

# Surge arrester MWK



## Overvoltage protection of

- Transformers
- Motors
- Cables
- Cable sheaths
- 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 $\mu$ s	10 kA peak
Line discharge class (LD)	2
High current impulse $I_{hc}$ 4/10 $\mu$ s	100 kA peak
Long duration current impulse	550 A / 2000 $\mu$ s
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
Weather ageing test	tested according to test series A (1000 h salt fog)



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+44 (0) 191 410 4292  
www.powerandcables.com

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# Electrical data

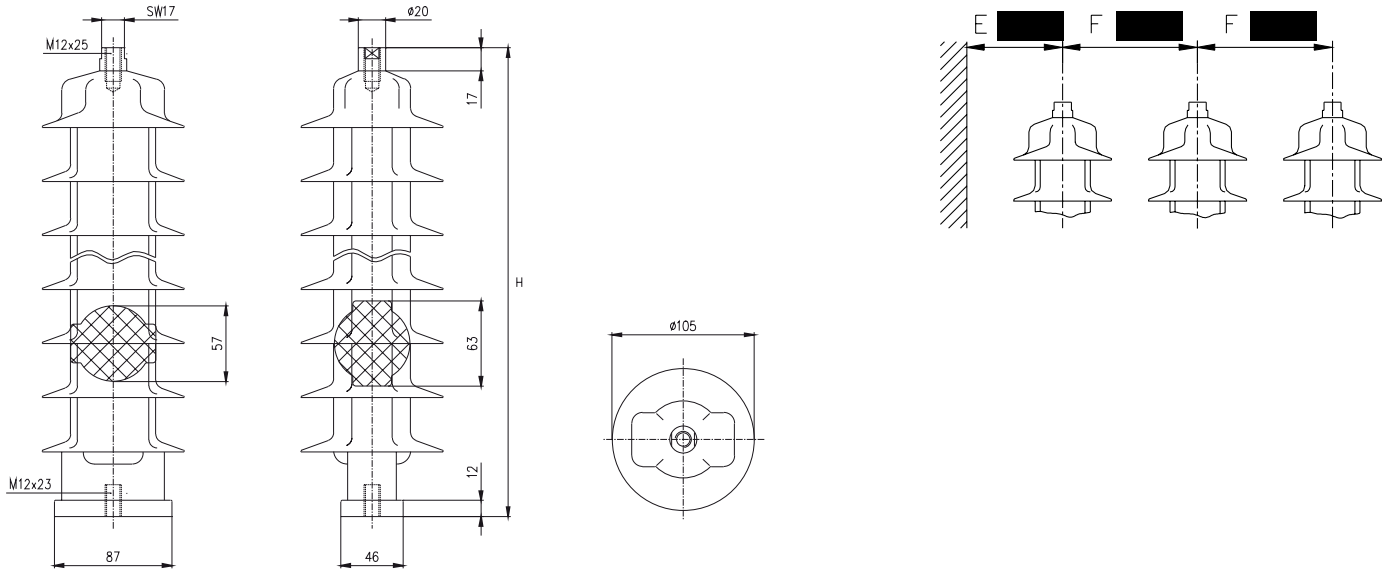
$U_c$ Continuous operating voltage	$U_r$ Rated voltage	Residual voltage $U_{res}$ in kV peak at specified impulse current									
		wave 1/... $\mu$ s		wave 8/20 $\mu$ s					wave 30/60 $\mu$ s		
kV rms	kV rms	5 kA peak	10 kA peak	1 kA peak	2.5 kA peak	5 kA peak	10 kA peak	20 kA peak	125 A peak	250 A peak	500 A peak
4	5.0	12.7	13.5	10.5	11.1	11.7	<b>12.3</b>	14.1	9.2	9.5	9.9
5	6.3	15.9	16.8	13.1	13.9	14.6	<b>15.4</b>	17.6	11.4	11.9	12.4
6	7.5	19.1	20.2	15.8	16.7	17.5	<b>18.5</b>	21.1	13.7	14.3	14.8
7	8.8	22.2	23.5	18.3	19.4	20.3	<b>21.5</b>	24.6	16.0	16.6	17.2
8	10.0	25.4	26.9	21.0	22.2	23.3	<b>24.6</b>	28.1	18.3	19.0	19.7
9	11.3	28.6	30.2	23.6	25.0	26.2	<b>27.7</b>	31.6	20.5	21.4	22.2
10	12.5	31.7	33.5	26.1	27.7	29.0	<b>30.7</b>	35.0	22.8	23.7	24.6
11	13.8	34.9	36.9	28.8	30.5	32.0	<b>33.8</b>	38.6	25.1	26.1	27.1
12	15.0	38.1	40.3	31.4	33.3	34.9	<b>36.9</b>	42.1	27.4	28.5	29.6
13	16.3	41.2	43.6	34.0	36.0	37.8	<b>40.0</b>	45.6	29.6	30.8	32.0
14	17.5	44.3	46.9	36.6	38.7	40.6	<b>43.0</b>	49.1	31.9	33.2	34.4
15	18.8	47.5	50.3	39.2	41.5	43.6	<b>46.1</b>	52.6	34.2	35.5	36.9
16	20.0	50.7	53.7	41.9	44.3	46.5	<b>49.2</b>	56.1	36.5	37.9	39.4
17	21.3	53.8	56.9	44.4	47.0	49.3	<b>52.2</b>	59.6	38.7	40.2	41.8
18	22.5	57.0	60.3	47.1	49.8	52.3	<b>55.3</b>	63.1	41.0	42.6	44.3
19	23.8	60.2	63.7	49.7	52.6	55.2	<b>58.4</b>	66.6	43.3	45.0	46.8
20	25.0	63.3	67.0	52.2	55.3	58.0	<b>61.4</b>	70.0	45.5	47.3	49.2
21	26.3	66.5	70.4	54.9	58.1	60.9	<b>64.5</b>	73.6	47.8	49.7	51.6
22	27.5	69.7	73.7	57.5	60.9	63.9	<b>67.6</b>	77.1	50.1	52.1	54.1
23	28.8	72.9	77.1	60.1	63.7	66.8	<b>70.7</b>	80.6	52.4	54.5	56.6
24	30.0	76.0	80.4	62.7	66.4	69.6	<b>73.7</b>	84.1	54.6	56.8	59.0
25	31.3	79.2	83.8	65.3	69.2	72.5	<b>76.8</b>	87.6	56.9	59.2	61.5
26	32.5	82.3	87.1	68.0	72.0	75.5	<b>79.9</b>	91.1	59.2	61.6	64.0
27	33.8	85.4	90.4	70.5	74.7	78.3	<b>82.9</b>	94.6	61.4	63.9	66.4
28	35.0	88.6	93.8	73.1	77.4	81.2	<b>86.0</b>	98.1	63.7	66.3	68.8
29	36.3	91.8	97.2	75.8	80.2	84.2	<b>89.1</b>	101.6	66.0	68.7	71.3
30	37.5	94.9	100.4	78.3	82.9	87.0	<b>92.1</b>	105.0	68.2	71.0	73.7
31	38.8	98.1	103.8	81.0	85.7	89.9	<b>95.2</b>	108.6	70.5	73.4	76.2
32	40.0	101.3	107.2	83.6	88.5	92.8	<b>98.3</b>	112.1	72.8	75.7	78.7
33	41.3	104.5	110.6	86.2	91.3	95.8	<b>101.4</b>	115.6	75.1	78.1	81.2
34	42.5	107.6	113.8	88.8	94.0	98.6	<b>104.4</b>	119.1	77.3	80.4	83.6
35	43.8	110.8	117.2	91.4	96.8	101.5	<b>107.5</b>	122.6	79.6	82.8	86.0
36	45.0	114.0	120.6	94.1	99.6	104.5	<b>110.6</b>	126.1	81.9	85.2	88.5
37	46.3	117.1	123.9	96.6	102.3	107.3	<b>113.6</b>	129.6	84.1	87.5	90.9
38	47.5	120.3	127.3	99.2	105.1	110.2	<b>116.7</b>	133.1	86.4	89.9	93.4
39	48.8	123.4	130.6	101.9	107.9	113.1	<b>119.8</b>	136.6	88.7	92.3	95.9
40	50.0	126.5	133.9	104.4	110.6	116.0	<b>122.8</b>	140.0	90.9	94.6	98.3
41	51.3	129.7	137.3	107.1	113.4	118.9	<b>125.9</b>	143.6	93.2	97.0	100.8
42	52.5	132.9	140.7	109.7	116.1	121.8	<b>129.0</b>	147.1	95.5	99.4	103.2
43	53.8	136.1	144.0	112.3	118.9	124.8	<b>132.1</b>	150.6	97.8	101.8	105.7
44	55.0	139.2	147.3	114.9	121.6	127.6	<b>135.1</b>	154.1	100.0	104.1	108.1

# Housing

$U_c$ Continuous operating voltage	Creepage distance	Flashover distance	Recommended minimum clearance		Height H	Weight	Insulation withstand voltage of empty housing			
			$E_{min}$	$F_{min}$			1.2/50 $\mu$ s		50 Hz, 60 s wet	
							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	269	183	60	110	187	1.3	16	96	8	41
5	269	183	60	110	187	1.4	21	96	10	41
6	269	183	70	110	187	1.4	25	96	12	41
7	269	183	80	110	187	1.5	28	96	13	41
8	269	183	90	110	187	1.5	32	96	15	41
9	344	223	100	110	227	1.9	37	116	17	50
10	344	223	110	120	227	1.9	40	116	19	50
11	418	263	120	130	267	2.2	44	137	21	58
12	418	263	130	140	267	2.2	48	137	23	58
13	418	263	140	150	267	2.3	52	137	24	58
14	418	263	150	160	267	2.3	56	137	26	58
15	418	263	160	170	267	2.4	60	137	28	58
16	492	303	170	180	307	2.7	64	158	30	67
17	492	303	180	190	307	2.7	68	158	32	67
18	492	303	190	200	307	2.8	72	158	34	67
19	492	303	200	210	307	2.8	76	158	36	67
20	492	303	209	220	307	2.9	80	158	37	67
21	567	343	220	230	347	3.2	84	179	39	76
22	567	343	229	240	347	3.2	88	179	41	76
23	567	343	239	250	347	3.3	92	179	43	76
24	567	343	249	260	347	3.3	96	179	45	76
25	641	383	259	270	387	3.6	100	200	47	85
26	641	383	269	280	387	3.6	104	200	48	85
27	641	383	279	290	387	3.7	108	200	50	85
28	641	383	289	300	387	3.7	112	200	52	85
29	641	383	299	310	387	3.8	116	200	54	85
30	641	383	309	320	387	3.8	120	200	56	85
31	865	503	319	330	507	4.7	124	262	58	111
32	865	503	329	340	507	4.7	128	262	59	111
33	865	503	339	350	507	4.8	132	262	61	111
34	865	503	349	360	507	4.8	136	262	63	111
35	865	503	359	370	507	4.9	140	262	65	111
36	865	503	369	380	507	4.9	144	262	67	111
37	865	503	379	390	507	5.0	148	262	69	111
38	865	503	389	400	507	5.0	152	262	71	111
39	865	503	398	409	507	5.1	156	262	72	111
40	865	503	408	419	507	5.1	160	262	74	111
41	865	503	418	429	507	5.2	164	262	76	111
42	939	543	428	439	547	5.2	168	283	78	120
43	939	543	438	449	547	5.4	172	283	80	120
44	939	543	448	459	547	5.4	176	283	82	120

# Housing

## Dimensions (mm)



Standard dimensions without accessories (may be subject to changes)  
 Dimensions according outline drawing HAWA 480785  
 Outline drawings with accessories on request

## Structure of type designation

**MWK 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](mailto:sales.sa@ch.abb.com)

**[www.abb.com/arrestersonline](http://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
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For pdf or print version please send E-mail to:  
[sales.sa@ch.abb.com](mailto:sales.sa@ch.abb.com)

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