Data sheet

Surge arrester MWD

Overvoltage protection of

- Transformers
- Motors
- Cables
- Cable sheaths
- Medium voltage equipment

Application

- Alternating current (AC)
- Indoor

Technical data

Surge arresters with metal oxide resistors without spark gaps (MO surge arresters), 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	20 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	50 Nm
Tensile strength axial	1200 N
Short term load SSL horizontal to axis	153 Nm
Long term load SLL horizontal to axis	88 Nm

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

Electrical data

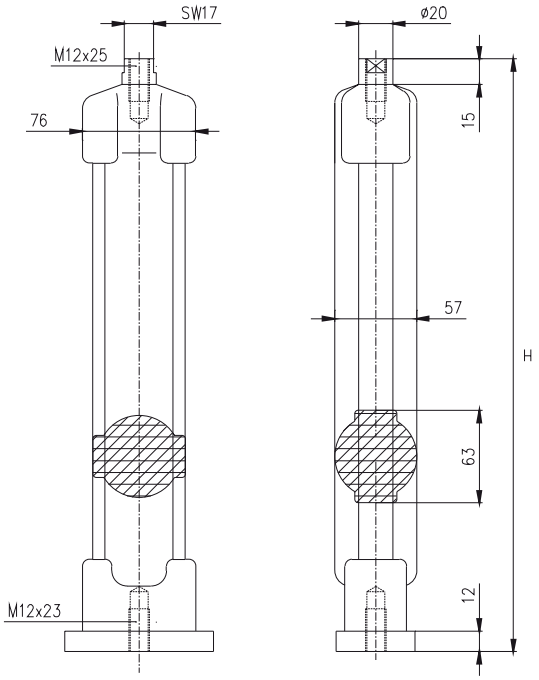
U_c Continuous operating voltage	U_r Rated voltage	Residual voltage U_{res} in kV peak at specified impulse current									
		wave 1/…µs		wave 8/20 µs					wave 30/60 µs		
kV	kV	5 kA	10 kA	1 kA	2.5 kA	5 kA	**10 kA**	20 kA	125 A	250 A	500 A
rms	rms	peak	peak	peak	peak	peak	**peak**	peak	peak	peak	peak
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

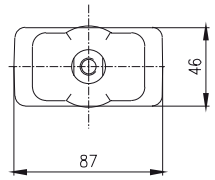
Housing

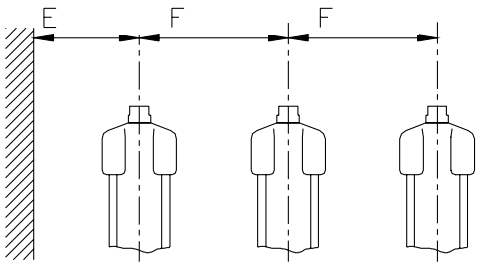
U_c Continuous operating voltage	Creepage distance	Flashover distance	Recommended minimum clearances		Height H	Weight	Insulation withstand voltage of empty housing			
							1.2/50 µs		50 Hz, 60 s dry	
			E_{min}	F_{min}			req. values acc. to IEC	guaranteed	req. values acc. to IEC	guaranteed
kV rms	mm	mm	mm	mm	mm	kg	kV peak	kV peak	kV rms	kV rms
4	170	165	50	90	187	1.3	16	66	8	42
5	170	165	60	90	187	1.3	21	66	10	42
6	170	165	70	90	187	1.4	25	66	12	42
7	170	165	80	90	187	1.4	28	66	13	42
8	170	165	90	100	187	1.5	32	66	15	42
9	210	205	100	110	227	1.8	37	81	17	52
10	210	205	110	120	227	1.8	40	81	19	52
11	250	245	120	130	267	2.1	44	97	21	62
12	250	245	130	140	267	2.1	48	97	23	62
13	250	245	140	150	267	2.2	52	97	24	62
14	250	245	150	160	267	2.2	56	97	26	62
15	250	245	160	170	267	2.3	60	97	28	62
16	290	285	170	180	307	2.5	64	113	30	72
17	290	285	180	190	307	2.5	68	113	32	72
18	290	285	190	200	307	2.6	72	113	34	72
19	290	285	200	210	307	2.6	76	113	36	72
20	290	285	209	220	307	2.7	80	113	37	72
21	330	325	220	230	347	3.0	84	129	39	82
22	330	325	229	240	347	3.0	88	129	41	82
23	330	325	239	250	347	3.1	92	129	43	82
24	330	325	249	260	347	3.1	96	129	45	82
25	370	365	259	270	387	3.4	100	145	47	92
26	370	365	269	280	387	3.4	104	145	48	92
27	370	365	279	290	387	3.5	108	145	50	92
28	370	365	289	300	387	3.5	112	145	52	92
29	370	365	299	310	387	3.6	116	145	54	92
30	370	365	309	320	387	3.6	120	145	56	92
31	490	485	319	330	507	4.4	124	192	58	122
32	490	485	329	340	507	4.4	128	192	59	122
33	490	485	339	350	507	4.5	132	192	61	122
34	490	485	349	360	507	4.5	136	192	63	122
35	490	485	359	370	507	4.6	140	192	65	122
36	490	485	369	380	507	4.6	144	192	67	122
37	490	485	379	390	507	4.7	148	192	69	122
38	490	485	389	400	507	4.7	152	192	71	122
39	490	485	398	409	507	4.8	156	192	72	122
40	490	485	408	419	507	4.8	160	192	74	122
41	490	485	418	429	507	4.9	164	192	76	122
42	530	525	428	439	547	5.1	168	208	78	132
43	530	525	438	449	547	5.3	172	208	80	132
44	530	525	448	459	547	5.3	176	208	82	132

Housing

Dimensions (mm)







Standard dimensions without accessories (may be subject to changes)
Dimensions according outline drawing HAWA 480797
Outline drawings with accessories on request

Structure of type designation

MWD 24

Type of arrester
U_c = Continuous operating voltage

For further information please contact:

ABB Switzerland Ltd
High Voltage Products
Surge Arresters
Jurastrasse 45
CH-5430 Wettingen/Switzerland
Tel. +41 58 585 29 11
Fax +41 58 585 55 70
E-mail: sales.sa@ch.abb.com

www.abb.com/arrestersonline

For detailed information for dimensioning of our products see 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

For pdf or print version please send E-mail to:
sales.sa@ch.abb.com

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