

Surge arrester

POLIM-H .. SD



Product description:

- Metal-oxide (MO) surge arrester without spark gap, designed and type tested according to EN 50526-1 and IEC 62848-1, 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 DC systems
- High energy absorption capacity
- For indoor and outdoor installations

Especially recommended for overvoltage protection of:

- Fixed installations in DC traction systems (A1 and A2)
- Equipment on rolling stock and locomotives (A1)
- Secondary devices in DC installations

Additional certification:

- Shock and vibration tested according to IEC 61373
- Fire and smoke behavior tested and classified according to EN 45545-2

Technical data

Classification according to EN 50526-1 and IEC 62848-1

Nominal discharge current I_n (8/20 μ s)	10 kA _{peak}
Class	DC-B
High current impulse I_{hc} (4/10 μ s)	100 kA _{peak}
Switching current impulse I_{sw} (30/60 μ s)	1000 A _{peak}
Charge transfer capability Q_t	2.5 As
Energy withstand capability W	9.5 kJ/kV _{UC}
Short circuit rating I_s	40 kA _{DC} for 0.2 s

The thermal stability of the MO surge arrester is proved in the operating duty test according to class DC-B with two impulses of the charge transfer capability Q_t (total 5 As).

Classification according to IEC 60099-4

Arrester class	SH, Station High
Line discharge class (LD)	4
Nominal discharge current I_n (8/20 μ s)	20 kA _{peak}
Repetitive charge transfer rating Q_{rs}	2.4 As (C)
Long duration current impulse	1350 A for 2000 μ s

Mechanical loads

Torque	50 Nm
Tensile strength axial	1000 N
Short term load SSL perpendicular to axis	225 Nm
Long term load SLL perpendicular to axis	180 Nm

Service conditions

Ambient air temperature T_{amb}	–60 to +40 °C (for temperatures up to 80 °C consider instructions of application guidelines)
Altitude	up to 1800 m (for higher altitudes contact ABB)

Electrical data and Housing

Electrical data

Continuous operating voltage U _c (=U _i) *	Residual voltage U _{res} at specified impulse current									
	Steep current impulse wave 1/...µs		Lightning current impulse wave 8/20 µs					Switching current impulse wave 30/60 µs		
	5 kA	10 kA	1 kA	2 kA	5 kA	I _n =10 kA	20 kA	250 A	500 A	1000 A
kV _{DC}	kV _{peak}	kV _{peak}	kV _{peak}	kV _{peak}	kV _{peak}	kV _{peak}	kV _{peak}	kV _{peak}	kV _{peak}	kV _{peak}
0.14	0.35	0.38	0.30	0.32	0.33	0.34	0.38	0.28	0.29	0.30
0.29	0.72	0.77	0.61	0.64	0.68	0.70	0.77	0.58	0.60	0.61
0.36	0.88	0.94	0.75	0.79	0.83	0.86	0.94	0.71	0.73	0.75
0.49	1.20	1.28	1.02	1.07	1.13	1.17	1.28	0.96	0.99	1.02
0.56	1.37	1.47	1.17	1.23	1.29	1.34	1.47	1.10	1.14	1.17
0.85	2.08	2.22	1.77	1.86	1.95	2.03	2.22	1.67	1.72	1.77
1.0	2.43	2.60	2.08	2.18	2.29	2.38	2.60	1.96	2.01	2.07
1.5	3.65	3.90	3.11	3.26	3.43	3.57	3.90	2.93	3.02	3.10
2.0	4.86	5.19	4.15	4.35	4.57	4.76	5.19	3.91	4.02	4.14
2.5	6.07	6.49	5.18	5.44	5.71	5.95	6.49	4.88	5.03	5.17
3.0	7.29	7.79	6.22	6.52	6.85	7.14	7.79	5.86	6.03	6.20
4.2	10.20	10.90	8.70	9.13	9.58	10.00	10.90	8.20	8.44	8.68

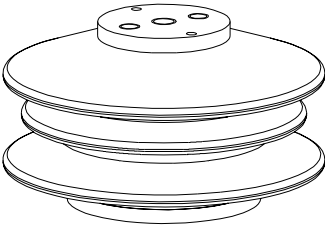
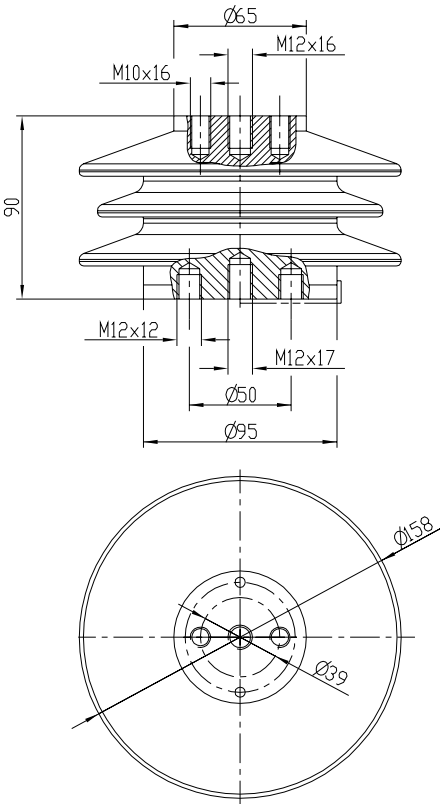
* The rated voltage U_r of the arrester coincides with the continuous operating voltage U_c .

Housing

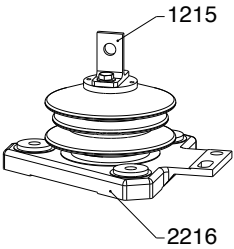
Continuous operating voltage U_c	Creepage distance	Flashover distance	Height	Weight	Insulation withstand voltage of empty housing			
					1.2/50 μ s		1 min wet	
					required values acc. to EN/IEC	guaranteed	required values acc. to EN/IEC	guaranteed
kV _{DC}	mm	mm	mm	kg	kV _{peak}	kV _{peak}	kV _{DC}	kV _{DC}
0.14	232	120	90	≤2.0	0.50	95	0.34	30
0.29	232	120	90	≤2.0	1.03	95	0.70	30
0.36	232	120	90	≤2.0	1.27	95	0.86	30
0.49	232	120	90	≤2.0	1.72	95	1.17	30
0.56	232	120	90	≤2.0	1.97	95	1.34	30
0.85	232	120	90	≤2.0	2.99	95	2.03	30
1.0	232	120	90	≤2.0	3.50	95	2.38	30
1.5	232	120	90	≤2.0	5.25	95	3.57	30
2.0	232	120	90	≤2.0	7.00	95	4.76	30
2.5	232	120	90	≤2.0	8.75	95	5.95	30
3.0	232	120	90	≤2.0	10.50	95	7.14	30
4.2	232	120	90	≤2.0	14.70	95	10.00	30

Dimensions

Dimensions according to outline drawing 1HC0050941
Outline drawings with accessories on request



Structure of type designation with optional accessories (Example)

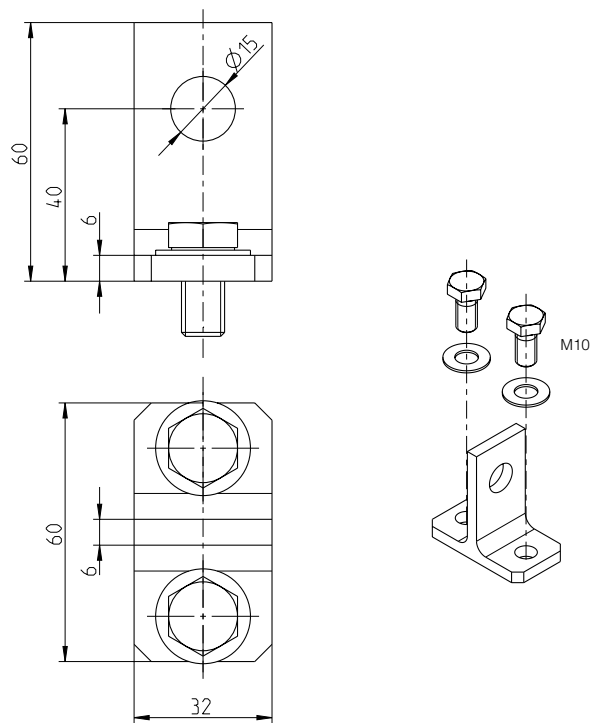


POLIM-H 1.5 SD / 1215 / 2216

Type of surge arrester —
 U_c = Continuous operating voltage —
Housing —
Direct current —
Type of top accessory (optional) —
Type of bottom accessory (optional) —

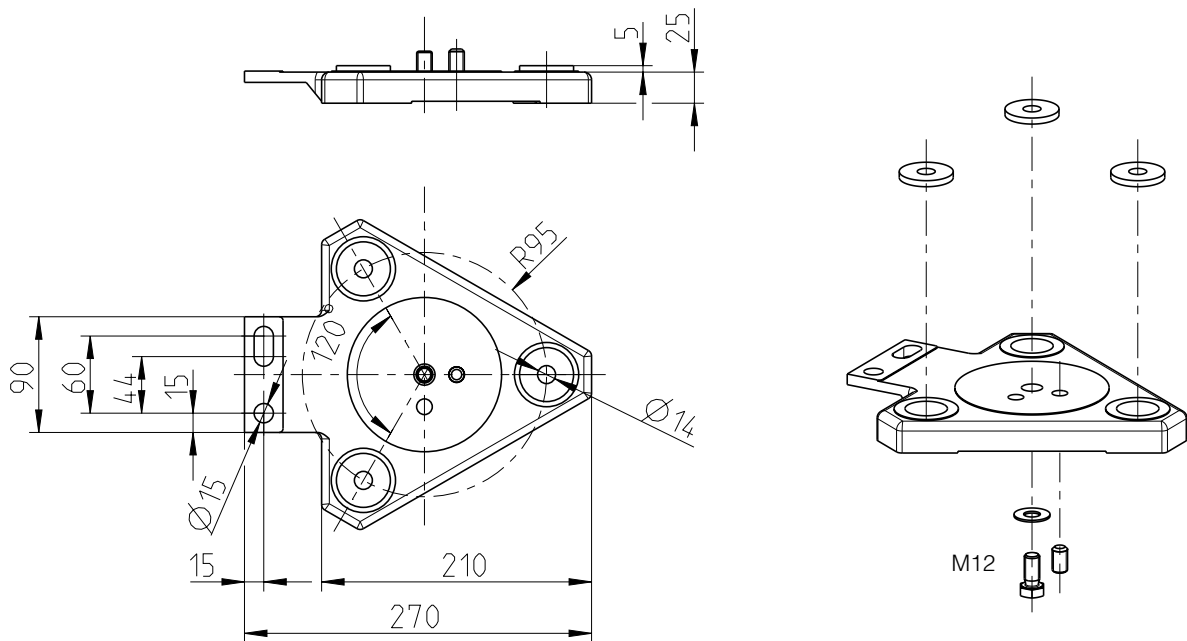
Common Top Accessories (optional)

Type 1215 Flat terminal (aluminium alloy)

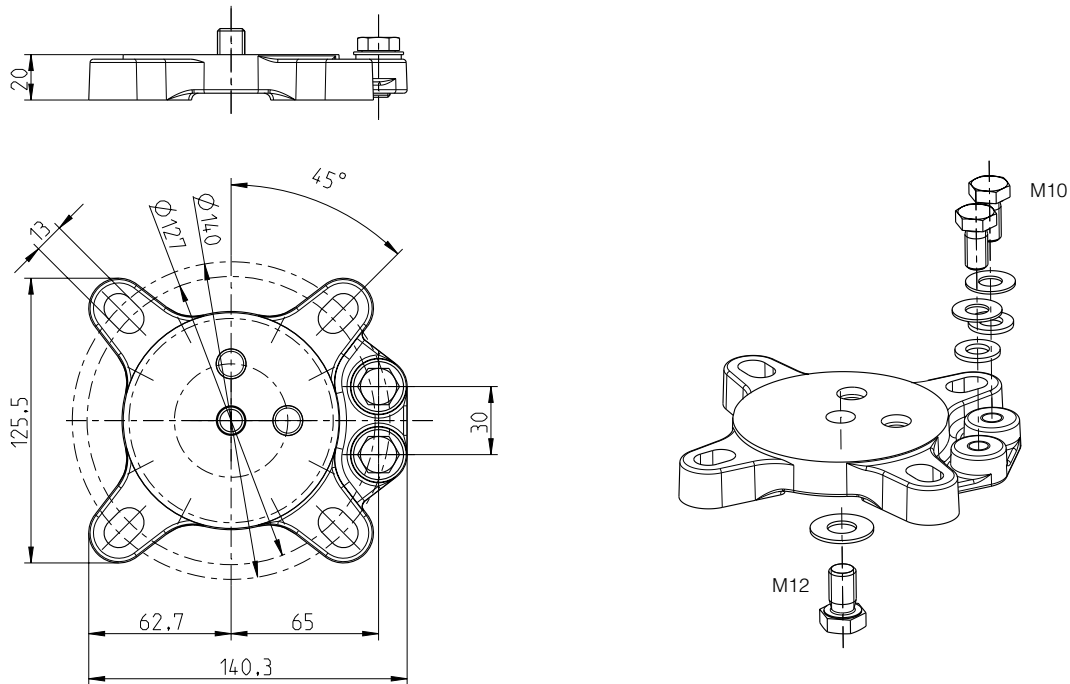


Common Bottom Accessories (optional)

Type 2216 3-points reinforced base R = 95 – (aluminium alloy)

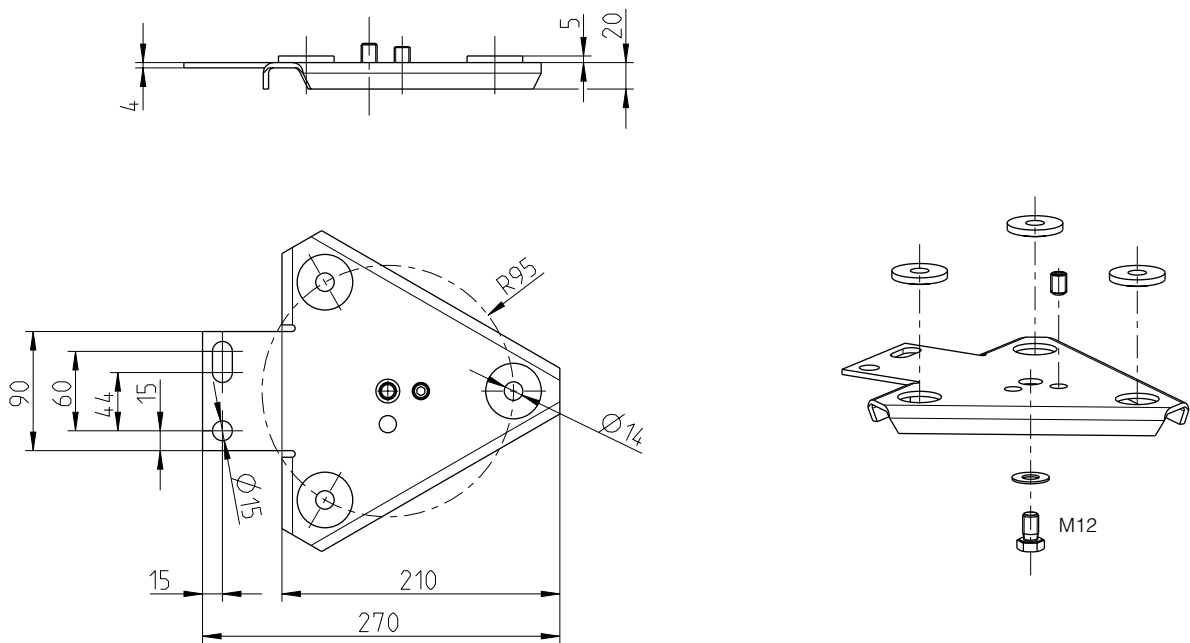


Type 2149 4-points reinforced base (aluminium alloy)



Common Bottom Accessories (optional)

Type 2223 3-points base R = 95 (hot-dip galvanized steel)



For more information please contact:

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Our products are certified according ISO 9001, 14001, 18001 and IRIS

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

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