



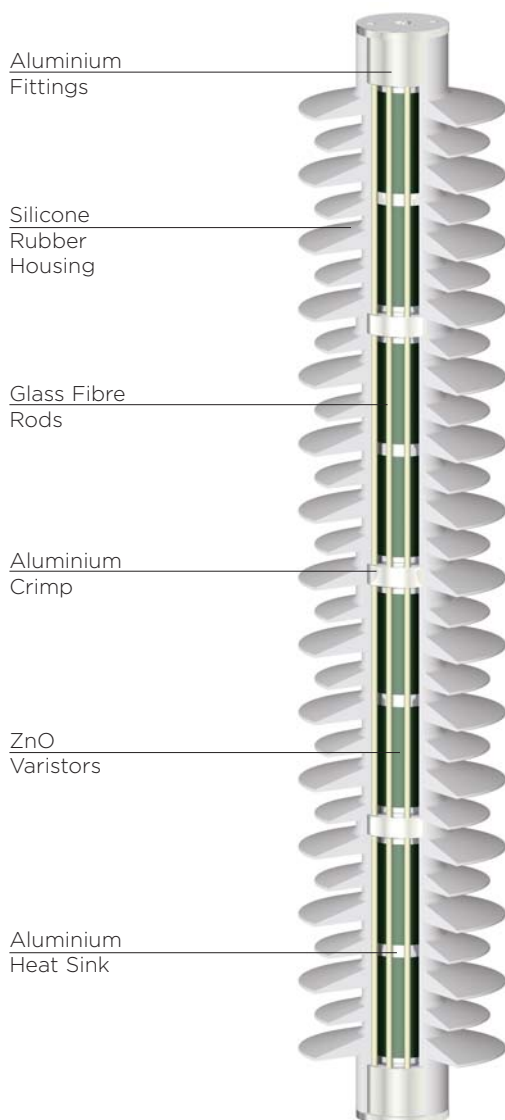
Bowthorpe EMP
High Voltage Single Column
Polymeric Surge Arresters

Single Column Polymeric Surge Arresters

Generic technical data

		PAA	PBA	PCA/PCAE
System Voltage U_{max}	Kv	72.5	170	420
System Voltage U_{nom}	Kv	66	150	400
Rated discharge current	kA	10	10	10
High current impulse (4/10 μ s)	kA	100	100	100
Classification		2	2	3
Energy Capability at U_r	kJ/kV	4.1	6.4	7.8
Short circuit rating	kA	40	65	65
Mechanical strength*				
Safe long-term load (SLL)	kNm	0.25	0.6	2.0
Safe short-term load (SSL)	kNm	0.35	1.0	2.5

* As defined in IEC60094-4, Edition2.2, 2009-05



Qualification testing:

Decades of arrester and materials, design and development experience has been combined to create the cage design surge arrester series. The basic construction comprises ZnO varistors assembled within an open cage design. The following IEC60099-4 design type tests have been carried out on all polymeric surge arresters.

- Insulation withstand tests on the arrester housing
- Residual voltage test
- Long duration current impulse withstand test
- Operating duty tests
- Short-circuit tests
- Internal partial discharge test
- Bending moment test (cantilever)
- Moisture ingress test
- Weather ageing test
- Power frequency voltage versus time characteristics on the arrester
- Tracking and erosion
- UV testing

Electrical performance

Maximum System Voltage U_m	Rated Voltage U_r	Line Discharge Class	Long Duration Current 2000 μ s	Nominal Discharge Current (8/20 μ s)	Rated Short Circuit Current	Energy Capability at U_r acc. to IEC 60099-4	Arrester Type
(kV)	(kV)		(A)	(kA)	(kA)	(kJ/kV)	
12	9 - 15	2	500	10	40	4.1	PAA
	9 - 15	2	680	10	65	6.4	PBA
	9 - 15	3	760	10	65	7.8	PCA
24	18 - 30	2	500	10	40	4.1	PAA
	18 - 30	2	680	10	65	6.4	PBA
	18 - 30	3	760	10	65	7.8	PCA
36	27 - 42	2	500	10	40	4.1	PAA
	27 - 42	2	680	10	65	6.4	PBA
	27 - 42	3	760	10	65	7.8	PCA
72.5	54 - 75	2	500	10	40	4.1	PAA
	54 - 75	2	680	10	65	6.4	PBA
	54 - 75	3	760	10	65	7.8	PCA/PCAE
123	96 - 120	2	680	10	65	6.4	PBA
	96 - 120	3	760	10	65	7.8	PCA/PCAE
145	108 - 132	2	680	10	65	6.4	PBA
	108 - 132	3	760	10	65	7.8	PCA/PCAE
170	138 - 150	2	680	10	65	6.4	PBA
	138 - 150	3	760	10	65	7.8	PCA/PCAE
245	180 - 216	3	760	10	65	7.8	PCA/PCAE
300	240 - 288	3	760	10	65	7.8	PCA/PCAE
400	336 - 360	3	760	10	65	7.8	PCA/PCAE

Electrical Characteristics

System Voltage U_m kV	Rated Voltage U_r kV	Continuous operating voltage U_c kV	Line Discharge Class	Max. U_{res} tested with current wave										Steep Current (1/20 μ s)
				Switching surge (30/60 μ s)					Lightning Current (8/20 μ s)					
				125 A kV	250 A kV	500 A kV	1000 A kV	2000 A kV	5 kA kV	10 kA kV	20 kA kV	40 kA kV	10 kA kV	
12	9	7.2	2	19.5	20.1	20.8	21.6	22.6	24.6	26.5	29.2	33.2	28.4	
	12	9.6	2	24.4	25.1	25.9	27.0	28.3	30.8	33.1	36.5	41.5	35.5	
	15	12	2	29.3	30.1	31.1	32.4	33.9	37.0	39.7	43.8	49.8	42.6	
	9	7.2	2	19.7	20.3	21.1	22.0	23.2	25.9	28.1	31.1	35.6	31.0	
	12	10	2	29.6	30.5	31.6	33.0	34.8	38.8	42.1	46.7	53.4	46.6	
	15	12	2	29.6	30.5	31.6	33.0	34.8	38.8	42.1	46.7	53.4	46.6	
	9	7.2	3	22.1	22.6	23.4	24.0	25.1	27.9	29.2	32.0	35.7	31.8	
	12	9.6	3	32.1	32.8	33.9	34.9	36.5	40.6	42.4	46.5	51.8	46.1	
	15	12	3	33.1	33.9	35.1	36.0	37.7	41.9	43.8	48.0	53.5	47.6	
24	18	14	2	36.6	37.6	38.9	40.5	42.4	46.2	49.7	54.7	62.3	53.3	
	21	17	2	41.5	42.7	44.1	45.9	48.1	52.4	56.3	62.0	70.6	60.4	
	24	19	2	48.8	50.2	51.9	54.0	56.6	61.6	66.2	73.0	83.0	71.1	
	27	22	2	53.7	55.2	57.1	59.3	62.2	67.8	72.8	80.3	91.3	78.2	
	30	24	2	58.6	60.2	62.3	64.7	67.9	73.9	79.4	87.6	99.6	85.3	
	18	14	2	39.5	40.7	42.2	44.0	46.4	51.7	56.1	62.2	71.2	62.1	
	21	17	2	46.5	47.9	49.7	51.9	54.8	61.0	66.2	73.4	83.9	73.2	
	24	19	2	49.3	50.8	52.7	55.0	58.1	64.7	70.2	77.8	89.0	77.6	
	27	22	2	57.9	59.7	61.9	64.6	68.2	75.9	82.4	91.4	104	91.1	
	30	24	2	59.2	61.0	63.3	66.0	69.7	77.6	84.2	93.4	107	93.1	
	18	14	3	42.8	43.8	45.3	46.5	48.7	54.1	56.6	62.0	69.1	61.5	
	21	17	3	47.0	48.1	49.7	51.0	53.5	59.4	62.1	68.0	75.9	67.5	
	24	19	3	53.5	54.7	56.6	58.1	60.9	67.7	70.7	77.5	86.4	76.9	
	27	22	3	58.5	59.8	61.8	63.5	66.5	73.9	77.3	84.7	94.4	84.0	
30	24	3	64.2	65.7	67.9	69.7	73.1	81.2	84.9	93.0	104	92.3		
36	30	24	2	58.6	60.2	62.3	64.7	67.9	73.9	79.4	87.6	99.6	85.3	
	36	29	2	70.8	72.8	75.2	78.2	82.0	89.3	96.0	106	120	103	
	42	34	2	83.0	85.3	88.2	91.7	96.2	105	113	124	141	121	
	30	24	2	59.2	61.0	63.3	66.0	69.7	77.6	84.2	93.4	107	93.1	
	36	29	2	72.2	74.4	77.2	80.6	85.0	94.7	103	114	130	114	
	42	34	2	83.8	86.3	89.5	93.4	98.6	110	119	132	151	132	
	30	24	3	64.2	65.7	67.9	69.7	73.1	81.2	84.9	93.0	104	92.3	
	36	29	3	74.9	76.6	79.2	81.4	85.2	94.7	99.0	108	121	108	
42	34	3	85.6	87.6	90.5	93.0	97.4	108	113	124	138	123		

* "TOV" curves are given on technical data sheets for selected surge arrester (on request)

Surge arresters with other characteristics are available on request

Mechanical Characteristics

Temporary Overvoltage capability for 1 sec* T _c	Creepage length	Overall height	Minimum distance between phase centers	Minimum distance between phase to earth	Cantilever load		Weight	Drawing Reference	Product code
					Safe short-term load (SSL)	Safe long-term load (SLL)			
kV	mm	mm	mm	mm	kNm	kNm	Kg		
9.9	1125	375	320	60	0.35	0.25	5.5	BOW-34-001	PAA2-9
13	1125	375	320	90	0.35	0.25	5.5	BOW-34-001	PAA2-12
17	1125	375	320	90	0.35	0.25	5.5	BOW-34-001	PAA2-15
10	1340	449	320	60	1.0	0.6	7	BOW-33-001	PBA1-9
14	1340	449	320	90	1.0	0.6	7	BOW-33-001	PBA1-12
17	1340	449	320	90	1.0	0.6	7	BOW-33-001	PBA1-15
10	1100	400	320	60	2.5	2.0	10	BOW-28-061	PCA1-9
14	1100	400	320	90	2.5	2.0	10	BOW-28-061	PCA1-12
17	1100	400	320	90	2.5	2.0	10	BOW-28-061	PCA1-15
20	1125	375	320	120	0.35	0.25	5.5	BOW-34-001	PAA2-18
23	1125	375	320	120	0.35	0.25	5.5	BOW-34-001	PAA2-21
26	1125	375	320	160	0.35	0.25	5.5	BOW-34-001	PAA2-24
30	1125	375	320	160	0.35	0.25	5.5	BOW-34-001	PAA2-27
33	1125	375	320	220	0.35	0.25	5.5	BOW-34-001	PAA2-30
21	1340	449	320	120	1.0	0.6	7	BOW-33-001	PBA1-18
24	1340	449	320	160	1.0	0.6	7	BOW-33-001	PBA1-21
27	1340	449	320	160	1.0	0.6	7	BOW-33-001	PBA1-24
31	1340	449	320	220	1.0	0.6	7	BOW-33-001	PBA1-27
34	1340	449	320	220	1.0	0.6	7	BOW-33-001	PBA1-30
21	1100	400	320	120	2.5	2.0	10	BOW-28-061	PCA1-18
24	1100	400	320	160	2.5	2.0	10	BOW-28-061	PCA1-21
28	1100	400	320	160	2.5	2.0	10	BOW-28-061	PCA1-24
31	1100	400	320	220	2.5	2.0	10	BOW-28-061	PCA1-27
35	1100	400	320	220	2.5	2.0	10	BOW-28-061	PCA1-30
33	1125	375	320	220	0.35	0.25	5.5	BOW-34-001	PAA2-30
40	1125	375	320	220	0.35	0.25	5.5	BOW-34-001	PAA2-36
46	1125	375	386	320	0.35	0.25	5.5	BOW-34-001	PAA2-42
34	1340	449	320	220	1.0	0.6	7	BOW-33-001	PBA1-30
41	1340	449	348	270	1.0	0.6	7	BOW-33-001	PBA1-36
48	1340	449	398	320	1.0	0.6	7	BOW-33-001	PBA1-42
35	1100	400	320	220	2.5	2.0	10	BOW-28-061	PCA1-30
41	1100	400	360	270	2.5	2.0	10	BOW-28-061	PCA1-36
48	1100	400	410	320	2.5	2.0	10	BOW-28-061	PCA1-42

Electrical Characteristics

System Voltage U_m kV	Rated Voltage U_r kV	Continuous operating voltage U_c kV	Line Discharge Class	Max. U_{res} tested with current wave										Steep Current (1/20 μ s)
				Switching surge (30/60 μ s)					Lightning Current (8/20 μ s)					
				125 A kV	250 A kV	500 A kV	1000 A kV	2000 A kV	5 kA kV	10 kA kV	20 kA kV	40 kA kV	10 kA kV	
72.5	54	43	2	108	110	114	119	124	136	146	161	186	156	
	60	48	2	117	120	125	129	136	148	159	175	199	171	
	54	43	2	106	109	114	118	125	139	151	168	192	167	
	60	48	2	116	119	124	129	136	152	165	183	209	182	
	72	58	2	138	142	148	154	163	181	196	218	249	217	
	75	60	2	145	149	155	162	170	190	206	228	261	228	
	54	43	3	107	110	113	116	122	136	142	155	173	154	
	60	48	3	118	120	124	128	134	149	156	170	190	169	
	60	48	3	118	120	124	128	134	149	156	170	190	169	
	72	58	3	143	146	151	155	162	180	188	206	230	205	
75	60	3	146	150	155	159	166	185	193	212	236	210		
123	96	77	2	181	186	193	201	213	237	257	285	326	284	
	108	86	2	203	209	217	226	239	266	288	320	366	319	
	120	96	2	223	230	239	249	263	293	318	352	403	351	
	96	77	3	183	187	194	199	208	232	242	265	296	263	
	96	77	3	183	187	194	199	208	232	242	265	296	263	
	108	86	3	205	209	216	222	233	259	270	296	330	294	
	108	86	3	205	209	216	222	233	259	270	296	330	294	
	120	96	3	226	231	238	245	257	285	298	327	364	324	
145	108	86	2	203	209	217	226	239	266	288	320	366	319	
	120	96	2	223	230	239	249	263	293	318	352	403	351	
	132	106	2	255	263	273	285	300	334	363	402	460	401	
	108	86	3	205	209	216	222	233	259	270	296	330	294	
	120	96	3	226	231	238	245	257	285	298	327	364	324	
	120	96	3	226	231	238	245	257	285	298	327	364	324	
	132	106	3	246	252	260	267	280	311	325	356	397	354	
	132	106	3	246	252	260	267	280	311	325	356	397	354	

* "TOV" curves are given in technical data for selected surge arrester (on request)

Surge arresters with other characteristics are available on request

Mechanical Characteristics

Temporary Overvoltage capability for 1 sec* T _c	Creepage length	Overall height	Minimum distance between phase centers	Minimum distance between phase to earth	Cantilever load		Weight	Drawing Reference	Product code
					Safe short-term load (SSL)	Safe long-term load (SLL)			
kV	mm	mm	mm	mm	kNm	kNm	Kg		
59	2250	750	546	480	0.35	0.25	9.6	BOW-34-002	PAA22-54
66	2250	750	546	480	0.35	0.25	9.6	BOW-34-002	PAA22-60
62	1948	604	558	480	1.0	0.6	10.0	BOW-33-002	PBA2-54
68	1948	604	558	480	1.0	0.6	10.0	BOW-33-002	PBA2-60
82	3872	1096	708	630	1.0	0.6	18.5	BOW-33-003	PBA3-72
86	3872	1096	708	630	1.0	0.6	18.5	BOW-33-003	PBA3-75
62	1815	590	570	480	2.5	2.0	14.0	BOW-28-062	PCA2-54
69	1815	590	570	480	2.5	2.0	14.0	BOW-28-062	PCA2-60
69	2250	590	570	480	2.5	2.0	15.0	BOW-28-087	PCA2E-60
83	3625	1085	570	480	2.5	2.0	26.5	BOW-28-063	PCA3-72
86	3625	1085	720	630	2.5	2.0	26.5	BOW-28-063	PCA3-75
109	3872	1096	978	900	1.0	0.6	18.5	BOW-33-003	PBA3-96
123	3872	1096	978	900	1.0	0.6	18.5	BOW-33-003	PBA3-108
137	3872	1096	978	900	1.0	0.6	18.5	BOW-33-003	PBA3-120
110	3625	1085	720	630	2.5	2.0	26.5	BOW-28-063	PCA3-96
110	4500	1085	720	630	2.5	2.0	27.5	BOW-28-088	PCA3E-96
124	3625	1085	990	900	2.5	2.0	26.5	BOW-28-063	PCA3-108
124	4500	1085	990	900	2.5	2.0	27.5	BOW-28-088	PCA3E-108
138	3625	1085	990	900	2.5	2.0	26.5	BOW-28-063	PCA3-120
123	3872	1096	978	900	1.0	0.6	18.5	BOW-33-003	PBA3-108
137	3872	1096	978	900	1.0	0.6	18.5	BOW-33-003	PBA3-120
150	5820	1700	1810	1100	1.0	0.6	28.5	BOW-33-004	PBA31-132
124	3625	1085	990	900	2.5	2.0	26.5	BOW-28-063	PCA3-108
138	3625	1085	990	900	2.5	2.0	26.5	BOW-28-063	PCA3-120
138	4500	1085	990	900	2.5	2.0	27.5	BOW-28-088	PCA3E-120
152	3625	1085	990	900	2.5	2.0	26.5	BOW-28-063	PCA3-132
152	4500	1085	990	900	2.5	2.0	27.5	BOW-28-088	PCA3E-132

Electrical Characteristics

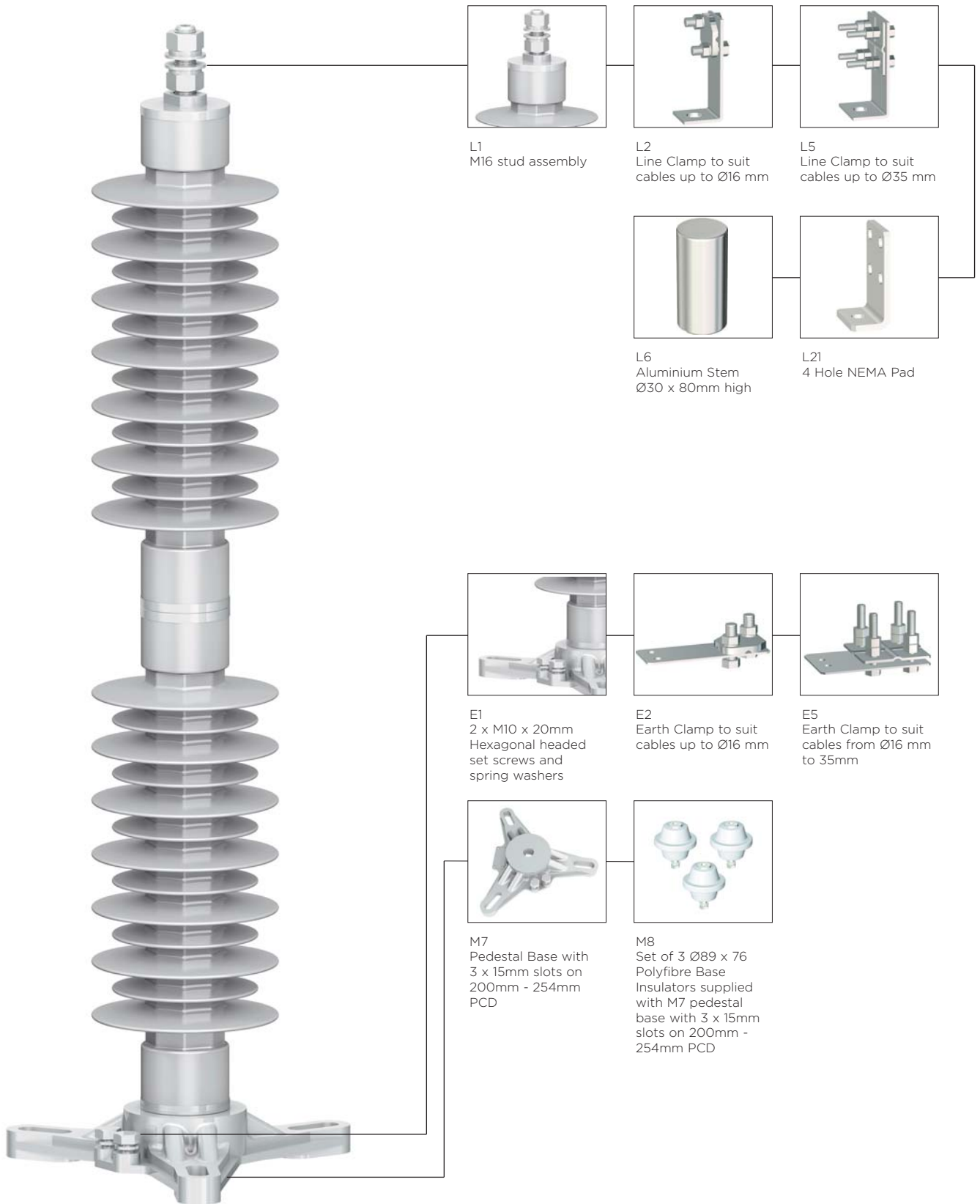
System Voltage U_m kV	Rated Voltage U_r kV	Continuous operating voltage U_c kV	Line Discharge Class	Max. U_{res} tested with current wave										Steep Current (1/20 μ s) 10 kA kV
				Switching surge (30/60 μ s)					Lightning Current (8/20 μ s)					
				125 A kV	250 A kV	500 A kV	1000 A kV	2000 A kV	5 kA kV	10 kA kV	20 kA kV	40 kA kV		
170	138	110	2	267	275	285	298	314	350	380	421	481	420	
	144	115	2	278	286	297	310	327	364	395	438	501	437	
	150	120	2	290	298	310	323	341	380	412	457	522	456	
	138	110	3	275	281	291	299	313	348	364	398	444	395	
	144	115	3	285	292	302	310	325	361	377	413	461	410	
	150	120	3	295	302	312	321	336	374	391	428	477	425	
245	180	144	3	346	354	366	376	394	438	457	501	559	497	
	180	144	3	346	354	366	376	394	438	457	501	559	497	
	192	154	3	366	375	388	398	417	463	484	531	592	527	
	192	154	3	366	375	388	398	417	463	484	531	592	527	
	198	158	3	385	394	407	418	438	487	509	558	622	554	
	198	158	3	385	394	407	418	438	487	509	558	622	554	
	216	173	3	409	419	433	445	466	517	541	593	661	588	
	225	180	3	433	443	458	470	492	547	572	627	699	622	
300	240	192	3	472	483	499	513	537	597	624	684	763	679	
	240	192	3	472	483	499	513	537	597	624	684	763	679	
	252	202	3	494	506	523	537	563	625	653	716	798	710	
	276	221	3	537	549	568	583	611	679	710	778	867	772	
	288	230	3	559	571	591	607	636	706	738	809	902	803	
362	312	250	3	604	618	639	656	688	764	799	875	976	868	
400	336	269	3	642	657	679	697	731	812	849	930	1037	923	
	360	288	3	677	692	715	735	770	855	894	980	1093	972	
420	336	269	3	642	657	679	697	731	812	849	930	1037	923	
	360	288	3	677	692	715	735	770	855	894	980	1093	972	

* "TOV" curves are given in technical data for selected surge arrester (on request)

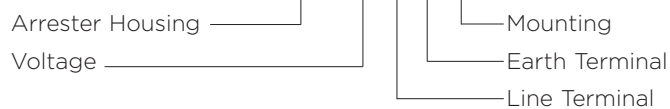
Surge arresters with other characteristics are available on request

Temporary Overvoltage capability for 1 sec ⁺ T _c	Creepage length	Overall height	Minimum distance between phase centers	Minimum distance between phase to earth	Cantilever load		Weight	Drawing Reference	Product code
					Safe short-term load (SSL)	Safe long-term load (SLL)			
kV	mm	mm	mm	mm	kNm	kNm	Kg		
157	5820	1700	1810	1100	1.0	0.6	28.5	BOW-33-004	PBA32-138
164	5820	1700	1810	1100	1.0	0.6	28.5	BOW-33-004	PBA32-144
171	5820	1700	1810	1100	1.0	0.6	28.5	BOW-33-004	PBA32-150
159	4725	1501	1810	1100	2.5	2.0	36.5	BOW-28-064	PCA31-138
166	4725	1501	1810	1100	2.5	2.0	36.5	BOW-28-064	PCA31-144
173	4725	1501	1810	1100	2.5	2.0	36.5	BOW-28-064	PCA31-150
207	7250	2186	2010	1300	2.5	2.0	53.0	BOW-28-064	PCA33-180
207	9000	2186	2010	1300	2.5	2.0	55.0	BOW-28-089	PCA33E-180
221	7250	2186	2010	1300	2.5	2.0	53.0	BOW-28-064	PCA33-192
221	9000	2186	2010	1300	2.5	2.0	55.0	BOW-28-089	PCA33E-192
228	7250	2186	2210	1500	2.5	2.0	53.0	BOW-28-064	PCA33-198
228	9000	2186	2210	1500	2.5	2.0	55.0	BOW-28-089	PCA33E-198
248	7250	2186	2415	1500	2.5	2.0	53.0	BOW-28-064	PCA33-216
259	9000	2186	2415	1500	2.5	2.0	55.0	BOW-28-089	PCA33E-225
276	8350	2656	2615	1700	2.5	2.0	63.0	BOW-28-068	PCA331-240
276	11850	2846	2615	1700	2.5	2.0	70.0	BOW-28-090	PCA332E-240
290	11850	2846	2900	1700	2.5	2.0	70.0	BOW-28-090	PCA332E-252
317	8350	2656	3100	1900	2.5	2.0	63.0	BOW-28-068	PCA331-276
331	8350	2656	4100	2100	2.5	2.0	63.0	BOW-28-068	PCA331-288
359	11850	2656	4100	2100	2.5	2.0	70.0	BOW-28-090	PCA332E-312
386	10875	2656	5200	2350	2.5	2.0	67.0	BOW-28-068	PCA331-240
414	10875	2656	5200	2350	2.5	2.0	67.0	BOW-28-068	PCA331-276
386	13500	3341	5200	2350	2.5	2.0	82.5	BOW-28-090	PCA333E-336
414	13500	3341	5200	2350	2.5	2.0	82.5	BOW-28-090	PCA333E-360

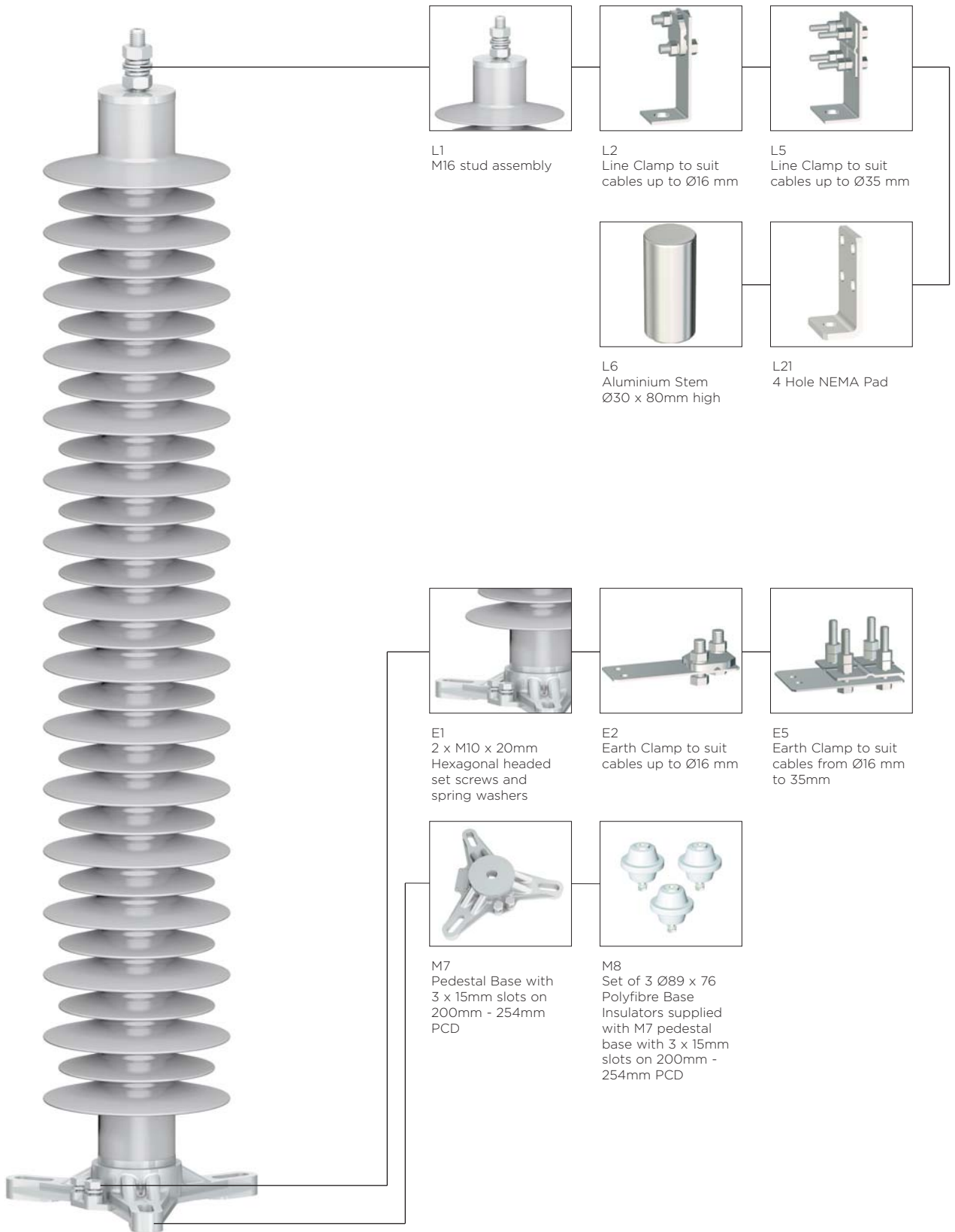
PAA termination options



Example: PAA22 60 L1 E1 M7



PBA termination options



L1
M16 stud assembly



L2
Line Clamp to suit
cables up to Ø16 mm



L5
Line Clamp to suit
cables up to Ø35 mm



L6
Aluminium Stem
Ø30 x 80mm high



L21
4 Hole NEMA Pad



E1
2 x M10 x 20mm
Hexagonal headed
set screws and
spring washers



E2
Earth Clamp to suit
cables up to Ø16 mm



E5
Earth Clamp to suit
cables from Ø16 mm
to 35mm



M7
Pedestal Base with
3 x 15mm slots on
200mm - 254mm
PCD

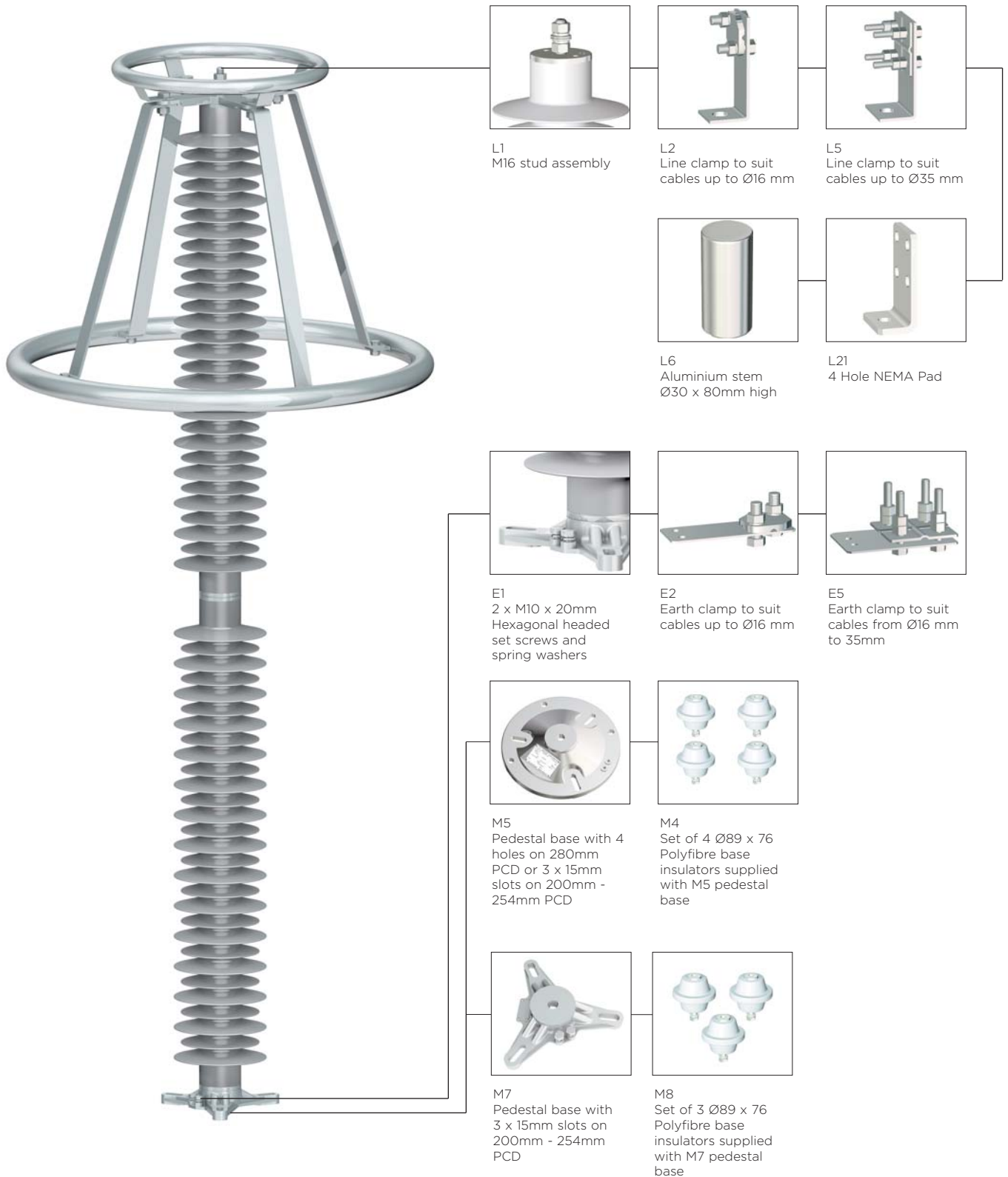


M8
Set of 3 Ø89 x 76
Polyfibre Base
Insulators supplied
with M7 pedestal
base with 3 x 15mm
slots on 200mm -
254mm PCD

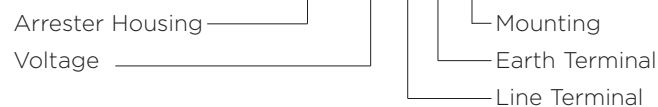
Example: PBA3 120 L1 E1 M7

Arrester Housing ————
Voltage ————
Mounting ————
Earth Terminal ————
Line Terminal ————

PCA/PCAE standard termination options



Example: PCA33 198 L1 E1 M7



**SC12****SC13**

The TE Connectivity range of surge counters and monitoring instruments are fully tested for use with any manufacturers' ZnO surge arrester.

- The surge counters, are designed for installation in the earth connections of a single phase surge arrester.
- Fully weatherproofed and sealed for life they are housed in a one piece gravity die cast aluminium case, epoxy power coated to enhance its already high degree of resistance to surface corrosion.
- The glass viewing window (SC12 and SC13) is sealed in place, using a silicon rubber adhesive, and a desiccator is enclosed to ensure any residual moisture trapped during sealing is absorbed for the service life of the counter.
- Mounting is effected by means of an integrally cast lug at the rear of the case providing a single clearance hole for the galvanized steel M12 bolt supplied.

Available options:

SC12

The SC12 gives a visual indication of the quantity of surges the arrester has received; this is via an integrated 6 digit cyclometer.

The SC12 can be supplied with an auxiliary volt free contact rated at 1A - 250V for connection to remote signalling equipment.

SC13

The SC 13 provides the additional measurement of total leakage current. The analogue instrument provides a means of monitoring the leakage current through the surge arrester and over the surface of the surge arrester housing. Significant changes after installation may indicate deterioration in the surge arrester or a build up of surface contamination.

The SC13 can be supplied with an auxiliary volt free contact rated at 1A- 250V for connection to remote signalling equipment.



Porcelain surge arresters

Porcelain surge arresters

- For system voltages up to 800kV
- Standard: IEC60099-4.
- Line Discharge Class: 2, 3, 4, 5
- High Current short circuit up to 65kA
- Application: Transmission and sub-station overvoltage protection



Transmission line arresters

Transmission line surge arresters

- For system voltages up to 500kV
- Standard: IEC60099-4
- Line Discharge Class: 2, 3
- Short Circuit rating up to 65 kA
- Fast acting disconnect - DD5-130
- Application: Transmission line protection



Cable sheath arresters

Cable sheath surge arresters

- For cable sheath protection up to 10kV rating
- Standard: IEC99-4
- Line discharge: class 1
- Application: Cable sheath protection



Cable spiker kit

Cable spiker kit

- Safety device for cables
- Cable to BS6622 & BS EN/IEC60228
- Suitable for cable up to 102mm diameter
- Hydraulic pump - no explosive cartridge required
- Application: To determine if 11kV cable is dead or alive



Airfield lighting box

Airfield lighting box type 2DCAFL4

- Suitable for 4kV DC lighting systems
- Standard: IEC60099-4
- Line discharge class 1
- Robust design to IP65
- Application: Protection of airfield lighting

ABOUT TE CONNECTIVITY

TE Connectivity (NYSE: TEL) is a \$13 billion world leader in connectivity. The company designs and manufactures products at the heart of electronic connections for the world's leading industries including automotive, energy and industrial, broadband communications, consumer devices, healthcare, and aerospace and defense. TE Connectivity's long-standing commitment to innovation and engineering excellence helps its customers solve the need for more energy efficiency, always-on communications and ever-increasing productivity. With nearly 90,000 employees in over 50 countries, TE Connectivity makes connections the world relies on to work flawlessly every day. To connect with the company, visit: www.TE.com.

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TE Energy – innovative and economical solutions for the electrical power industry: cable accessories, connectors & fittings, insulators & insulation, surge arresters, switching equipment, street lighting, power measurement and control.

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