SVL

Sheath Voltage Limiters
CLASS 2 - Type CA
4kV to 10kV

SVL's provide valuable protection to expensive cable installations. They are highly reliable and effective at managing cable sheath voltage rises and the associated power flows that can result under fault conditions.
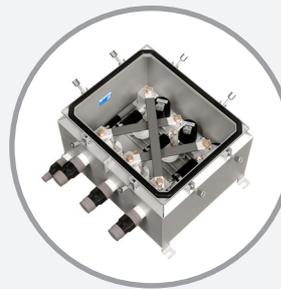
Wide voltage rating

The range includes 4.0kV, 6.0kV, 9.0kV and 10.0kV with other voltages on request.

Various connections

Various mounting arrangements available, including pedestal and inline for indoor/enclosure mounting.

Link box application

Primarily used in Link Boxes as a low cost method for safeguarding cable systems.

Proven design and build

Insulect SVLs have been used on major cable projects up to 800kV in globally.

Selection Guide

Generally the following must be considered:

- SVL Rated voltage must be equal to or greater than the induced sheath voltage caused by the maximum system fault current (i.e. The SVL should not conduct during normal fault conditions).

- From the cable manufacturer, obtain cable data to determine the maximum voltage withstand for an 8/20 and 4/10 microsecond lightning or switching induced voltage.

- From the SVL data characteristics table, check that the SVL selected has residual voltages less than the rating of the sheath (i.e. the SVL's main function is to protect the sheath under these conditions).

Short circuit and switching currents, as well as lighning and flashover events, may cause high voltages on the cable sheath.

These induced voltages must be calculated by the client's engineers before an SVL can be selected.

Note that all bonding cables used for earthing the sheath must also be able to withstand these voltages.

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Technical Specifications*

SVL Class 2 - Type CA		CA4/10.2	CA6/10.2	CA9/10.2	CA10/10.2
Line discharge class		2	2	2	2
Maximum continuous operating voltage (MCOV)	kV	3.2	4.8	7.2	8.4
Rated voltage	kV rms	4	6	9	10
Temporary over voltage capability at 60°C without prior energy/with 100kA, 4/10µs prior energy					
1 sec	kV rms	6.03	7.06	10.59	11.77
10 sec	kV rms	8.58	6.53	9.79	10.88
Rated discharge current with 8/20µS waveform	kA peak	15.36	17.15	25.78	32.22
High current impulse (4/10µS) withstand	kA peak	100	100	100	100
Long duration wave withstand					
Current	A	500	500	500	500
Duration	µs	2000	2000	2000	2000
Leakage current through SVL at MOCV	mA	<450uA	<450uA	<450uA	<450uA
Maximum residual voltage at 8/20 µS lighting impulse discharge current of:					
2.5 kA	kV peak	13.38	14.94	22.46	28.08
5 kA	kV peak	14.24	15.90	23.90	29.88
10 kA	kV peak	15.36	17.15	28.50	32.22
Maximum residual voltage at long duration 2000 µS discharge current of:					
0.25 kA	kV peak	9.36	12.48	18.72	20.80
0.5 kA	kV peak	9.68	12.90	19.35	21.50
1 kA	kV peak	10.13	13.50	20.25	22.50
Maximum residual voltage at 1/>2 µs steep impulse discharge current of:					
5 kA	kV peak	10.4	15.7	23.6	26.2
10 kA	kV peak	11.7	17.6	26.4	29.3
Energy absorption capability in kJ/kV of MOCV at:					
100kA, 4/10 µs two impulse	kJ/kV Uc	5.6	5.6	5.6	5.6
0.5kA, 2000µs multiple long duration	kJ/kV Uc	2.5	2.5	2.5	2.5
Non-linear resistor material		Zinc Oxide	Zinc Oxide	Zinc Oxide	Zinc Oxide
Insulation resistance at 2500 Vdc	MΩ	Infinite	Infinite	Infinite	Infinite
Arrester housing material		Epoxy	Epoxy	Epoxy	Epoxy
Cantilever strength	Nm	3500	3500	3500	3500
Creepage length	mm	107	107	147	147
Weight	kg	1.3	1.3	1.5	1.5

* Final specification subject to type test and engineering approval
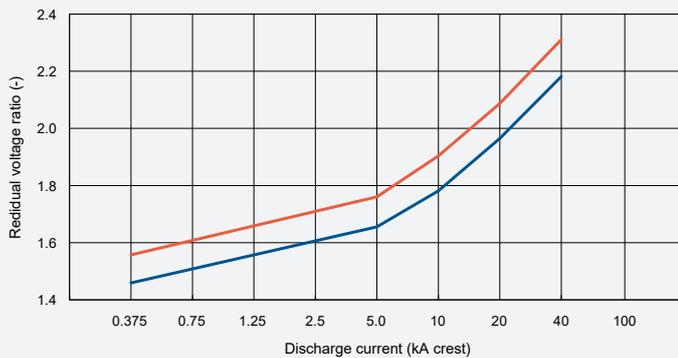
Technical Specifications

Temporary Over Voltage (TOV) Curve
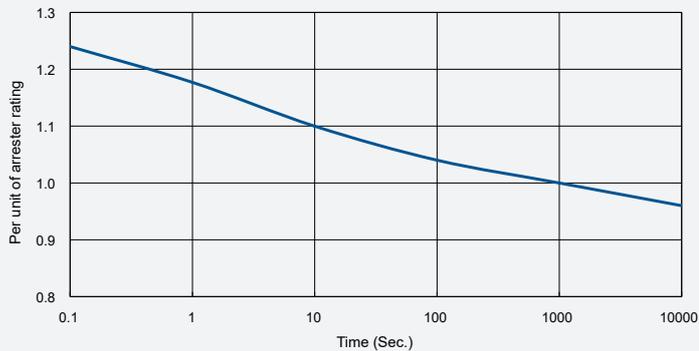
Preheated to 60℃, prestressed with 1 high current impulse 100kA

Residual Voltage Curve

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