Surge arrester
MWK..KLL

Product description:
- Metal-oxide (MO) surge arrester without spark gap, designed and type tested according to IEC 60099-4, with own ABB metal-oxide resistors since more than 30 years
- Direct molded silicone housing in patented design for best environmental robustness
- 100% in-house production – fully in charge of complete process
- High quality, safe and reliable, maintenance free
- For alternating current (AC) systems
- For indoor and outdoor installations
- Extra long creepage for very harsh environmental conditions

Especially recommended for overvoltage protection of:
- MV distribution transformer
- MV cable and cable termination
- MV capacitor and capacitor bank
- Further MV distribution equipment

Additional certification:
- Fire and smoke behavior tested and classified according to EN 45545-2

Technical data

Classification according to IEC 60099-4	
Arrester class	SL, Station Low
Line discharge class (LD)	2
Nominal discharge current I_n (8/20 µs)	10 kA_{peak}
Repetitive charge transfer rating Q_{rs}	1.6 As (C)
Rated thermal energy	
W_{th} at T_{amb} = 40 °C	5.0 kJ/kV (U_r) = 6.25 kJ/kV (U_c)
W_{th} at T_{amb} = 55 °C	4.5 kJ/kV (U_r) = 5.625 kJ/kV (U_c)
High current impulse I_{hc} (4/10 µs)	100 kA_{peak}
Long duration current impulse	550 A for 2000 µs
Short circuit rating I_s	20 kA_{rms} for 0.2 s

Power frequency voltage versus time characteristics (TOV)	
With no prior duty energy input	
U_{TOV} at t = 1 s	1.155 U_r = 1.444 U_c
U_{TOV} at t = 3 s	1.130 U_r = 1.412 U_c
U_{TOV} at t = 10 s	1.089 U_r = 1.361 U_c
With prior duty energy input of 4.5 kJ/kV (U_r) = 5.625 kJ/kV (U_c)	
U_{TOV} at t = 1 s	1.101 U_r = 1.376 U_c
U_{TOV} at t = 3 s	1.075 U_r = 1.343 U_c
U_{TOV} at t = 10 s	1.049 U_r = 1.312 U_c

Mechanical loads	
Torque	50 Nm
Tensile strength axial	1200 N
Short term load SSL perpendicular to axis	153 Nm
Long term load SLL perpendicular to axis	88 Nm

Service conditions	
Ambient air temperature T_{amb}	−60 to +55 °C (for temperatures up to 80 °C consider instructions of application guidelines)
Altitude of installation	up to 1800 m (for higher altitudes contact ABB)
Frequency of system voltage	15 to 62 Hz

Electrical data

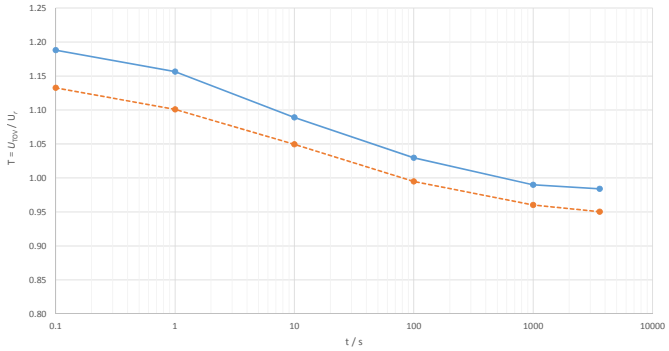
Rated voltage	**Continuous operating voltage**	**Residual voltage U_{res} at specified impulse current** (Maximum value)									
		Steep current impulse wave 1/…µs		Lightning current impulse wave 8/20 µs					Switching current impulse wave 30/60 µs		
U_r	**U_c**	**5 kA**	**10 kA**	**1 kA**	**2.5 kA**	**5 kA**	**I_n=10 kA**	**20 kA**	**125 A**	**250 A**	**500 A**
kV_{rms}	**kV_{rms}**	**kV_{peak}**	**kV_{peak}**	**kV_{peak}**	**kV_{peak}**	**kV_{peak}**	**kV_{peak}**	**kV_{peak}**	**kV_{peak}**	**kV_{peak}**	**kV_{peak}**
30.0	**24**	76.0	80.4	62.7	66.4	69.6	**73.7**	84.1	54.6	56.8	59.0
31.3	**25**	79.2	83.8	65.3	69.2	72.5	**76.8**	87.6	56.9	59.2	61.5
32.5	**26**	82.3	87.1	68.0	72.0	75.5	**79.9**	91.1	59.2	61.6	64.0
33.8	**27**	85.4	90.4	70.5	74.7	78.3	**82.9**	94.6	61.4	63.9	66.4
35.0	**28**	88.6	93.8	73.1	77.4	81.2	**86.0**	98.1	63.7	66.3	68.8
36.3	**29**	91.8	97.2	75.8	80.2	84.2	**89.1**	101.6	66.0	68.7	71.3
37.5	**30**	94.9	100.4	78.3	82.9	87.0	**92.1**	105.0	68.2	71.0	73.7
38.8	**31**	98.1	103.8	81.0	85.7	89.9	**95.2**	108.6	70.5	73.4	76.2
40.0	**32**	101.3	107.2	83.6	88.5	92.8	**98.3**	112.1	72.8	75.7	78.7
41.3	**33**	104.5	110.6	86.2	91.3	95.8	**101.4**	115.6	75.1	78.1	81.2
42.5	**34**	107.6	113.8	88.8	94.0	98.6	**104.4**	119.1	77.3	80.4	83.6
43.8	**35**	110.8	117.2	91.4	96.8	101.5	**107.5**	122.6	79.6	82.8	86.0
45.0	**36**	114.0	120.6	94.1	99.6	104.5	**110.6**	126.1	81.9	85.2	88.5
46.3	**37**	117.1	123.9	96.6	102.3	107.3	**113.6**	129.6	84.1	87.5	90.9
47.5	**38**	120.3	127.3	99.2	105.1	110.2	**116.7**	133.1	86.4	89.9	93.4
48.8	**39**	123.4	130.6	101.9	107.9	113.1	**119.8**	136.6	88.7	92.3	95.9
50.0	**40**	126.5	133.9	104.4	110.6	116.0	**122.8**	140.0	90.9	94.6	98.3
51.3	**41**	129.7	137.3	107.1	113.4	118.9	**125.9**	143.6	93.2	97.0	100.8
52.5	**42**	132.9	140.7	109.7	116.1	121.8	**129.0**	147.1	95.5	99.4	103.2
53.8	**43**	136.1	144.0	112.3	118.9	124.8	**132.1**	150.6	97.8	101.8	105.7
55.0	**44**	139.2	147.3	114.9	121.6	127.6	**135.1**	154.1	100.0	104.1	108.1

Housing

Continuous operating voltage	**Creepage distance**	**Flashover distance**	**Recommended clearances**		**Height H**	**Weight**	**Insulation withstand voltage of housing**			
							1.2/50 µs		**50 Hz, 60 s, wet**	
							required values acc. to EN/IEC	guaranteed	required values acc. to EN/IEC	guaranteed
U_c			E	F						
kV_{rms}	**mm**	**mm**	**mm**	**mm**	**mm**	**kg**	**kV_{peak}**	**kV_{peak}**	**kV_{rms}**	**kV_{rms}**
24	1645	637	249	260	627	6.2	96	332	45	141
25	1645	637	259	270	627	6.2	100	332	47	141
26	1645	637	269	280	627	6.3	104	332	48	141
27	1645	637	279	290	627	6.3	108	332	50	141
28	1645	637	289	300	627	6.4	112	332	52	141
29	1645	637	299	310	627	6.4	116	332	54	141
30	1645	637	309	320	627	6.5	120	332	56	141
31	1645	637	319	330	627	6.5	124	332	58	141
32	1645	637	329	340	627	6.6	128	332	59	141
33	1645	637	339	350	627	6.6	132	332	61	141
34	1645	637	349	360	627	6.7	136	332	63	141
35	1645	637	359	370	627	6.7	140	332	65	141
36	1645	637	369	380	627	6.8	144	332	67	141
37	1645	637	379	390	627	6.8	148	332	69	141
38	1645	637	389	400	627	6.9	152	332	71	141
39	1645	637	398	409	627	6.9	156	332	72	141
40	1645	637	408	419	627	7.0	160	332	74	141
41	1645	637	418	429	627	7.0	164	332	76	141
42	1645	637	428	439	627	7.1	168	332	78	141
43	1645	637	438	449	627	7.1	172	332	80	141
44	1645	637	448	459	627	7.2	176	332	82	141

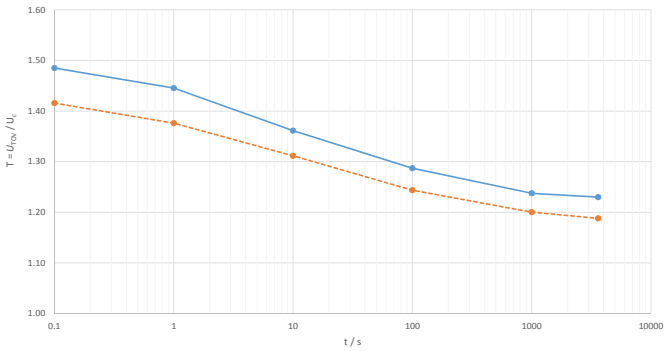
TOV Characteristics

Power frequency voltage-versus time characteristics (TOV) based on U_r



- without prior duty energy input
- with prior duty 4.5 kJ/kV (U_r) = 5.625 kJ/kV (U_c) energy input
  Samples preheated to 60 °C

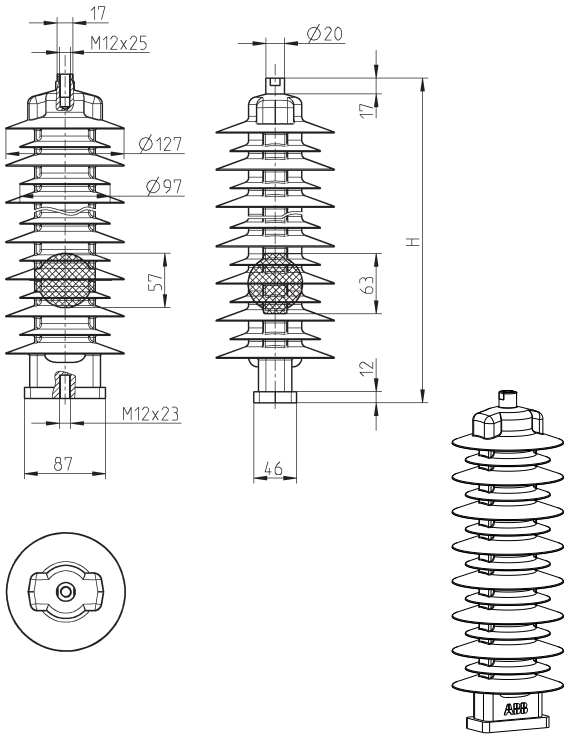
Power frequency voltage-versus time characteristics (TOV) based on U_c



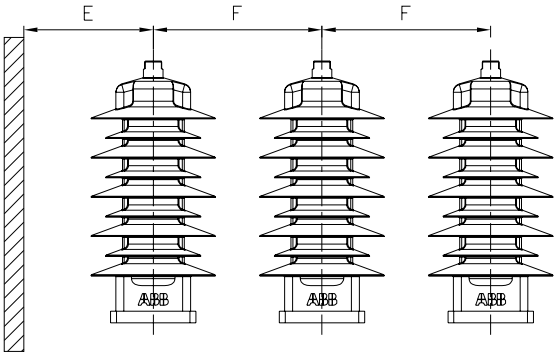
- without prior duty energy input
- with prior duty 4.5 kJ/kV (U_r) = 5.625 kJ/kV (U_c) energy input
  Samples preheated to 60 °C

Dimensions

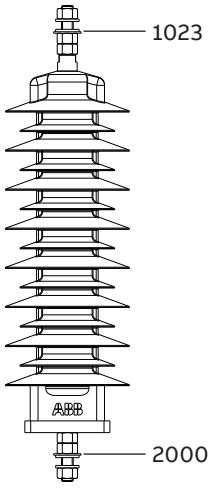
Standard dimensions without accessories



Dimensions according to outline drawing 2GHV051860
Outline drawings with accessories on request



Structure of type designation with optional accessories (Example)



MWK 24 KLL / 1023 / 2000

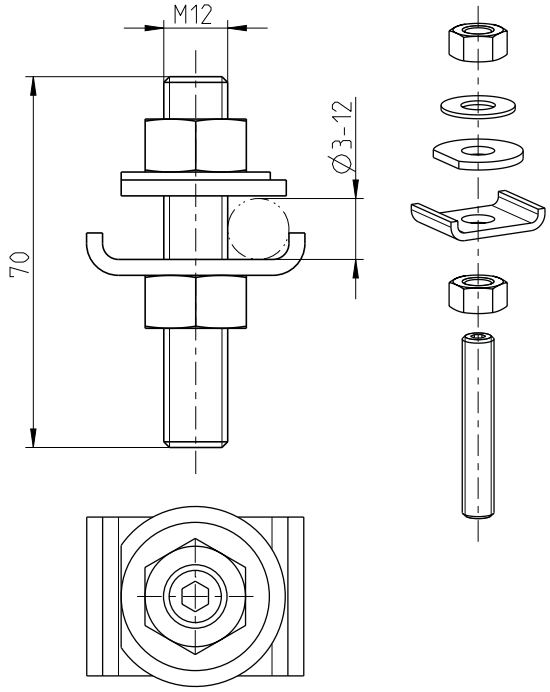
Type of surge arrester
U_c = Continuous operating voltage
Housing

Type of top accessory (optional)
Type of bottom accessory (optional)

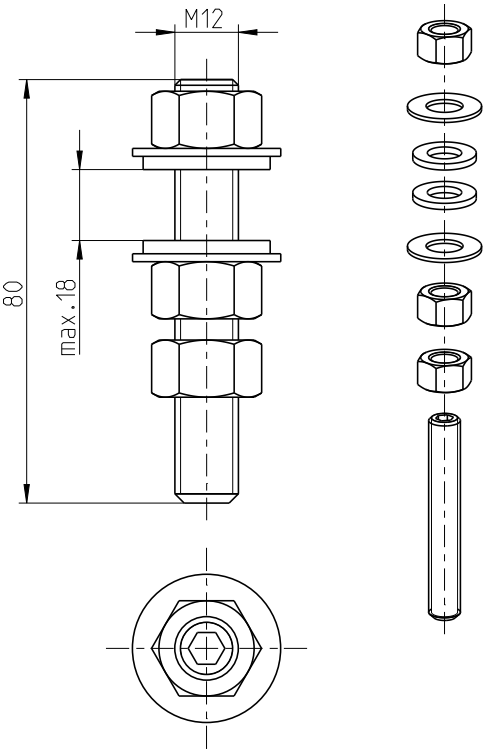
Dimensions (mm)

Common Top Accessories (optional)

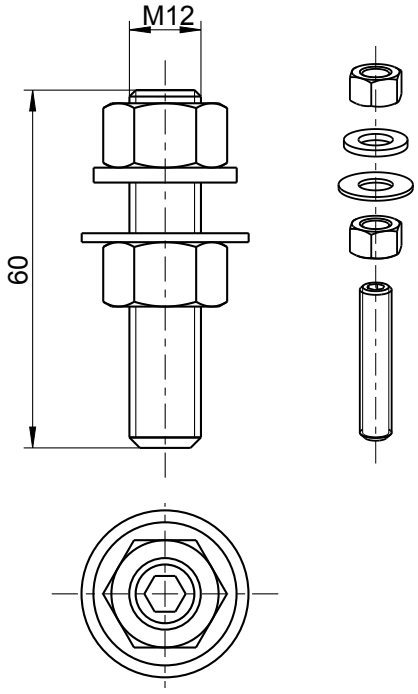
Type 1002 Clamp type connector (stainless steel)



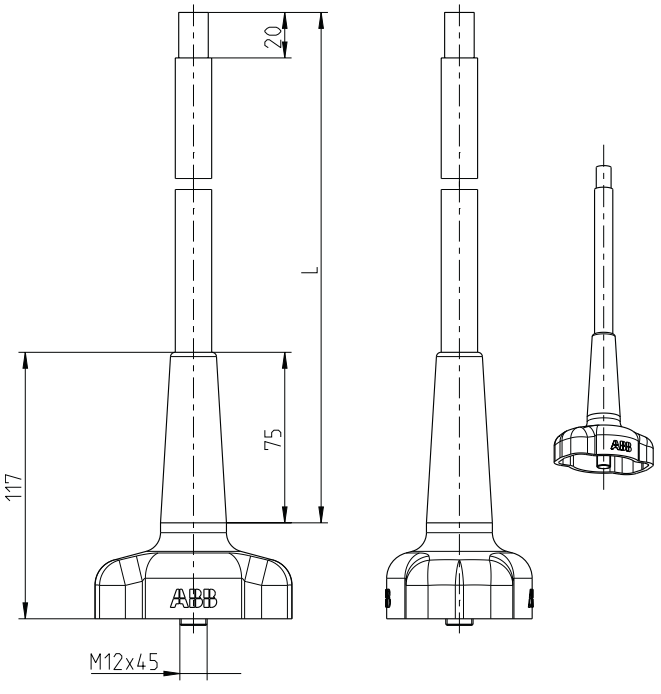
Type 1023 Threated stud with nuts M12x80 (stainless steel)



Type 1028 Threated stud with nuts M12x60 (stainless steel)



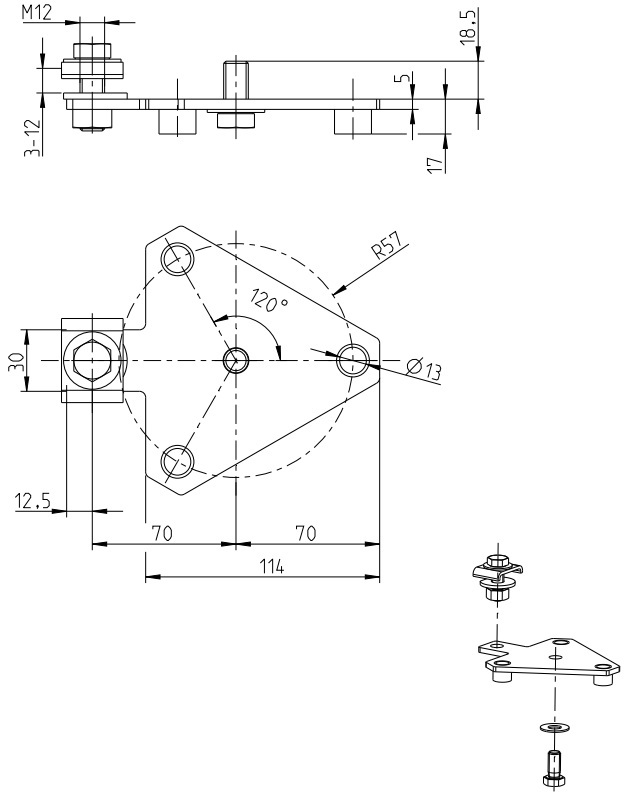
Type 1061 Cap with cable L = 250 mm
Type 1062 Cap with cable L = 500 mm



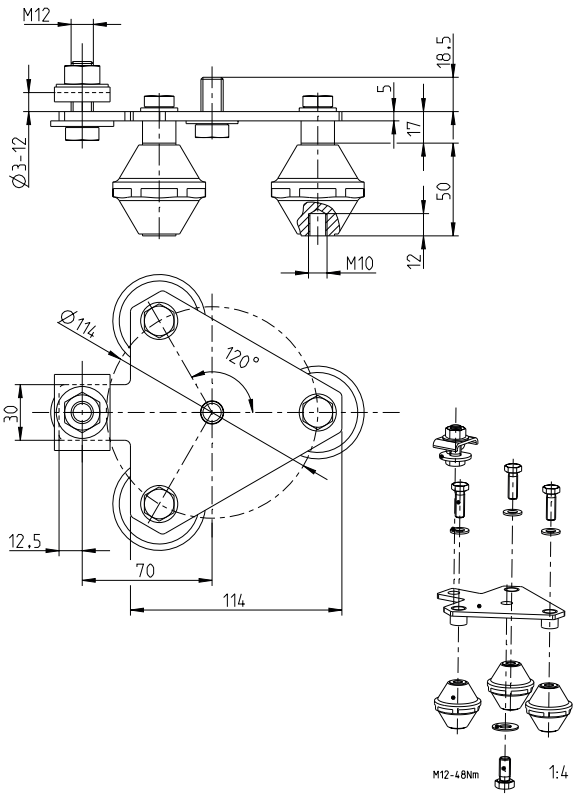
Dimensions (mm)

Common Bottom Accessories (optional)

Type 2150 3-point base plate



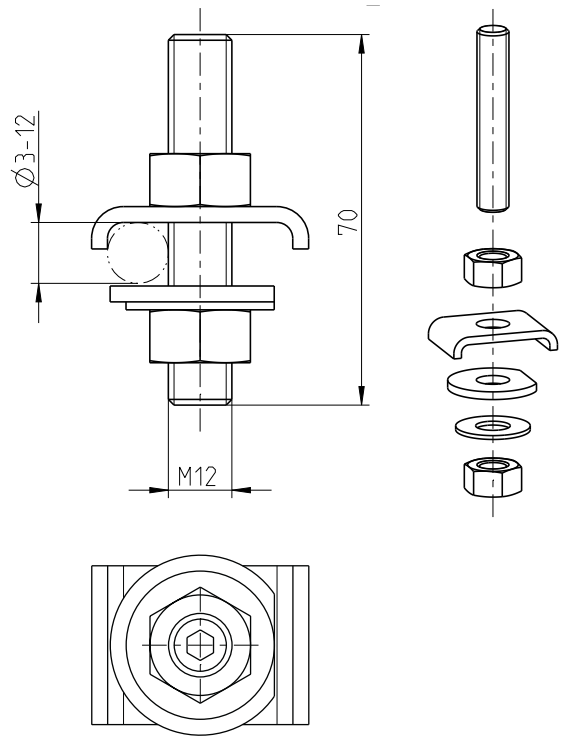
Type 2151 3-point base plate insulated



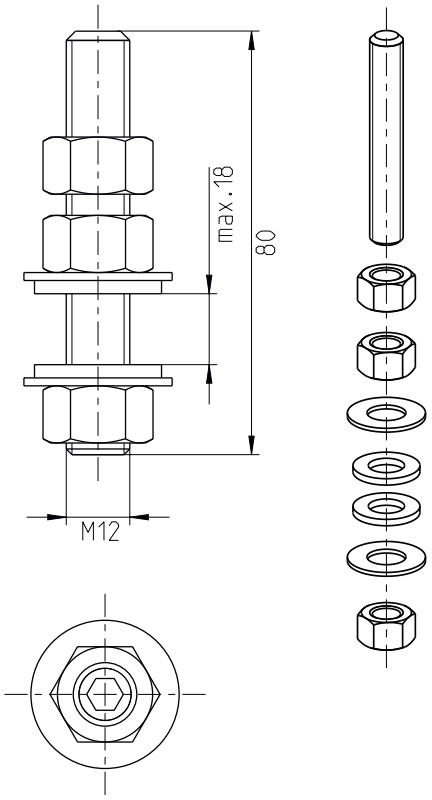
Dimensions (mm)

Common Bottom Accessories (optional)

Type 2020 Clamp type connector (stainless steel)



Type 2000 Threated stud with nuts M12x80 (stainless steel)



Dimensions (mm)

For more information please contact:

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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:
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