plus 3P/R is able to switch between 2 different output modes (switch is located on the device) Voltage OFF (the relay contact is closed if all phases are free of voltage) Voltage ON (the relay contact is closed in case of all three phases are under voltage)

General properties

Dimensions of VDS ¹	96 x 48 x 95 mm (W x H x D) Cut-out: 92 x 45 mm
Weight	155 gr (280 gr with relay)
Operating temperature	-40°C up to +55°C (in operation)
Applicable standards	Fully compliant with IEC 61243-5

¹ Depth of device including covering ridge and terminal board

Voltage detection system

KUVIN



The KUVIN device is a capacitive voltage indicator with an integrated LCD display and LRM interface for permanent monitoring of voltage presence of all 3 phases in electrical equipment. Two basic alternatives are available: A standard device with visual indication of voltage condition as well as a version with a built-in relay to allow remote monitoring and further use of signals. The indicator is free of maintenance and combines proven and reliable technology at reasonable cost.

! HIGHLIGHTS

- New voltage detection system with LCD display and integrated LRM interface
- Full accordance with all requirements of IEC 61243-5 and VDE 0682-415
- Completely free of maintenance, operating test integrated into device (no external testing device needed)
- Additional visual output in case of failure mode in switchgear with LEDs
- Integrated relay for remote monitoring of condition and transfer of signal
- Coupling capacity can be configured through built-in switching module (10 pre-defined ranges)
- Easy installation through use of FAST-ON cable connections; all cables available as add-on.

Technical specification

Electrical details

Nominal frequency	50 - 60 Hz
Rated voltage of insulators	6,0 - 72,0 kV
Power input _{max}	1,0 W
System rated voltage ¹	6,0 kV to 72,0 kV
Coupling capacity	Capacity configured directly at device standard range from 200 kVpF – 4.000 kVpF Other capacities available upon request
Contact ratings	AC 250 V / 8 A DC 24 V / 8 A
Protection class	IP 54
Testing interfaces	LRM interface

Specification of relay

Auxiliary voltage	24 - 230 V, ±10 % Polarity reversal of DC auxiliary voltage: built-in protection; permanently resistant; undisturbed function
Output logic	Available options for output: <ul style="list-style-type: none"> ▪ Fixed output logic (HV-on or HV-off) ▪ 2 interchangeable operating modes (HV-on and HV-off; not simultaneously) ▪ 2 operating modes in one device (with 2 integrated output relays)

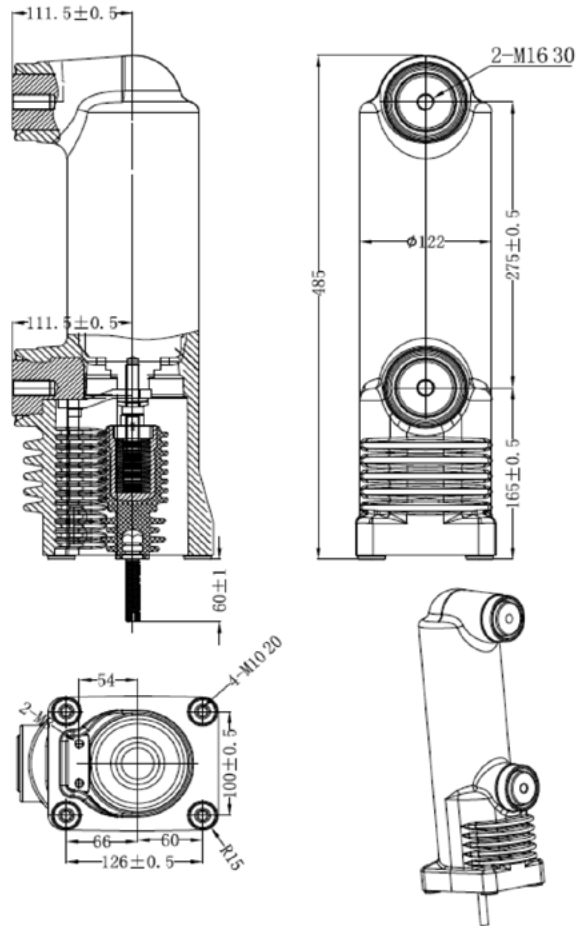
General properties

Dimensions of VDS ²	96 x 48 x 30 mm (W x H x D) Cut-out: 92 x 45 mm
Weight	app. 220 g
Operating temperature	-30°C to +60°C (in operation) -40°C to +70°C (for storage)
Applicable norms	Fully compliant with IEC 61243-5

¹ If suitable coupling electrodes are available, range of rated voltage can be extended

² Depth of device including covering ridge and terminal board

Embedded pole unit EPU - 12 kV / 1250 A - 31,5 kA



Technical specification

<u>Electrical details</u>		<u>Mechanical details</u>	
Rated voltage	12 kV	Mechanical operating cycles	30.000
Rated current	1250 A	Rated contact stroke	9±1mm
Rated withstand voltage at 50 Hz	48 kV	Contact connection stroke	4±1mm
Lightning impulse withstand current (peak)	85 kV	Average opening speed	1,1 ± 0,2m/s
Rated frequency	50-60 Hz	Average closing speed	0,7 ± 0,2m/s
Rated short-circuit / breaking current	25 KA / 31,5 kA	Rated operation pressure of contact	2600/3200±200N
Partial discharge	< 2pC	Bounce duration of contact closing	≤ 2ms
Rated single capacitor bank breaking current	630A	Out of simultaneity of contact closing and opening	≤ 1ms
Rated back-to-back capacitor breaking current	400A	Max. overtravel	≤ 2ms
Circuit resistance at rated contact force	≤25yΩ	Rated operating sequence	0-0,3s-CO-180s-C

Outdoor post insulators type PI/LPI

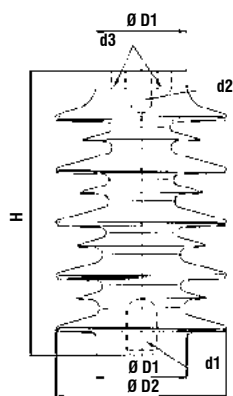


Fig. 1

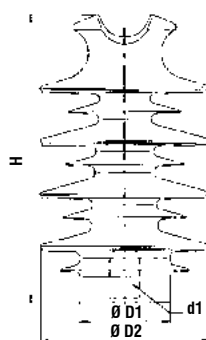
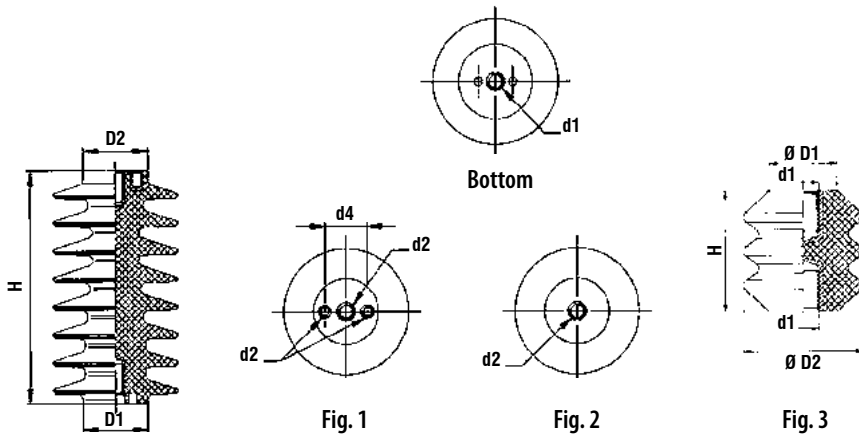


Fig. 2

Type	Fig.	Art. No.	Drawing No.	Rated voltage	Lightning impulse withstand voltage	Creepage distance	Bending strength	Weight	H	D1	D2	d1	d2	d3	d4
				kV	kV	mm	kN	kg	mm	mm	mm				mm
PI 170-12	1	000387-00	M0056	36	193	849	12	4,90	280	90	170	M16x35	M16x33	M10x16	46
PI 200-8	1	000336-00	M0057	36	230	1108	8	6,00	360	90	170	M20x40	M16x33	M10x16	46
PI 200-8	1	004323-00	M1363	36	230	1108	8	6,00	360	90	170	M16x33	M16x33	2xM10x16	66
PI 200-8	1	004224-00	M1924	36	230	1108	6	6,00	360	90	170	2xM12x25		2xM12x25	46
PI 250-4	1	004421-00	M1595	36	250	1547	4	8,95	500	90	170	M20x34	M16x33	M10x16	46
PI 250-4	1	004661-00	M2061	36	250	1547	4	8,95	500	90	170	M20x34	M16x33	M10x16	66
LPI 110-13	2	000390-00	M0052	24	135	582	13	3,40	231,5	90	170	M16x35			
LPI 150-13	2	000391-00	M0053	24	160	769	10	4,20	283,5	90	170	M16x35			
LPI 170-12	2	000388-00	M0054	36	170	943	8	5,10	335,5	90	170	M16x35			
LPI 200-8	2	000389-00	M0055	36	203	1104	8	6,00	387,5	90	170	M20x40			

Outdoor post insulators type FS



Type	Fig.	Art. No.	Drawing No.	Rated voltage	Lightning impulse withstand voltage	Creepage distance	Bending strength	Weight	H	D1	D2	d1	d2	d3	d4
				kV	kV	mm	kN	kg	mm	mm	mm				mm
FSH 5-125	1	000395-00	M0084	24	125	514	5	2,92	210	80	70	M16x33	M16x33	M6x12	36
FSH 5-125	2	000396-00	M0084	24	125	514	5	2,92	210	80	70	M16x33	M16x33		
FSH 8-125	1	000397-00	M0084	24	125	514	8	2,92	210	80	70	M20x34	M20x34	M10x16	46
FSH 8-125	2	000398-00	M0084	24	125	514	8	2,92	210	80	70	M20x34	M20x34		
FSG 4-125/1	1	000276-00	M0085	24	125	734	4	3,35	250	70	70	M16x33	M10x20	M6x12	36
FSG 4-125/1	2	000277-00	M0085	24	125	734	4	3,35	250	70	70	M16x33	M10x20		
FSG 8-125/1	1	000282-00	M0085	24	125	724	8	3,50	250	70	90	M20x34	M16x33	M10x16	66
FSG 8-125/1	2	000283-00	M0085	24	125	724	8	3,50	250	70	90	M20x34	M16x33		
FSG 5-125/2	1	000399-00	M0101	24	125	824	5	3,75	280	70	70	M16x33	M10x20	M6x12	36
FSG 5-125/2	2	000278-00	M0101	24	125	824	5	3,75	280	70	70	M16x33	M10x20		
FSG 7-125/2	1	000400-00	M0101	24	125	814	7	3,90	280	70	90	M20x34	M16x33	M10x16	66
FSH 4-170	1	000402-00	M0086	36	170	784	4	4,05	300	80	70	M16x33	M16x33	M6x12	36
FSH 4-170	2	000403-00	M0086	36	170	784	4	4,05	300	80	70	M16x33	M16x33		
FSH 8-170	1	000404-00	M0086	36	170	784	8	4,05	300	80	70	M24x35	M24x35	M10x16	46
FSH 8-170	2	000405-00	M0086	36	170	784	8	4,05	300	80	70	M24x35	M24x35		
FSG 4-170	1	000408-00	M0110	36	170	784	4	4,05	300	80	70	M16x33	M10x20	M6x12	36
FSG 4-170	2	000409-00	M0110	36	170	784	4	4,05	300	80	70	M16x33	M10x20		
FSG 8-170	1	000410-00	M0110	36	170	784	8	4,05	300	80	70	M24x35	M16x33	M10x16	46
FSG 8-170	2	000411-00	M0110	36	170	784	8	4,05	300	80	70	M24x35	M16x33		
FSG 5-170/1	1	000107-00	M0087	36	170	980	5	4,85	360	80	70	M16x33	M10x20	M6x12	36
FSG 5-170/1	2	000108-00	M0087	36	170	980	5	4,85	360	80	70	M16x33	M16x33		
FSG 6-170/1	1	000288-00	M0087	36	170	973	6	4,95	360	80	90	M24x35	M16x33	M10x16	66
* FSG - M10	3	000315-00	M0129	6	60	85	6	0,25	60		60	M10x16			
* FSG - M12	3	000316-00	M0129	6	60	85	7,5	0,26	60		60	M12x18			
* FSG - M16	3	000317-00	M0129	6	60	85	10	0,27	60		60	M16x20			

* Item on stock, dependent on demand

Outdoor / indoor bushings up to 45 kV

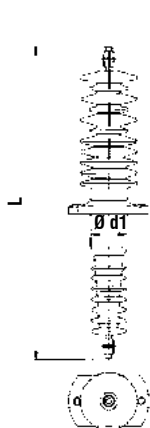


Fig. 1

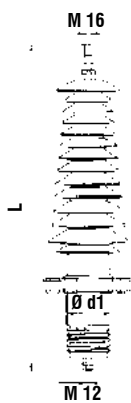


Fig. 2

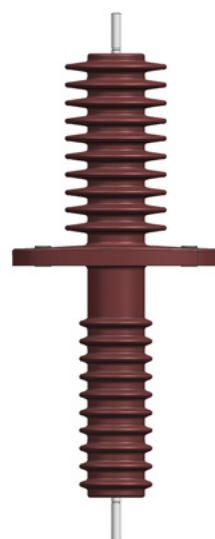
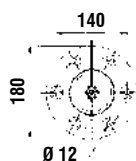


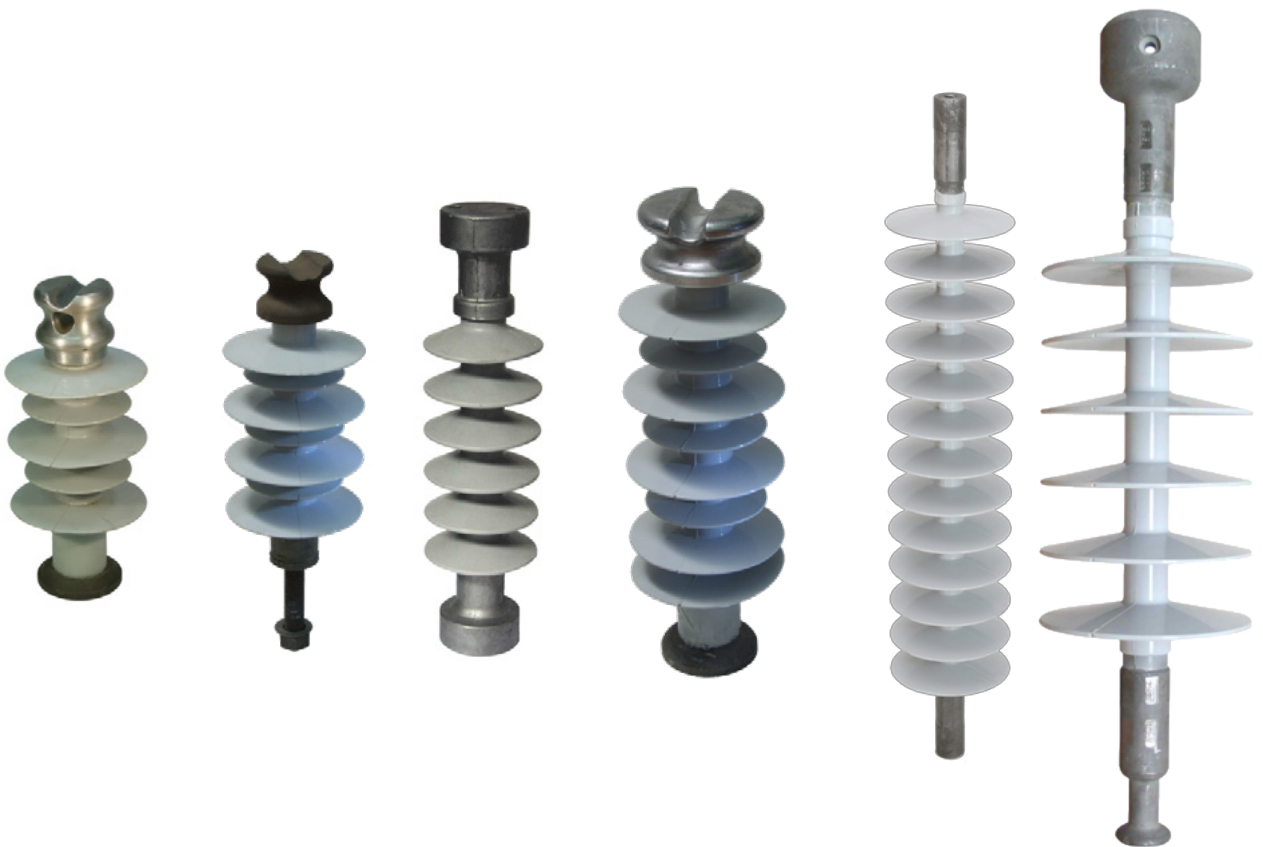
Fig. 3



Type	Fig.	Art. No.	Drawing No.	Lightning impulse withstand voltage	Rated voltage	Rated current	L	Creepage distance	Weight
				kV	kV	A	mm	mm	kg
GFD 12/250	1	004180-00	M0725	75	12	250	540	542	6,2
GFD 12/400	1	004181-00	M0725	75	12	400	540	542	6,6
GFD 12/630	1	004182-00	M0725	75	12	630	540	542	6,8
GFD 12/1000	1	004183-00	M0725	75	12	1000	540	542	9,5
GFD 24/200	3	021380-00	M3214	125	24	200	650	748	7,7
GFD 24/250	1	000294-00	M0069	125	24	250	735	815	8,2
GFD 24/400	1	000292-00	M0069	125	24	630	735	815	8,2
GFD 24/630	1	000293-00	M0069	125	24	1000	735	815	9,3
GFD 24/1000	1	000412-00	M0069	125	24	1000	735	815	11,20
GFD 36/400	1	000295-00	M0071	170	36	400	852	1310	13,5
GFD 36/630	1	000296-00	M0071	170	36	630	852	1310	14,3
GFD 36/1000	1	000475-00	M0071	170	36	1000	900	1310	16,4

Type	Fig.	Art. No.	Drawing No.	Rated voltage	Rated current	L	Creepage distance	Weight
				kV	A	mm	mm	kg
DTG 45s-M16	2	000193-00	M0444	36 / 52	250	639	970	8,9
DTG 45s-M12	2	000767-00	M0444	36 / 52	250	639	970	8,9

COMPOSITE INSULATORS





Long-rod medium voltage 3,6 – 36 kV

CI-LRF

The CI-LRF is a tension / suspension insulator with alternating sheds for use in overhead lines. The rated system voltage for application of this insulator is from 3,6 – 36,0 kV. All standard ICE and ANSI fittings as well as custom-made fittings are available upon request.



Long-rod high voltage – up to 36 kV

CI-LRZ

The CI-LRZ is a tension / suspension insulator for use in overhead lines up to 36 kV. All standard ICE and ANSI fittings as well as custom-made fittings are available upon request.



Post insulators 3,6 – 36 kV (Overhead line, rail)

CI-PI

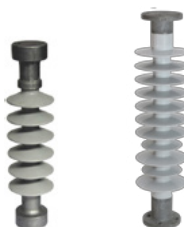
Our CI-PI family is designed for use in distribution overhead lines and rail applications. The insulator has alternating sheds, beside ICE and ANSI fittings, we also offer custom-made fitting designs for this insulator.



Line post insulators 3,6 – 36 kV

CI-P

The CI-LRZ is a tension / suspension insulator with alternating sheds for use in overhead lines up to 36 kV. All standard ICE and ANSI fittings as well as custom-made fittings are available upon request.



Apparatus post insulators 3,6 – 36 kV

CI-AP

The post insulators CI-AP is designed for use in apparatus and equipment such as switchgears. Beside a broad range of standard fittings, the use of custom-made fittings is easily possible.

Composite Insulators

Long rod insulators 3,6 kV - 36 kV



Long-rod insulator CI - LRF

General

- Tension / suspension composite insulator
- Rod $\varnothing = 13$ mm; sheds 106/76 mm (alternating sheds)
- Largest shed diameter available = 106 mm
- Design of insulator acc. to IEC 61109 (specification in line with ANSI C29.11 and ANSI C29.12 is available upon request)

Fittings

- Socket (type S) & ball (type B) acc. to IEC 60120
- Clevis (type C) and tongue (type T) acc. to IEC 60471 / IEC 61466-1
- Y-clevis (type Y) and eye (type E) acc. to IEC 61466-1
- Fittings acc. to ANSI C29.9, ANSI C29.12 and custom made fittings are available for all standard insulators

Type	Number of sheds	Creepage distance	STL	Connecting length	Lightning impulse withstand voltage	Power frequency withstand voltage	Suggested voltage level
		[mm]	[kN]	[mm]	[kV]	[kV]	[kV]
CI - LRF - 3,6 - 193	1	135	70	193			3,6
CI - LRF - 7,2 - 221	2	245	70	221			7,2
CI - LRF - 12 - 249	3	355	70	249	>75	>28	12
CI - LRF - 12 - 277	4	435	70	277			12
CI - LRF - 24 - 305	5	515	70	305	>125	>50	24
CI - LRF - 24 - 333	6	595	70	333			24
CI - LRF - 24 - 361	7	675	70	361			24
CI - LRF - 36 - 389	8	755	70	389	>170	>70	36
CI - LRF - 36 - 417	9	835	70	417			36
CI - LRF - 36 - 475	10	945	70	475			36



Long-rod insulator CI - LRZ

General

- Tension / suspension composite insulator
- Rod $\varnothing = 20$ mm; all sheds same diameter
- Largest shed diameter available = 106 mm
- Design of insulator acc. to IEC 61109 (specification in line with ANSI C29.11 and ANSI C29.12 is available upon request)

Fittings

- Socket (type S) & ball (type B) acc. to IEC 60120
- Clevis (type C) and tongue (type T) acc. to IEC 60471 / IEC 61466-1
- Y-clevis (type Y) and eye (type E) acc. to IEC 61466-1
- Fittings acc. to ANSI C29.9, ANSI C29.12 and custom made fittings are available for all standard insulators

Type	Number of sheds	Creepage distance	STL	Connecting length	Lightning impulse withstand voltage	Power frequency withstand voltage	Suggested voltage level
		[mm]	[kN]	[mm]	[kV]	[kV]	[kV]
CI - LRZ - 3,6 - 260	1	140	80	260			3,6
CI - LRZ - 7,2 - 300	2	270	80	300			7,2
CI - LRZ - 12 - 340	3	410	80	340	>75	>28	12
CI - LRZ - 24 - 380	4	540	80	380	160	65	24
CI - LRZ - 24 - 420	5	680	80	420	185	80	24
CI - LRZ - 36 - 460	6	810	80	460	200	92	36
CI - LRZ - 36 - 500	7	950	80	500	230	115	36
CI - LRZ - 52 - 540	8	1.080	80	540			52
CI - LRZ - 52 - 580	9	1.220	80	580			52



Post insulator CI - PI

General

- Post composite insulators for overhead lines and apparatus
- Rod $\varnothing = 30$ mm; sheds 130/90 (alternating sheds)
- Largest shed diameter available = 130 mm
- Design of insulator acc. to IEC 61109 (specification in line with ANSI C29.11 and ANSI C29.12 is available upon request)

Fittings

- Fittings acc. to IEC 60273
- Pin fittings of various types
- Cap fittings
- Railway fittings
- Custom-made fittings available for all standard insulators

Type	Number of sheds	Creepage distance	STL	Connecting length	Lightning impulse withstand	Power frequency withstand	Suggested voltage level
		[mm]	[kN]	[mm]	[kV]	[kV]	[kV]
CI - PI - 3,6 - 124	1	160	15	124			3,6
CI - PI - 7,2 - 148	2	240	13	148			7,2
CI - PI - 12 - 172	3	355	13	172	>75	>28	12
CI - PI - 12 - 196	4	435	10	196			12
CI - PI - 24 - 220	5	550	10	220	>125	>50	24
CI - PI - 24 - 244	6	630	8	244			24
CI - PI - 24 - 268	7	745	8	268			24
CI - PI - 36 - 292	8	825	6	292	>170	>70	36
CI - PI - 36 - 316	9	940	6	316			36
CI - PI - 36 - 340	10	1.020	6	340			36
CI - PI - 36 - 368	11	1.135	4	368	230	108	52



Post insulator CI - P

General

- Post composite insulators for use in overhead lines etc.
- Rod $\varnothing = 38$ mm; sheds 135/105 (alternating sheds)
- Largest shed diameter available = 135 mm
- Design of insulator acc. to IEC 61109 (specification in line with ANSI C29.11 and ANSI C29.12 is available upon request)

Fittings

- Fittings acc. to IEC 60273
- Pin fittings of various types
- Cap fittings
- Railway fittings
- Custom-made fittings available for all standard insulators

Type	Number of sheds	Creepage distance	SCL	Connecting length	Lightning impulse withstand	Power frequency withstand	Suggested voltage level
		[mm]	[kN]	[mm]	[kV]	[kV]	[kV]
CI - P - 3,6 - 125	1	155	15	125			3,6
CI - P - 7,2 - 160	2	250	15	160			7,2
CI - P - 12 - 195	3	375	13	195	>75	>28	12
CI - P - 24 - 230	4	470	13	230			24
CI - P - 24 - 265	5	595	13	265	150	60	24
CI - P - 36 - 300	6	690	10	300			36
CI - P - 36 - 335	7	815	10	335	170	80	36
CI - P - 36 - 370	8	910	10	370			36
CI - P - 52 - 405	9	1.035	8	405			52
CI - P - 52 - 440	10	1.130	8	440			52
CI - P - 52 - 475	11	1.255	8	475			52



Apparatus Post insulator CI - AP

General

- Apparatus post / tension insulator
- Rod $\varnothing = 24$ mm; all sheds same diameter
- Largest shed diameter available = 106 mm
- Design of insulator acc. to IEC 61109 (specification in line with ANSI C29.11 and ANSI C29.12 is available upon request)

Fittings

- Standard switchgear fittings
- Post fittings
- Tension fittings
- Custom-made fittings are available for all standard insulators

Type	Number of sheds	Creepage distance	STL	Connecting length	Lightning impulse withstand voltage	Power frequency withstand voltage	Suggested voltage level
		[mm]	[kN]	[mm]	[kV]	[kV]	[kV]
CI - AP - 3,6 - 150	1	105	10 - 40	150			3,6
CI - AP - 7,2 - 180	2	200	10 - 40	180			7,2
CI - AP - 12 - 210	3	295	10 - 40	210	>75	>28	12
CI - AP - 12 - 240	4	390	10 - 40	240			12
CI - AP - 24 - 270	5	485	10 - 40	270	>125	>50	24
CI - AP - 24 - 300	6	580	10 - 40	300			24
CI - AP - 24 - 330	7	675	10 - 40	330			24
CI - AP - 36 - 360	8	770	10 - 40	360	>170	>70	36

Composite Insulators

Available fitting types

For all standard insulators we offer all relevant fittings according to IEC 60120, IEC 60471 and IEC 61466-1. The standard fittings are made of hot dip galvanized steel. Due to our in-house production fittings based on ANSI standards or tailored fittings designed to customer's needs as well as use of alternative material such as aluminum are available upon request.

Type	Relevant Standard	Designation	SML			
			70 kN	120 kN	160 kN	210 kN
Socket	IEC 60120	Type S	11	16A	20	24
			16A	16A		28
			16B	16B		32
Ball	IEC 60120	Type B	11	16A	20	24
			16A	16A		28
			16B	16B		32
Clevis	IEC 60471 IEC 61466-1	Type C	13L	16C	19C	22C
				16L	19L	22L
				16N	19N	25L
Tongue	IEC 60471 IEC 61466-1	Type T	13L	16C	19C	22C
				16L	19L	22L
				16N	19N	25L
Y-clevis	IEC 61466-1	Type Y	16	19	22	22
Eye	IEC 61466-1	Type E	17	24	25	25

Please contact us for availability of additional fittings or in case custom-made fittings are requested

Our insulators are designed according to the specifications outlined in IEC 61109, IEC 62217, IEC 60815 and IEC 61466-2. Insulators which comply with the relevant ANSI standards are available upon request. In addition to our standard product program, we offer tailor-made solutions.

Each insulator leaving our factory is checked visually as well as mechanically (testing of tensile properties). Checks and tests according to customer needs and in addition to our standard inspection procedure.

Rod

- ECR-Glass (boron free, brittle fracture-resistant)
- Standard Ø of rods are 13, 20, 24, 30 and 38 mm; Alternative Ø for ECR-rod is possible in custom-made insulators
- SML of insulators ranging from 70 to 210 kN

Housing & weather sheds

- Hydrophobic LSR silicone (standard)
- Use of HTV silicone for insulator is possible as an option
- Weather sheds are molded as part of the cover; sealing is done by overmoulding of fitting and rod during casting

Fittings

- Fitting design and dimensions in accordance with ICE or ANSI standards (ANSI C29.9, ANSI C29.12)
- Hot-dip galvanized forged steel; Specification and average coating thickness > 85 µm in line with IEC 60383
- Equipment such as nuts and bolts made of galvanized steel (8.8); Higher strength categories are available as option
- Custom-made options for fittings (material, dimensions, coating, etc.) are available and can be assembled on standard insulators

Composite Insulators

Relevant standards - overview

Standard with general specifications and testing

IEC 61109:2008	Insulators for overhead lines - Composite suspension and tension insulators for A.C. systems with a nominal voltage greater than 1 000 V - Definitions, test methods and acceptance criteria
IEC 62039:2007	Selection guide for polymeric materials for outdoor use under HV stress
IEC 62217:2012	Polymeric HV insulators for indoor and outdoor use - General definitions, test methods and acceptance criteria
IEC 60815-1:2008	Selection and dimensioning of high-voltage insulators intended for use in polluted conditions - Part 1: Definitions, information and general principles
IEC 61952:2008	Insulators for overhead lines - Composite line post insulators for A.C. systems with a nominal voltage greater than 1 000 V - Definitions, test methods and acceptance criteria
IEC 62231:2006	Composite station post insulators for substations with A.C. voltages greater than 1 000 V up to 245 kV - Definitions, test methods and acceptance criteria

Standard for fitting design and dimensions

IEC 61466-1:1997	Composite string insulator units for overhead lines with a nominal voltage greater than 1000 V - Part 1: Standard strength classes and end fittings
IEC 61466-2:1998	Composite string insulator units for overhead lines with a nominal voltage greater than 1000 V - Part 2: Dimensional and electrical characteristics
IEC 60120:1984	Dimensions of ball and socket couplings of string insulator units
IEC 60471:1977	Dimensions of clevis and tongue couplings of string insulator units

Product lines and applications of KUVAG products



High voltage

Broad variety of insulated bodies, barrier insulators, support insulators, bushings, tubes and switching rods for

- Gas insulated switchgear
- Generator circuit breakers
- Circuit breakers of all types
- Disconnectors
- HV transformers
- Cable joints & end plugs
- HV test equipment



Medium voltage

Vast range of insulators, housings, post insulators, bushings, resistors, indicating systems & LV current transformers applied in

- Gas insulated switchgear
- Air insulated switchgear
- Oil-type switchgear
- Vacuum interrupters
- MV transformers
- Distribution networks
- Tap changers
- HV test equipment



Traffic Engineering

Diverse solutions like third rail insulators, pantographs, loop insulators, post insulators, circuit breakers, and roof bushings for the use in

- Rolling stock (locomotives, tramways)
- Traffic infrastructure tramway, rail
- Traffic infrastructure
- Metro systems
- Electro mobility



Industrial solutions

Custom-designed structural products made of various fiber-reinforced materials for diverse customer applications

- Coupling for wind turbines (ultra-high torsion)
- Tubes for MRI (Medical industry)
- Rolls and cores for paper industry
- Petrol industry
- Construction industry

Notes

About KUVAG Group

KUVAG is the leading specialist for development and production of insulators made of epoxy resin, composite and silicone materials. Our products are applied in various electrical systems (e.g. HV and MV switchgears, transformers, transmission and distribution) as well as in rail and medical technology. KUVAG offers both standard insulation products and tailor-made solutions of various kinds.

For more than 38 years we have supplied to switch gear manufacturers, utilities and railway companies across the world. With about 400 employees worldwide and four production sites in Europe and Asia KUVAG Group is the leading company in its field.

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