1

PSA Series Open Cage Polymeric Surge Arresters

MV Surge Arrester

PAS Series Polymeric Surge Arresters

GOTO ELECTRICAL

GOTO ELECTRICAL's PAS series polymeric surge arresters are specially engineered to deliver robust protection against overvoltages in power systems.

Built with advanced zinc oxide (ZnO) varistors and encapsulated in high-performancepolymer housings, these arresters provide excellent energy absorption, mechanical strength, and long-term operational reliability.

Fully compliant with IEC 60099-4 standards, the PAS series is ideal for a wide range of applications ,including ubstations, transmission lines, and distribution networks.

They are designed to maintain stable performance even in the harshest environmental conditions, ensuring maximum system safety and equipment longevity.

Benefits of PAS Series Polymeric Surge Arresters:

Tested in accordance with IEC 60099-4 at independent accredited laboratories ensuring reliable performance

Superior protection margins for enhanced reliability

Direct molded housing design to prevent moisture ingress

Low residual voltage, reducing stress on the system

Excellent high-energy handling capacity

Exceptional TOV (Temporary Over voltage) performance

Safe non-shattering short circuit behavior, capable of handling higher current levels

Maintenance-free design, reducing operational costs

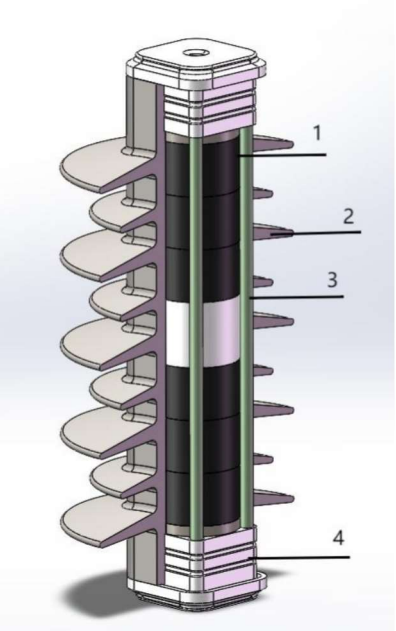
Hydrophobic silicone housing, resistant to tracking and erosion

Excellent cantilever and tensile strength

Outstanding mechanical strength, vibration, and impact resistance

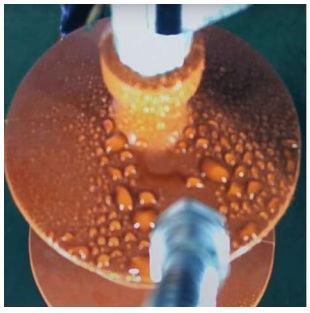
High-quality design and manufacturing

ISO 9001 and ISO 14001 compliant



PSA design consists of the following components:

1. ZnO (Zinc Oxide) varistors
2. Silicone rubber housing
3. Flame-retardant FRP structure
4. Corrosion-resistant aluminum fittings



Excellent hydrophobicity

Safe short circuit failure

Superior TERT performance

PSA Series Open Cage Polymeric Surge Arresters

MV Surge Arrester

PSA Series Construction

At the heart of the GOTO PSA design lies our advanced ZnO varistor disc, which boasts exceptional thermal and electrical properties, along with outstanding stability. The innovative combination of the upgraded varistor and PSA design delivers remarkable energy handling capabilities and enhanced TOV performance. This superior thermal efficiency results in products with:

- Exceptional TOV performance.
- Safe, non-shattering failure mode during short circuit tests, achieved by pre-failing at higher fault currents.
- High energy absorption capacity.The crimped structural design ensures a lightweight product without compromising mechanical strength.

Our manufacturing process guarantees a void-free structure and optimal sealing at the interfaces. This is accomplished by directly bonding the silicone housing to the ZnO discs and aluminum fittings using GOTO's proprietary bonding solution.

PSA Silicone Hydrophobic Features

Alternating sheds for enhanced resistance to pollution flashover

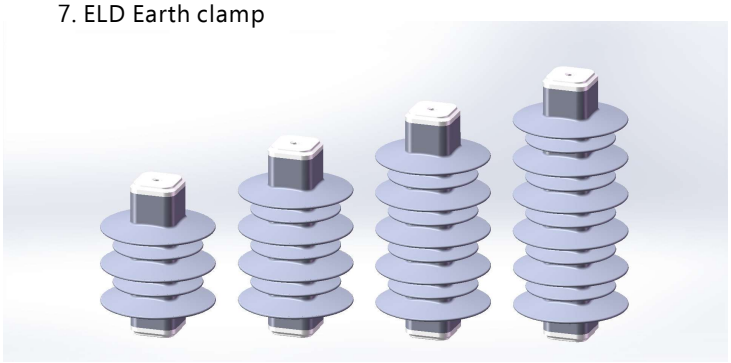
- Exceptional TERT (Thermal Aging) performance
- Housing subjected to IEC 1000-hour salt fog test
- Constant voltage: 4.5kV, >360 minutes

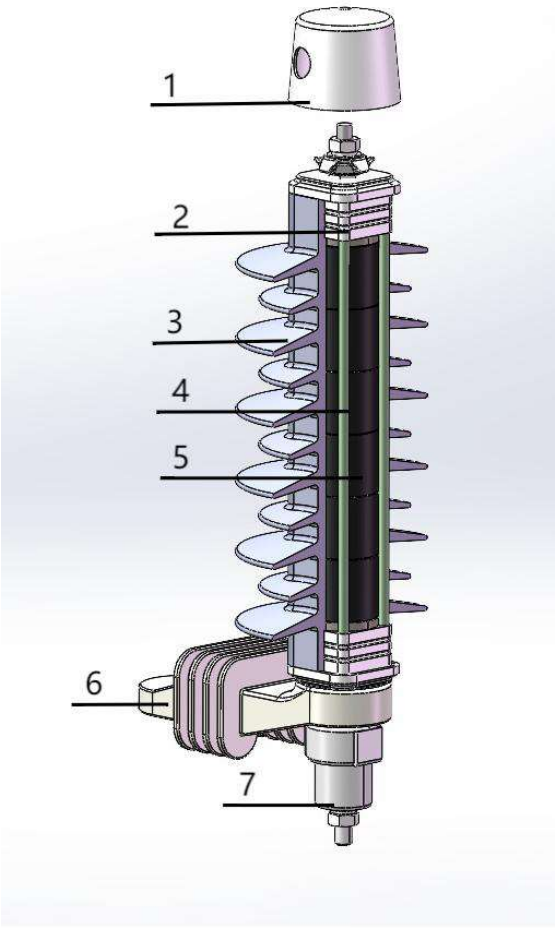
Step voltage: >300 minutes

- All failures are caused by erosion only, with no tracking observed during voltage testing

Components of PSA1:

1. Birdcap
2. Corrosion resistant aluminium fittings
3. Silicone rubber housing Mould in Place
4. ZnO varistors
5. Flame retardant FRP structure
6. Bracket
7. ELD Earth clamp





PSA Series Open Cage Polymeric Surge Arresters

MV Surge Arrester

PSA1 Open Cage Polymeric Surge Arresters - Class 1

Application

Designed to protect MV networks and equipment from lightning and switching surge-related overvoltages in areas with higher iso-keraunic levels. Ideal for both indoor and outdoor installations, offering protection for transformers and cable terminations.

Generic technical data

PSA1 S/L Series	3-36kV Uc
Rated discharge current (8/20μs)	10kA
Line discharge class 1 according to	IEC 60099-4
Operating duty impulse withstand current (4/10μs)	100kA
Long duration current impulse (2000μs)	350A
High current short circuit: (pre-failing method) (Safe non-shattering failure mode)	20kA
Energy 2 Long duration impulses	4.1kJ/kVUc
Service conditions Ambient temperature	- 60°C to + 60°C

Temporary overvoltage (TOV) of PSA1 with prior energy

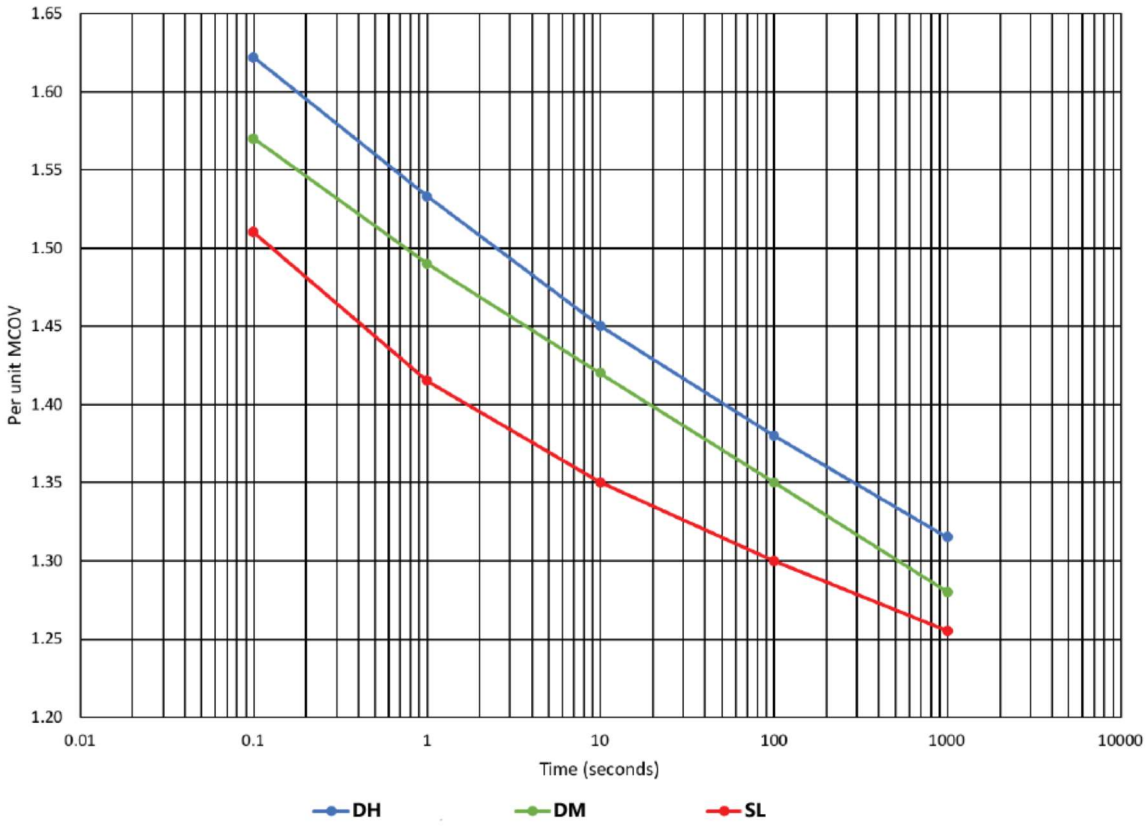
Sample temperature (pre-heated): 60°C as per IEC 60099-4.

The TOV curve applies to an arrester with pre-stress a pplied before TOV verification. T

his pre-stress simulates a 100kA, 4/10μs high curren impulse, in accordance with the operating duty test.

UTOV = TOV withstand voltage;

UC = continuous operating voltag



PSA Series Open Cage Polymeric Surge Arresters

MV Surge Arrester

PSA1 Standard electrical data

PSA1	U Continuous kV (r.m.s)	U rated kV (r.m.s)	U residual in kV when tested to the Lightning (8/20μs)			Following impulse Steep lightning (4/10μs)	Waveforms Switching (30/60s)	
			5kA	10kA	20kA	10kA	125A	500A
3	3	3.75	9.77	10.37	11.48	11.28	7.81	8.08
4	4	5	13.03	13.83	15.31	15.04	10.42	10.77
5	5	6.25	16.29	17.29	19.14	18.8	13.02	13.46
6	6	7.5	19.55	20.75	20.97	22.56	15.62	16.15
8	8	10	26.06	27.66	30.62	30.08	20.83	21.54
9	9	11.25	29.32	31.12	34.45	33.84	23.44	24.23
10	10	12.5	32.58	34.58	38.28	37.6	26.04	26.92
12	12	15	39.1	41.5	45.94	45.12	31.25	32.3
14	14	17.5	46.61	48.41	53.59	52.64	36.46	37.69
15	15	18.75	48.87	51.87	57.47	56.4	39.06	40.38
16	16	20	52.13	55.33	61.25	60.16	41.66	43.07
18	18	22.5	58.64	62.24	68.9	67.68	46.87	48.46
20	20	25	65.16	69.16	76.56	75.2	52.08	53.84
21	21	26.25	68.42	72.62	80.39	78.96	54.68	56.53
22	22	27.5	71.68	76.08	84.22	82.72	57.29	59.22
24	24	30	78.19	82.99	91.87	90.24	62.5	64.61
28	28	35	91.22	96.82	107.18	105.28	72.91	75.38
29	29	36.25	94.48	100.28	111	109.04	75.52	78.07
30	30	37.5	97.74	103.74	114.84	112.8	78.12	80.76
32	32	40	104.26	110.66	122.50	120.32	83.33	86.14
36	36	45	117.29	124.49	137.81	135.36	93.74	96.91

Uc: Continous Voltage; Ur: Rated Voltage; Ures: Residual Voltage

PAS1-Standard housing parameters

PSA1	Sheds	Impulse voltage 12/50μs (kV)	Power frequency withstand voltage wet(kV)	Flash over distance (mm)	Creepage length (mm)	Height L (mm)	Weight (approx) (mm)
3-6	5	145	47	154	435	175	1.8
8-10	5	145	47	154	435	175	1.8
12	5	145	47	154	435	175	1.8
14-16	7	165	57	195	585	215	2.2
18	9	180	70	237	738	258	2.68
20	9	180	70	237	738	258	2.68
21/22/24	11	200	80	279	888	299	2.97
28-30	13	230	95	320	1030	340	3.4
32	15	250	110	363	1180	383	3.7
36	17	275	125	402	1340	425	3.97

Tested in accordance with IEC 60099-4