Data sheet

Surge arrester
POLIM-I..N

Overvoltage protection of

- Transformers
- Motors
- Traction systems (fixed installations and rolling stock)
- Capacitors
- Medium voltage equipment

Application

- Alternating current (AC)
- Outdoor and indoor

Technical data

Surge arrester with metal oxide resistors without spark gaps (MO surge arrester), direct molded silicone housing, grey color, designed and tested according to IEC 60099-4.

Nominal discharge current I_n 8/20 µs	10 kA peak
Line discharge class (LD)	2
High current impulse I_{hc} 4/10 µs	100 kA peak
Long duration current impulse	550 A / 2000 µs
Short circuit rating I_s 50 Hz	40 kA rms for 0.2 s
Classification according to IEEE (ANSI) C62.11	intermediate

The thermal stability of the MO surge arrester is proved in the operating duty test according to LD 2, which gives an energy input of 5.5 kJ/kV (U_c).

Power frequency voltage versus time characteristic (TOV) with prior energy input

t = 1 s	$U_{TOV} = 1.317 \times U_c$
t = 3 s	$U_{TOV} = 1.287 \times U_c$
t = 10 s	$U_{TOV} = 1.256 \times U_c$

Mechanical loads

Torque moment	100 Nm
Tensile strength axial	2000 N
Short term load SSL horizontal to axis	2240 Nm
Long term load SLL horizontal to axis	1150 Nm

Shock and vibration tested according IEC 61373.

General data

Ambient air temperature	–60 to +40 °C (for higher values contact manufacturer)
Altitude	up to 1800 m (for higher values contact manufacturer)
Frequency of system voltage	16.7/50/60 Hz
Weather ageing test	tested according to test series A (1000 h salt fog)

Electrical data

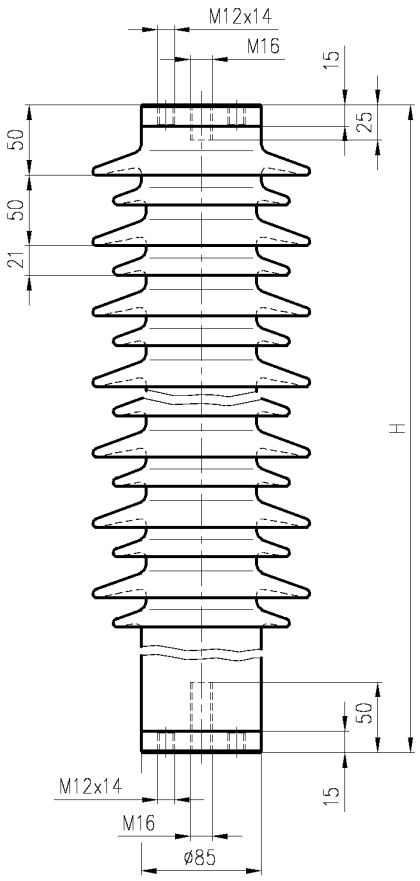
U_c Continuous operating voltage	U_r Rated voltage	Residual voltage U_{res} in kV peak at specified impulse current									
		wave 1/…µs		wave 8/20 µs					wave 30/60 µs		
kV	kV	5 kA	10 kA	1 kA	2,5 kA	5 kA	**10 kA**	20 kA	125 A	250 A	500 A
rms	rms	peak	peak	peak	peak	peak	**peak**	peak	peak	peak	peak
4	5.0	12.7	13.5	10.5	11.1	11.7	**12.3**	14.1	9.2	9.5	9.9
5	6.3	15.9	16.8	13.1	13.9	14.6	**15.4**	17.6	11.4	11.9	12.4
6	7.5	19.1	20.2	15.8	16.7	17.5	**18.5**	21.1	13.7	14.3	14.8
7	8.8	22.2	23.5	18.3	19.4	20.3	**21.5**	24.6	16.0	16.6	17.2
8	10.0	25.4	26.9	21.0	22.2	23.3	**24.6**	28.1	18.3	19.0	19.7
9	11.3	28.6	30.2	23.6	25.0	26.2	**27.7**	31.6	20.5	21.4	22.2
10	12.5	31.7	33.5	26.1	27.7	29.0	**30.7**	35.0	22.8	23.7	24.6
11	13.8	34.9	36.9	28.8	30.5	32.0	**33.8**	38.6	25.1	26.1	27.1
12	15.0	38.1	40.3	31.4	33.3	34.9	**36.9**	42.1	27.4	28.5	29.6
13	16.3	41.2	43.6	34.0	36.0	37.8	**40.0**	45.6	29.6	30.8	32.0
14	17.5	44.3	46.9	36.6	38.7	40.6	**43.0**	49.1	31.9	33.2	34.4
15	18.8	47.5	50.3	39.2	41.5	43.6	**46.1**	52.6	34.2	35.5	36.9
16	20.0	50.7	53.7	41.9	44.3	46.5	**49.2**	56.1	36.5	37.9	39.4
17	21.3	53.8	56.9	44.4	47.0	49.3	**52.2**	59.6	38.7	40.2	41.8
18	22.5	57.0	60.3	47.1	49.8	52.3	**55.3**	63.1	41.0	42.6	44.3
19	23.8	60.2	63.7	49.7	52.6	55.2	**58.4**	66.6	43.3	45.0	46.8
20	25.0	63.3	67.0	52.2	55.3	58.0	**61.4**	70.0	45.5	47.3	49.2
21	26.3	66.5	70.4	54.9	58.1	60.9	**64.5**	73.6	47.8	49.7	51.6
22	27.5	69.7	73.7	57.5	60.9	63.9	**67.6**	77.1	50.1	52.1	54.1
23	28.8	72.9	77.1	60.1	63.7	66.8	**70.7**	80.6	52.4	54.5	56.6
24	30.0	76.0	80.4	62.7	66.4	69.6	**73.7**	84.1	54.6	56.8	59.0
25	31.3	79.2	83.8	65.3	69.2	72.5	**76.8**	87.6	56.9	59.2	61.5
26	32.5	82.3	87.1	68.0	72.0	75.5	**79.9**	91.1	59.2	61.6	64.0
27	33.8	85.4	90.4	70.5	74.7	78.3	**82.9**	94.6	61.4	63.9	66.4
28	35.0	88.6	93.8	73.1	77.4	81.2	**86.0**	98.1	63.7	66.3	68.8
29	36.3	91.8	97.2	75.8	80.2	84.2	**89.1**	101.6	66.0	68.7	71.3
30	37.5	94.9	100.4	78.3	82.9	87.0	**92.1**	105.0	68.2	71.0	73.7
31	38.8	98.1	103.8	81.0	85.7	89.9	**95.2**	108.6	70.5	73.4	76.2
32	40.0	101.3	107.2	83.6	88.5	92.8	**98.3**	112.1	72.8	75.7	78.7
33	41.3	104.5	110.6	86.2	91.3	95.8	**101.4**	115.6	75.1	78.1	81.2
34	42.5	107.6	113.8	88.8	94.0	98.6	**104.4**	119.1	77.3	80.4	83.6
35	43.8	110.8	117.2	91.4	96.8	101.5	**107.5**	122.6	79.6	82.8	86.0
36	45.0	114.0	120.6	94.1	99.6	104.5	**110.6**	126.1	81.9	85.2	88.5
37	46.3	117.1	123.9	96.6	102.3	107.3	**113.6**	129.6	84.1	87.5	90.9
38	47.5	120.3	127.3	99.2	105.1	110.2	**116.7**	133.1	86.4	89.9	93.4
39	48.8	123.4	130.6	101.9	107.9	113.1	**119.8**	136.6	88.7	92.3	95.9
40	50.0	126.5	133.9	104.4	110.6	116.0	**122.8**	140.0	90.9	94.6	98.3
41	51.3	129.7	137.3	107.1	113.4	118.9	**125.9**	143.6	93.2	97.0	100.8
42	52.5	132.9	140.7	109.7	116.1	121.8	**129.0**	147.1	95.5	99.4	103.2
43	53.8	136.1	144.0	112.3	118.9	124.8	**132.1**	150.6	97.8	101.8	105.7
44	55.0	139.2	147.3	114.9	121.6	127.6	**135.1**	154.1	100.0	104.1	108.1

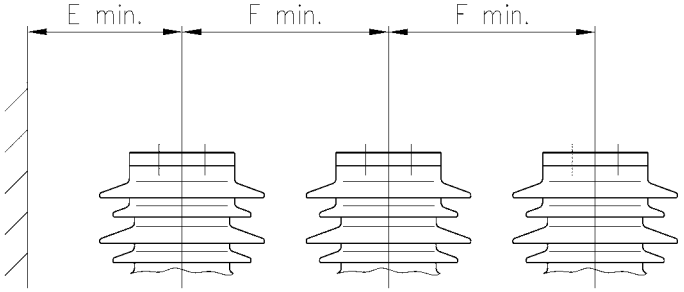
Housing

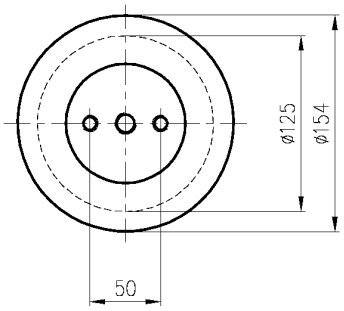
U_c Continuous operating voltage	Creepage distance	Flashover distance	Recommended minimum clearances		Height H	Weight	Insulation withstand voltage of empty housing			
							1.2/50 µs		50 Hz, 60 s wet	
			E_{min}	F_{min}			required values acc. to IEC	guaranteed	required values acc. to IEC	guaranteed
kV rms	mm	mm	mm	mm	mm	kg	kV peak	kV peak	kV rms	kV rms
4	366	198	91	160	210	3.1	16	119	8	34
5	366	198	100	160	210	3.1	21	119	10	34
6	501	230	110	160	240	3.5	25	138	12	40
7	501	230	120	170	240	3.6	28	138	13	40
8	501	230	130	180	240	3.6	32	138	15	40
9	656	280	140	190	290	4.4	37	168	17	48
10	656	280	150	200	290	4.5	40	168	19	48
11	656	280	160	210	290	4.5	44	168	21	48
12	656	280	170	220	290	4.5	48	168	23	48
13	831	348	180	230	360	5.5	52	209	24	60
14	831	348	190	240	360	5.5	56	209	26	60
15	831	348	200	250	360	5.6	60	209	28	60
16	831	348	210	260	360	5.6	64	209	30	60
17	831	348	220	270	360	5.6	68	209	32	60
18	831	348	230	280	360	5.7	72	209	34	60
19	831	348	240	290	360	5.8	76	209	36	60
20	831	348	249	300	360	5.8	80	209	37	60
21	986	398	260	310	410	6.5	84	239	39	68
22	986	398	269	320	410	6.6	88	239	41	68
23	986	398	279	330	410	6.6	92	239	43	68
24	986	398	289	340	410	6.7	96	239	45	68
25	986	398	299	350	410	6.7	100	239	47	68
26	1141	448	309	360	460	7.4	104	269	48	77
27	1141	448	319	370	460	7.5	108	269	50	77
28	1141	448	329	380	460	7.6	112	269	52	77
29	1141	448	339	390	460	7.6	116	269	54	77
30	1431	530	349	400	540	8.8	120	318	56	91
31	1431	530	359	410	540	8.8	124	318	58	91
32	1431	530	369	420	540	8.9	128	318	59	91
33	1431	530	379	430	540	8.9	132	318	61	91
34	1431	530	389	440	540	8.9	136	318	63	91
35	1431	530	399	450	540	9.0	140	318	65	91
36	1431	530	409	460	540	9.0	144	318	67	91
37	1606	600	419	470	610	10.0	148	360	69	102
38	1606	600	429	480	610	10.0	152	360	71	102
39	1606	600	438	489	610	10.1	156	360	72	102
40	1606	600	448	499	610	10.1	160	360	74	102
41	1741	630	458	509	640	10.5	164	378	76	108
42	1741	630	468	519	640	10.6	168	378	78	108
43	1741	630	478	529	640	10.6	172	378	80	108
44	1741	630	488	539	640	10.7	176	378	82	108

Housing

Dimensions (mm)







Standard dimensions without accessories (may be subject to changes)
Dimensions according outline drawing 1HC0006458
Outline drawings with accessories on request

Structure of type designation

POLIM-I 36 N

Type of arrester
U_c = Continuous operating voltage
Housing

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For detailed information regarding the dimensioning of our products see the following ABB documents:

– Application guidelines
  Overvoltage protection
  Metal oxide surge arresters in medium voltage systems
– Application guidelines
  Overvoltage protection
  Metal oxide surge arresters in railway facilities

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