



Product overview

ABB High Voltage Products

Surge arresters



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Power and productivity
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Surge arrester from ABB Switzerland in Wettingen

ABB Switzerland Ltd. produces surge arresters for all applications. This product overview makes it easy to choose the right arrester.

We have created a selection table for each of our product groups. In the left hand column of the selection table you will find a list of applications, then simply look for the right product as indicated by the dots. All arrester types are depicted with an indication of the system voltage, the continuous operating voltage, the high current impulse and the charge handling capability. Additional applications not mentioned in this overview are possible. Make your choice and contact us. We will be happy to help you to find the right product and submit a detailed offer.



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Surge arresters for medium voltage systems

ABB Switzerland Ltd. produces high-grade metal-oxide surge arresters for use in metal-encapsulated switchgear as well as for use in distribution networks for the protection of overhead lines, cables, stations, transformers, generators, capacitors and for the protection of motors and components of power electronics and secondary equipment.

The surge arresters limit harmful overvoltages, which are generated in the network by lightning strikes or switching actions thus improving the availability of the power supply. The surge arresters fulfill special high requirements regarding ambient conditions, energy handling capability, protection level and stability in service.








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Surge arresters for medium voltage systems

Type	POLIM-D	POLIM-D..PI-2/ PI-3	POLIM-K	MWD	MWK
					

Technical data					
System voltage U_s	≤ 52 kV	≤ 52 kV	≤ 52 kV	≤ 52 kV	≤ 52 kV
Continuous operating voltage U_c	≤ 44 kV	≤ 42 kV	≤ 44 kV	≤ 44 kV	≤ 44 kV
Nominal discharge current I_n	10 kA	10 kA	10 kA	10 kA	10 kA
High current impulse	100 kA	65 kA	100 kA	100 kA	100 kA
IEC line discharge class	1	1	2	2	2
Application	Indoor and outdoor	Indoor and outdoor	Indoor and outdoor	Indoor	Indoor and outdoor

Applications

Recommended for the overvoltage protection of:					
Transformers	•	•	•	•	•
Overhead lines	•		•		•
Cables			•	•	•
Rotating machines				•	•
Capacitors, capacitor banks	•		•	•	•
Cable sheath protection of HV-cables				•	•
Switchgear and switching cubicles				•	•
Metal-encapsulated switchgear		•			
Inductances, reactors, PLC line traps	•				
Transformers of arc furnace					
Further medium voltage apparatuses	•		•	•	•
Component of secondary equipment					
Power electronics					



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Type	POLIM-C..N	POLIM-C..LB	POLIM-I..N	POLIM-S..N	POLIM-R..N	POLIM-H..N
						

Technical data

System voltage U_s	≤ 7.5 kV	≤ 5 kV	≤ 72 kV	≤ 72 kV	≤ 1 kV	≤ 72 kV
Continuous operating voltage U_c	≤ 7.5 kV	≤ 4.8 kV	≤ 56 kV	≤ 56 kV	≤ 1 kV	≤ 58 kV
Nominal discharge current I_n	10 kA	10 kA	10 kA	10 kA	20 kA	20 kA
High current impulse	100 kA	100 kA	100 kA	100 kA	100 kA	100 kA
IEC line discharge class	2	2	2	3	4	4
Application	Indoor and outdoor	Indoor	Indoor and outdoor	Indoor and outdoor	Indoor and outdoor	Indoor and outdoor

Applications

Recommended for the overvoltage protection of:						
Transformers	●		●	●		●
Overhead lines			●	●		●
Cables			●	●		●
Rotating machines	●		●	●		●
Capacitors, capacitor banks			●	●		●
Cable sheath protection of HV-cables	●	●				●
Switchgear and switching cubicles						
Metal-encapsulated switchgear						
Inductances, reactors, PLC line traps		●				
Transformers of arc furnace				●		●
Further medium voltage apparatuses	●	●	●	●		●
Components of secondary equipment	●				●	
Power electronics	●				●	

Surge arresters for AC traction systems



ABB Switzerland Ltd. is a specialist for metal-oxide surge arresters for AC traction systems, intended for fixed installations and for installation on rolling stock.

These arresters fulfill the especially high electrical and mechanical requirements for use in traction systems. Their usage increases the availability of the power supply and of the rail service.



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Type	POLIM-C..N	POLIM-K	POLIM-L..N	POLIM-S..N	POLIM-R..N	POLIM-H..N
						

Technical data

System voltage U_s	$\leq 7,2$ kV	≤ 25 kV	≤ 25 kV	≤ 25 kV	≤ 1 kV	≤ 25 kV
Continuous operating voltage U_c	$\leq 7,5$ kV	≤ 44 kV	≤ 44 kV	≤ 44 kV	$\leq 0,78$ kV	≤ 44 kV
Nominal discharge current I_n	10 kA	10 kA	10 kA	10 kA	20 kA	20 kA
High current impulse	100 kA	100 kA	100 kA	100 kA	100 kA	100 kA
IEC line discharge class	2	2	2	3	4	4
Application	Outdoor and indoor	Outdoor and indoor	Outdoor and indoor	Outdoor and indoor	Outdoor and indoor	Outdoor and indoor

Application

Rolling stock		●	●	●		●
High speed trains				●		●
Fixed installations		●	●	●		●
Secondary equipment	●				●	

- Primary type, recommended according to required line discharge class
- Alternatively applicable for low electrical or mechanical requirements



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Surge arresters for DC traction systems



The metal-oxide surge arresters produced by ABB Switzerland Ltd. for DC traction systems are developed and type tested according to the new European standard EN 50526-1 which is specifically for metal-oxide surge arrester in railway application up to 3kV nominal voltage. The surge arresters also meet the requirements for A1/A2 functionality according to VDV 525 recommendation.

The rails of DC traction systems are isolated from earth to avoid stray currents in the ground. Voltage limiting devices are being used to avoid unacceptable touch voltages during operation and in fault conditions.

The voltage limiting device type HVL is a hybrid composed by a metal-oxide surge arrester connected in parallel with thyristors. Dangerous transient over-voltages from lightning and switching are limited by the surge arrester. Longer lasting over-voltages from the traction system are limited by the thyristors after triggering.



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Type	POLIM-C..HD	POLIM-H..ND	POLIM-H..SD	POLIM-R..ND	POLIM-X..ND	POLIM 4,5 ID
						

Technical data

Nominal voltage U_n	≤ 3 kV	≤ 3 kV	≤ 3 kV	$\leq 0,75$ kV	≤ 3 kV	≤ 3 kV
Continuous operating voltage U_o	$\leq 4,7$ kV	$\leq 4,7$ kV	$\leq 4,2$ kV	$\leq 1,0$ kV	$\leq 4,7$ kV	4,5 kV
Nominal discharge current I_n	10 kA	10 kA	10 kA	10 kA	20 kA	20 kA
High current impulse	100 kA	100 kA	100 kA	100 kA	200 kA	200 kA
Arrester class	DC-A	DC-B	DC-B	DC-B	DC-C	DC-C
Charge transfer capability Q_t	1 As	2,5 As	2,5 As	2,5 As	7,5 As	> 7,5 As
Application	Indoor and outdoor	Indoor and outdoor	Indoor and outdoor	Indoor and outdoor	Indoor and outdoor	Indoor

Application

Rolling stock		●			●	●
High speed trains		●			●	
Fixed installations A1 function	●	●	●	●	●	
Fixed installations A2 function	●	●	●	●	●	
Secondary equipment	●			●		

Low-voltage limiter Type

HVL



Technical data/Application

Nominal voltage U_n	≤ 3 kV
Application	Indoor and outdoor
Low-voltage limiter	●

- Primary type, recommended according to required charge transfer class
- Alternatively applicable for low electrical or mechanical requirements



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Surge arresters for SF₆ gas-insulated high-voltage switchgear



ABB Switzerland Ltd. is a leading manufacturer of surge arresters in SF₆ gas-insulated design for mounting on all commercial GIS switchgear.

Monitoring devices are available to control the status of the surge arresters in AC systems. They count and classify surge events and measure the leakage current of the surge arrester.



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Type	AZ041	AZY14	AZ14	AZ14	AZ32M	AZ32G	AZ32A
							

Technical data

System voltage U_s	≤ 170 kV	≤ 245 kV	≤ 245 kV	≤ 300 kV	≤ 420 kV	≤ 420 kV	≤ 550 kV
Continuous voltage U_c	≤ 154 kV	≤ 174 kV	≤ 174 kV	≤ 202 kV	≤ 317 kV	≤ 317 kV	≤ 374 kV
Nominal discharge current I_n	10 kA/20 kA	10 kA/20 kA	10 kA/20 kA	10 kA/20 kA	20 kA	20 kA	20 kA
High current impulse	100 kA	100 kA	100 kA	100 kA	100 kA	100 kA	100 kA
Phases per enclosure	3	3	1	1	1	1	1
IEC line discharge class	3/4	3/4	3/4	3/4	5	5	5

Type	SAM 3.0
	

Technical data/Application

Measuring range of leakage current	0–20 mA
Counter for surge events	100 A–100 kA
with amplitudes of	
Application	Indoor and outdoor

With surge arresters from
ABB Switzerland Ltd.
you are buying the original

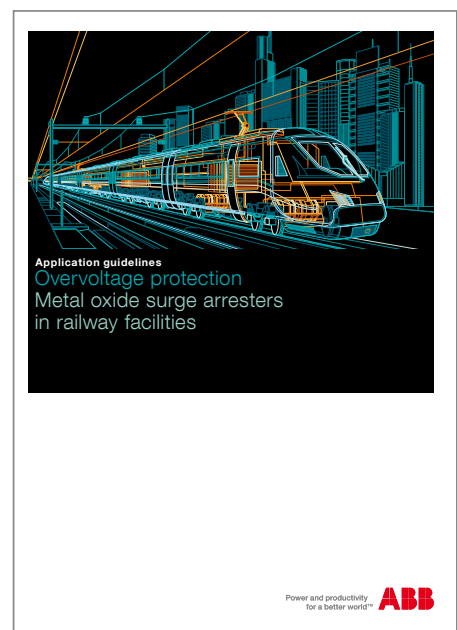
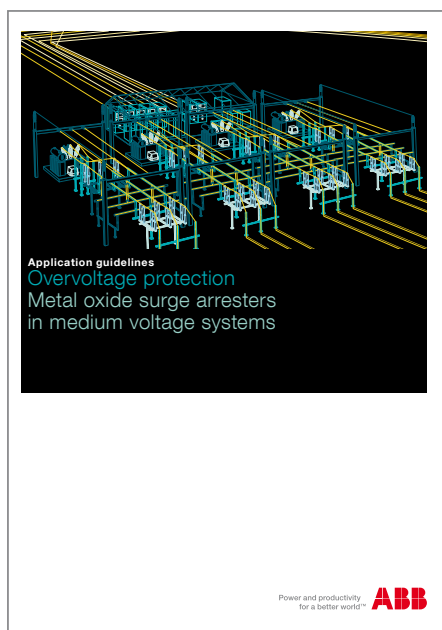
As a technology leader, ABB has played a leading role in the development and production of surge arresters from the beginning. The initial patents for the metal-oxide technology and the direct molding of arresters in silicone form the foundation for today's surge arresters to cover all energy requirements around the world.

Basic research, continuous improvement and active participation in international organizations, such as IEC, CENELC and Cigré, ensure that ABB will continue to lead the way in the field of overvoltage protection in the future as well. Our experience and user-relevant research results are published in our detailed application guidelines for our customers.



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Application guidelines



Application Guidelines Overvoltage Protection: Dimensioning, testing and application of metal-oxide surge arresters in medium voltage systems and railway facilities



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