Surge arrester
POLIM-D

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 loop 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

Especially recommended for overvoltage protection of:
- MV distribution transformer
- Pole mounted MV transformer
- MV cable and cable termination
- Reactor and PLC line trap
- 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	DH, Distribution High
Line discharge class (LD)	1
Nominal discharge current I_n (8/20 µs)	10 kA_{peak}
Repetitive charge transfer rating Q_{rs}	0.5 As (C)
Thermal charge transfer rating	
Q_{th} at T_{amb} = 40 °C	1.1 As (C)
Q_{th} at T_{amb} = 55 °C	0.94 As (C)
High current impulse I_{hc} (4/10 µs)	100 kA_{peak}
Long duration current impulse	250 A for 2000 µs
Short circuit rating I_s	20 kA_{rms} for 0.2 s
	31.5 kA_{rms} for 0.2s on request

Power frequency voltage versus time characteristic (TOV)	
With no prior duty energy input	
U_{TOV} at t = 1 s	1.178 U_r = 1.473 U_c
U_{TOV} at t = 3 s	1.150 U_r = 1.438 U_c
U_{TOV} at t = 10 s	1.119 U_r = 1.398 U_c
With prior duty energy input of 1.1 As (C)	
U_{TOV} at t = 1 s	1.109 U_r = 1.386 U_c
U_{TOV} at t = 3 s	1.080 U_r = 1.350 U_c
U_{TOV} at t = 10 s	1.040 U_r = 1.300 U_c

Mechanical loads	
Torque	50 Nm
Tensile strength axial	625 N
Short term load SSL perpendicular to axis	207 Nm
Long term load SLL perpendicular to axis	207 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

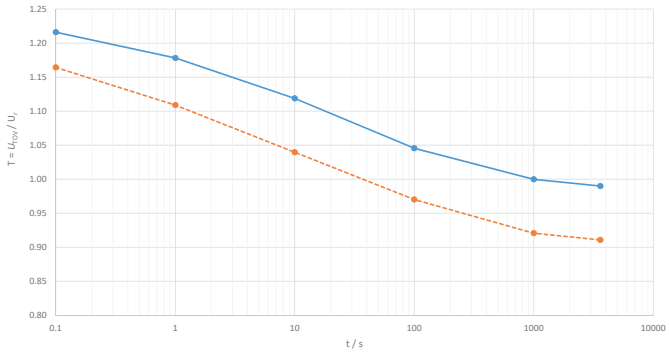
Continuous operating voltage	**Rated voltage**	**Residual voltage U_{res} at specified impulse current** (Maximum value)									
		Steep current impulse wave 1/…µs		Lightning current impulse wave 8/20 µs					Switching current impulse wave 30/60 µs		
U_c	**U_r**	**5 kA**	**10 kA**	**1 kA**	**2.5 kA**	**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}**
4	5.0	14.5	16.0	11.7	12.4	13.1	**14.0**	16	10.4	10.8	11.1
6	7.5	21.7	24.0	17.5	18.5	19.6	**21.0**	23.9	15.6	16.1	16.6
8	10.0	28.9	32.0	23.3	24.7	26.1	**28.0**	31.9	20.8	21.5	22.2
10	12.5	36.1	39.9	29.1	30.8	32.6	**35.0**	39.8	25.9	26.8	27.7
12	15.0	43.3	47.9	34.9	37.0	39.1	**42.0**	47.8	31.1	32.2	33.2
14	17.5	50.5	55.9	40.7	43.2	45.6	**49.0**	55.7	36.3	37.5	38.8
16	20.0	57.7	63.9	46.5	49.3	52.1	**56.0**	63.7	41.5	42.9	44.3
18	22.5	64.9	71.9	52.3	55.5	58.6	**63.0**	71.6	46.7	48.2	49.8
20	25.0	72.1	79.8	58.1	61.6	65.1	**70.0**	79.6	51.8	53.6	55.3
22	27.5	79.4	87.8	64.0	67.8	71.7	**77.0**	87.5	57.0	59.0	60.9
24	30.0	86.6	95.8	69.8	74.0	78.2	**84.0**	95.5	62.2	64.3	66.4
26	32.5	93.8	103.8	75.6	80.1	84.7	**91.0**	103.4	67.4	69.7	71.9
28	35.0	101.0	111.8	81.4	86.3	91.2	**98.0**	111.4	72.6	75.0	77.5
30	37.5	108.2	119.7	87.2	92.4	97.7	**105.0**	119.3	77.7	80.4	83.0
32	40.0	115.4	127.7	93.0	98.6	104.2	**112.0**	127.3	82.9	85.7	88.5
34	42.5	122.6	135.7	98.8	104.8	110.7	**119.0**	135.2	88.1	91.1	94.1
36	45.0	129.8	143.7	104.6	110.9	117.2	**126.0**	143.2	93.3	96.4	99.6

Housing and TOV Characteristics

Continuous operating voltage	Housing size *	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}
4	02	248	136	68	120	144	0.9	19	92	9	52
6	02	248	136	90	120	144	0.9	28	92	14	52
8	04	375	182	113	131	191	1.4	37	123	18	70
10	04	375	182	135	153	191	1.4	46	123	22	70
12	04	375	182	158	175	191	1.4	55	123	27	70
14	06	506	229	181	197	239	1.8	64	155	31	88
16	06	506	229	203	219	239	1.8	73	155	35	88
18	06	506	229	226	241	239	1.8	82	155	40	88
20	08	715	283	249	263	286	2.5	91	191	44	109
22	08	715	283	271	285	286	2.5	101	191	48	109
24	08	715	283	294	307	286	2.5	110	191	53	109
26	10	1101	420	316	328	429	3.5	119	284	57	162
28	10	1101	420	339	350	429	3.5	128	284	61	162
30	10	1101	420	362	372	429	3.5	137	284	66	162
32	10	1101	420	384	394	429	3.5	146	284	70	162
34	10	1101	420	407	416	429	3.5	155	284	75	162
36	10	1101	420	430	438	429	3.5	164	284	79	162

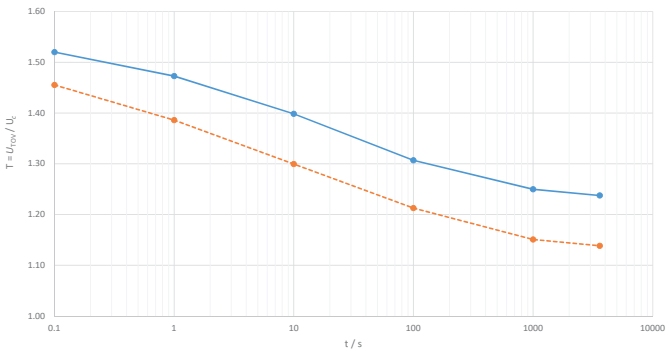
* Other combinations may be available upon request

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



- without prior duty energy input
- with prior duty 1.1 As energy input
  Samples preheated to 60 °C

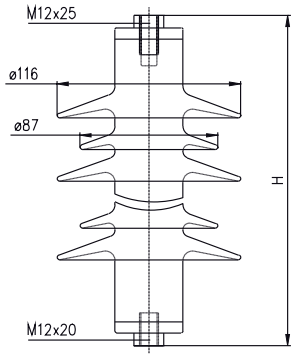
Power frequency voltage-versus time characteristics (TOV) based on U_c

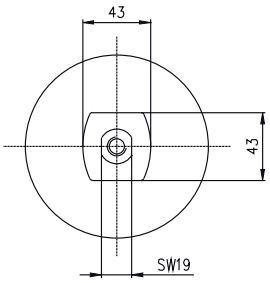


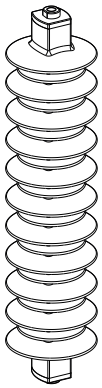
- without prior duty energy input
- with prior duty 1.1 As energy input
  Samples preheated to 60 °C

Dimensions

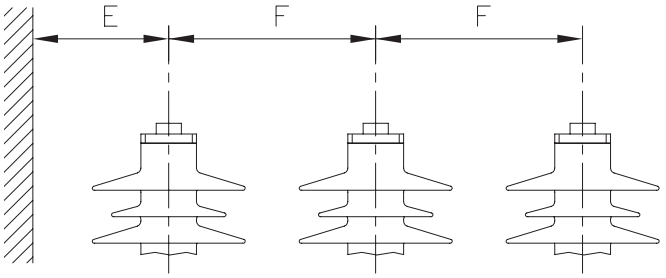
Standard dimensions without accessories
Housing 02/04/06/08/10



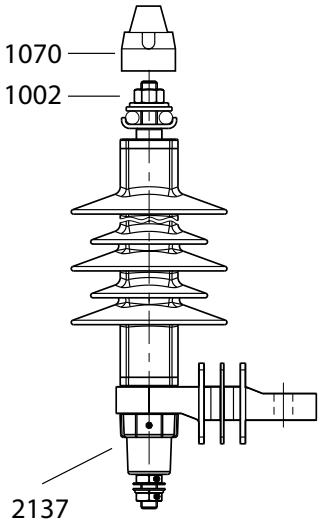




Dimensions according to outline drawing 1HC0042511
Outline drawings with accessories on request



Structure of type designation with optional accessories (Example)



POLIM-D 10-04 / 1002/1070 / 2137

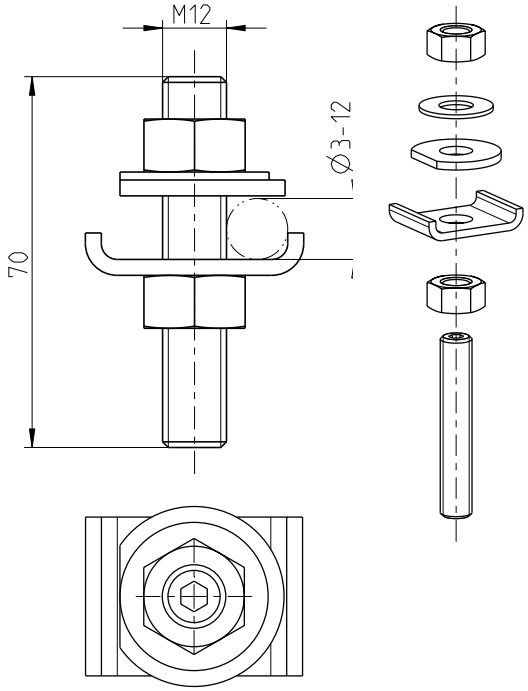
Type of surge arrester
U_c = Continuous operating voltage
Housing

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

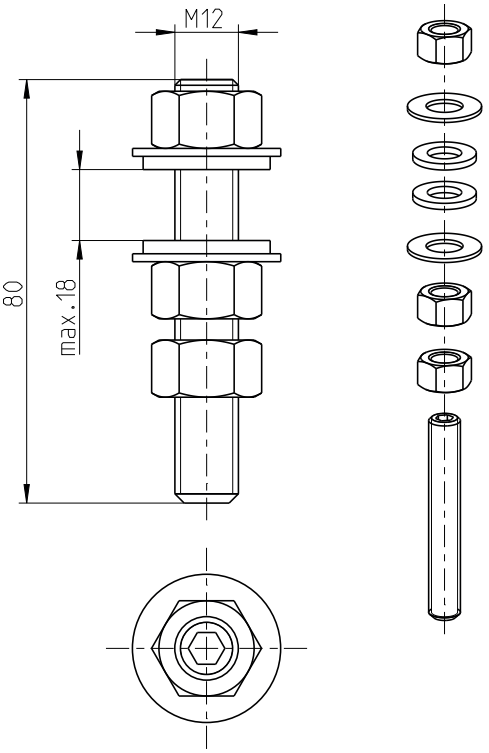
Dimensions (mm)

Common Top Accessories (optional)

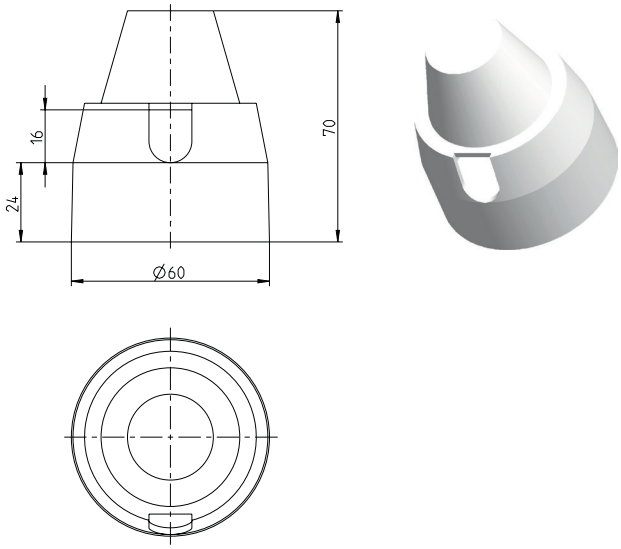
Type 1002 Clamp type connector (stainless steel)



Type 1023 Threated stud with nuts M12x80 (stainless steel)



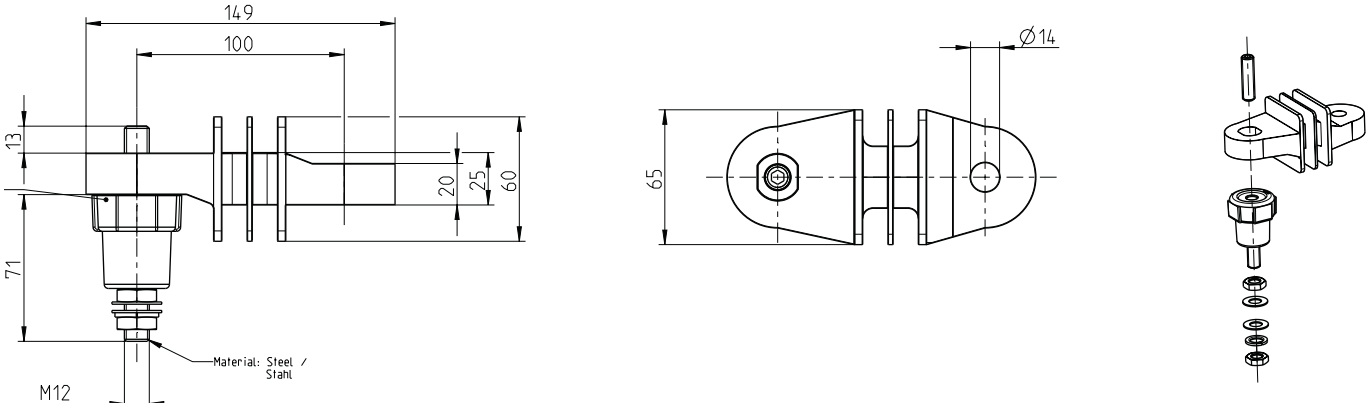
Type 1070 Bird cap



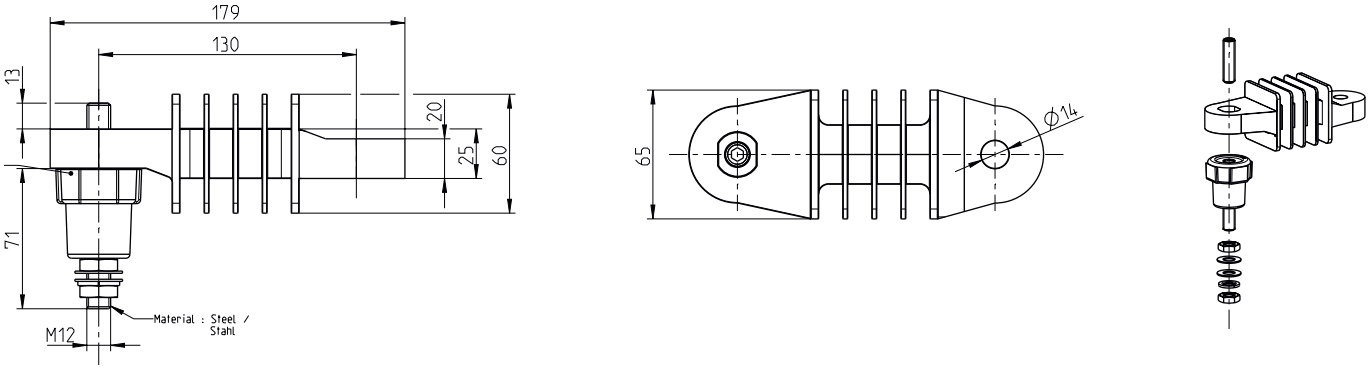
Dimensions (mm)

Common Bottom Accessories (optional)

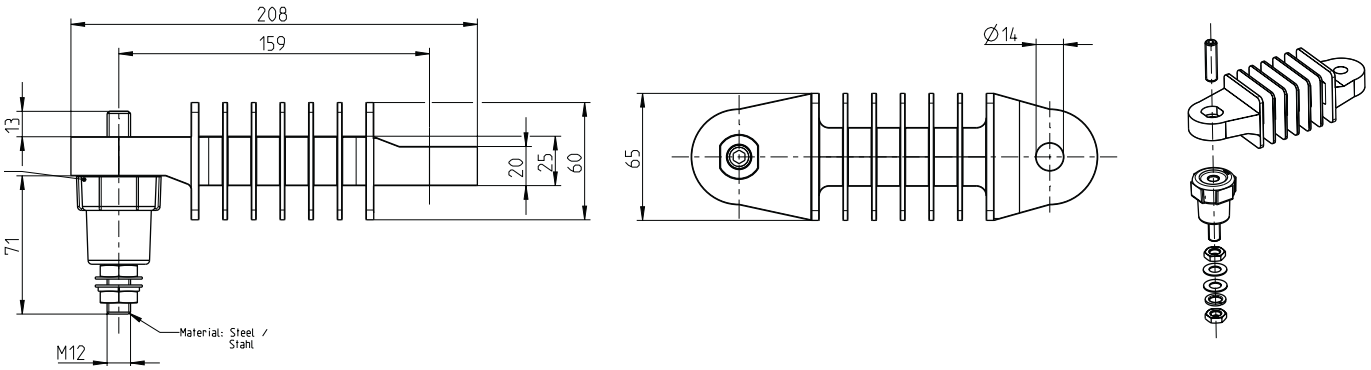
Type 2137 Insulating bracket with disconnector (U_c = 4..12 kV)



Type 2178 Insulating bracket with disconnector (U_c = 13..24 kV)



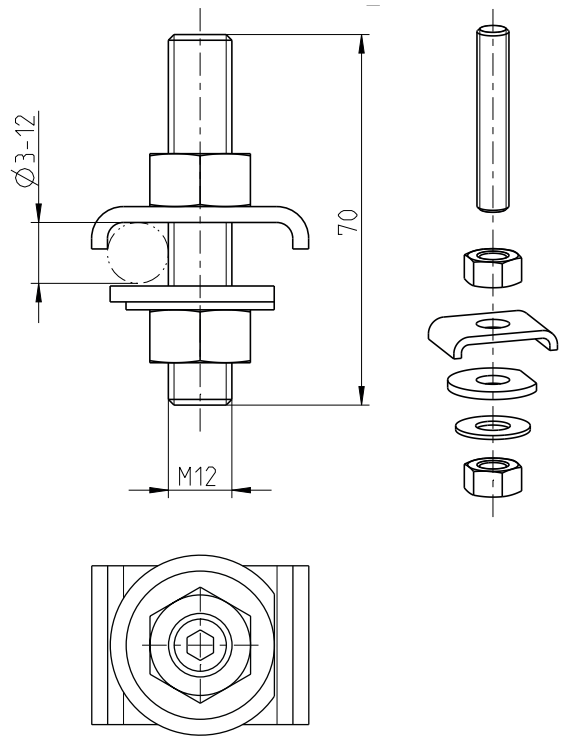
Type 2179 Insulating bracket with disconnector (U_c = 25..36 kV)



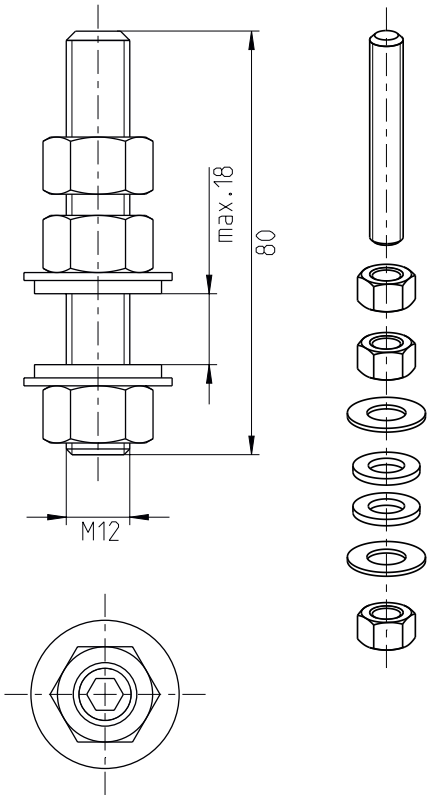
Dimensions (mm)

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:

ABB Power Grids Switzerland Ltd.
High Voltage Products
Surge Arresters
Jurastrasse 45
CH-5430 Wettingen
Phone: +41 58 585 29 11
Telefax: +41 58 585 55 70
E-Mail: sales.sa@hitachi-powergrids.com

www.hitachiabb-powergrids.com

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@hitachi-powergrids.com

Copyright © 2020 Hitachi ABB Power Grids.
All rights reserved.
Specifications subject to change without notice.

Note
ABB is a registered trademark of ABB Asea Brown Boveri Ltd.
Manufactured by/for a Hitachi Power Grids company.

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document. We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.

Our products are certified according ISO 9001, 14001 and 18001

1HC0075853 EN AI