ENGINEERS

Enterprise

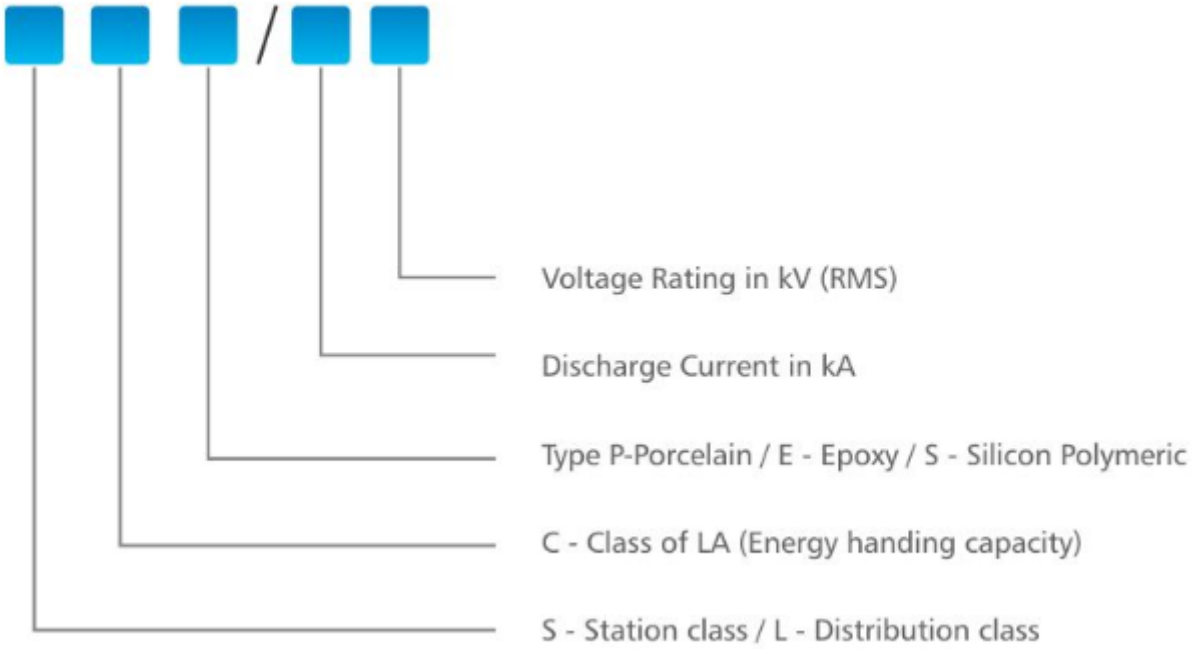
Product Introduction

Service, Outdoor Type
Ambient Temp : 25 C to +55 C (Outdoor)
Highest Altitude : 3500m

Applicable Standards

IEC -99-4 IS 3070 PART - III – Latest
IS:15086-4

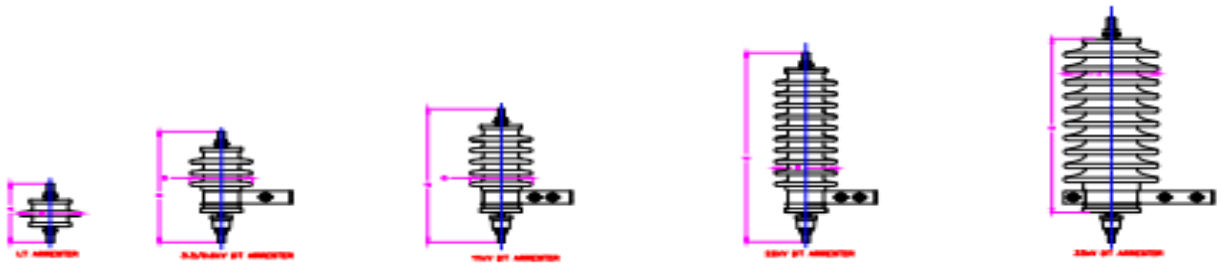
MODEL DESIGNATION



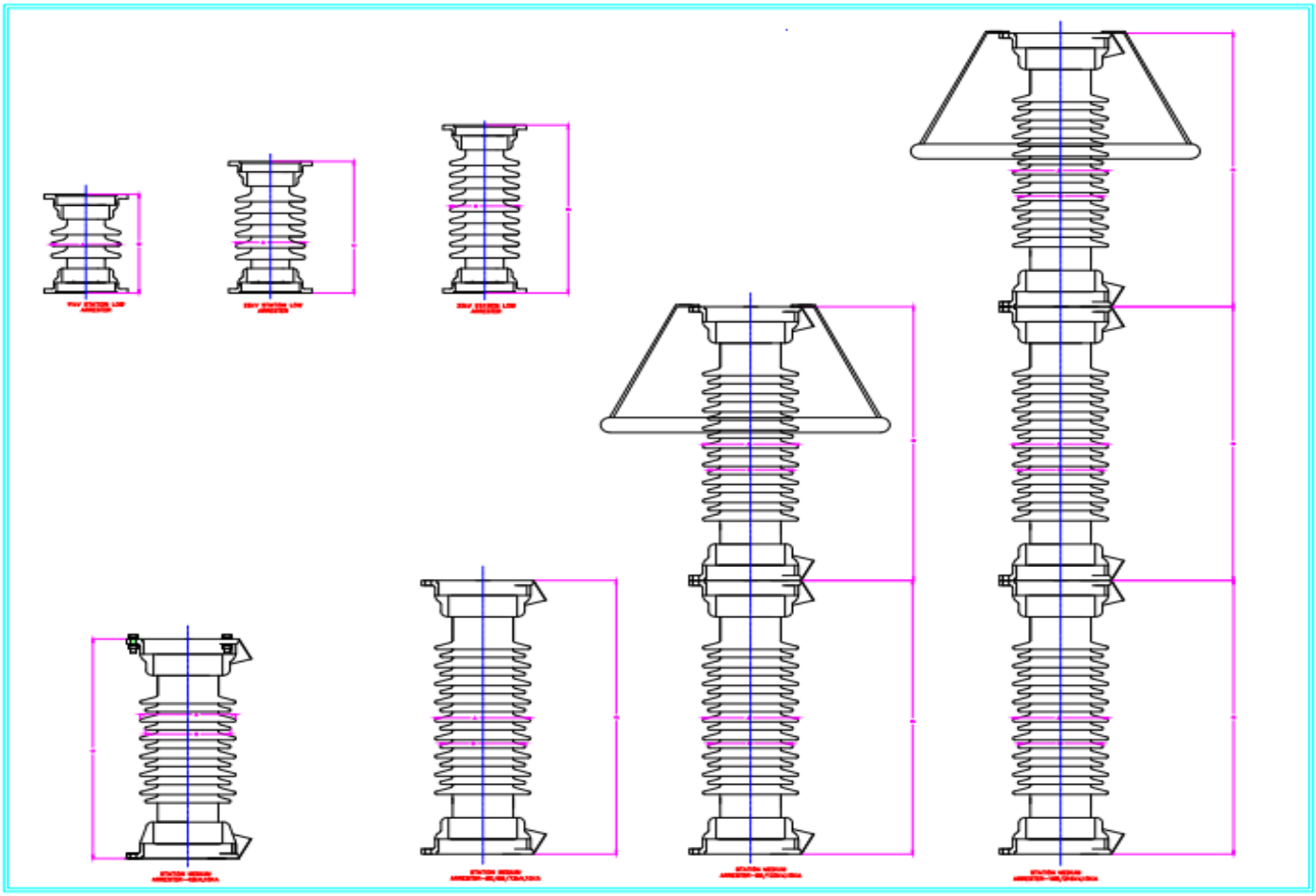
SALIENT FEATURES OF METALOXIDE SURGE ARRESTERS

- PROTECTIVE CHARACTERISTICS IN EXCESS OF STANDARD REQUIREMENTS.
- SUPERIOR IN-HOUSE MADE MOV BLOCKS OF HIGH NON-LINEARITY.
- COMPLETE SEALING AGAINST INGRESS OF MOISTURE NO POWER FOLLOW CURRENT.
- EXCELLENT PERFORMANCE UNDER POLLUTED ATMOSPHERE.
- HIGH ENERGY HANDLING CAPACITY.
- SAFETY DEVICE LIKE CONNECTOR / PRESSURE RELIEF PROVIDED.
- MINIMUM POWER LOSS AT OPERATING VOLTAGE.
- CONFIRM TO IEC - 60099-4- IS - 3070 PART III
- PRODUCTS TYPE TASTED AT CPRI AS PER IEC-60099-4.
- PRODUCTS ACCEPTED BY ALL ELECTRICITY BOARDS.
- IN-HOUSE R&D ENGAGED IN CONTINUOUS IMPROVEMENT OF THE PRODUCT.
- TECHNICALLY COMPETENT PERSONNEL HAVING SOUND KNOWLEDGE ABOUT THE PRODUCT AND WELL RECOGNIZED BY PEERS AND CUSTOMERS.

DISTRIBUTION CLASS PORCELEIN TYPE LIGHTNING ARRESTERS



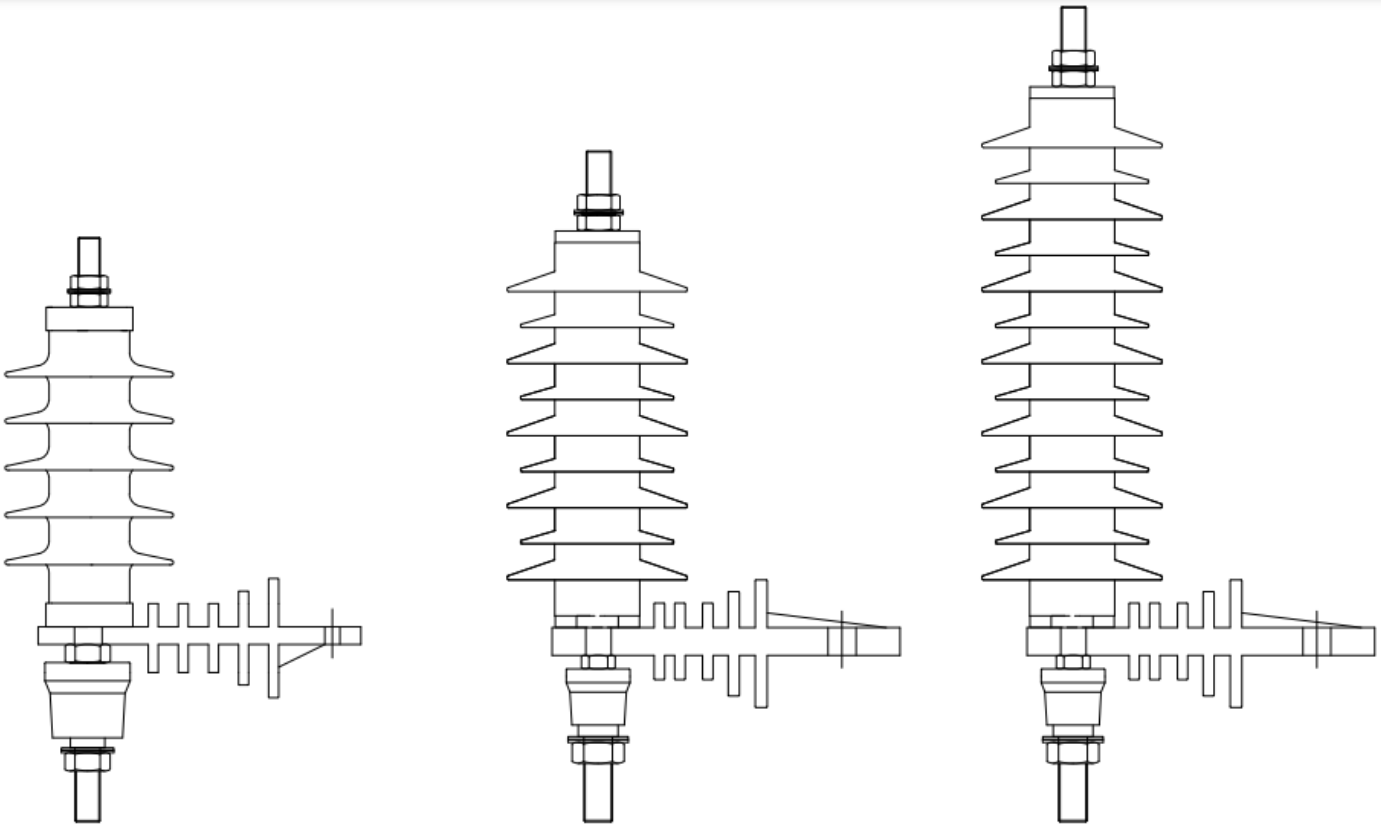
1. System Voltage KV (RMS)	11	11	22			22	33	33
2. Rating KV (RMS)	906	12	18			21	30	36
3. MCOV KV (RMS)	7.65	10.2	15.3			17.85	25	28.8
4. Discharge Current (KA)	5 KA/10 kA							
5. Line Discharge Class	Distribution Medium (DM)/ Distribution High (DH)							
6. Rated Frequency (Hz)	50 Hz							
7. A. IR at MCOV	Less than 400 Micro Amp							
B. IC at MCOV	About 1000 micro Amps							
8. Max. RDV (KVp) at								
A. 2.5KA	30	40	60			70	88	108
B. 5.0KA	32	42	64			74	110	132
C. 10 KA	36	48	72			84	125	150
9. Max. Steep C RDV (KVp)	36	48	72			84	125	150
10. High Current Impulse withstand, KA	65 KA Peak/100 KA Peak							
11. T.O.V.KV (p) at								
I. 0.1 sec.	15	20	31			36	51	61
II. 1.0 sec.	14	19	29			34	48	58
III. 10.0 sec.	13	18	28			32	46	56
12. Insulation withstand								
A. Lightning IMP (Dry) (KVp)	75	75	125			125	170	170
B. Power Freq. (Dry) KV RMS	28	28	50			50	70	70
C. Power Freq. (Wet) KV RMS	28	28	50			50	70	70
13. Partial Discharge P.D.	Less than 50 PC							
14. PR Relief Class	N.A.							
15. Total Creepage Distance	300	300	600			600	900	900



STATION CLASS PORCELEIN TYPE LIGHTNING ARRESTERS

System Voltage KV (RMS)	11	11	11	11	11	11	22	22	33	33	33	66	110	132	220	220					
Rating KV (RMS)	9	9	9	12	12	12	18	18	30	30	30	60	96	120	198	216					
Mcov KV (RMS)	7.2	7.2	7.2	9.6	9.6	9.6	15	15	25	25	25	51	81	102	168	183					
Discharge current KA	----10KA-----																				
Line Discharge Class	1	2	3	1	2	3	1	2	1	2	3	2	3	3	3	3	3	3	¾	(Station Low/Medium/High)	
Rated Freq. (HZ)	----- 50 Hz-----																				
A. IR at MCOV	----- less than 400 micro Amps ------- less than 500 micro Amps ----																				
B. IC at MCOV	----- about 1200 micro Amps ------ about 1500 micro Amps ----																				
A. Reference Current MA	----------1 to 5 mA----------																				
B. Reference Volt at Reference Current	----------greater than rated voltage---																				

System Voltage KV (RMS)	11	11	11	11	11	11	22	22	33	33	33	66	66	110	132	220	220
MAX. RDV with 8/20 µs wave (KVpeak) at																	
A. 5 KA	27	26	24	36	33	32	51	52	90	85	80	170	160	251	320	518	567
B. 10 KA	30	28	26	38	36	34	60	56	95	90	085	180	170	171	340	550	600
C. 20 KA	34	30	30	42	40	38	68	60	105	100	95	200	190	307	380	610	668
Max. Switch Imp. RDV (KVp) 500A	24	22.4	24	30.4	28.8	32	48	44.8	76	72	70	--	--	--	--	--	--
1000A	-	-	-	-	-	-	-	-	-	-	-	-	144	136	217	272	455
Max. Steep Current Imp. RDV (KVp)	36	34	29	42	40	38	60	56	105	100	100	200	190	298	372	600	654
High Current Impulse withstand KAP	----------100 KA peak ----------																
T.O.V. (KAp)																	
i. 0.1 Sec.	15	15	15	20	20	20	30	30	51	51	51	102	102	163	204	336	366
ii. 1.0 Sec.	14	14	14	19	19	19	29	29	49	49	49	98	98	156	195	322	351
iii. 10 Sec.	13.9	13.9	13.9	18	18	18	28	28	47	47	47	94	94	194	187	308	336
iii. 100 Sec.	13	13	13	17	17	17	26	26	45	45	45	90	90	143	178	293	320
Insulation withstand																	
a. Lightning (dry) (KVp).	75	75	75	75	75	75	125	125	170	170	170	325	325	550	650	1050	1050
b. Power Freq.(dry.wet) KV(RMS).	28	28	28	28	28	28	50	50	70	70	70	140	140	230	275	460	460
c. Switching IMP.(wet) (KVp).	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	700
Partial Discharg P.D.	-	-	Less than 50 PC	-	-	-											
PR Relief Class.	-	-	Class – A -	-	-												
PR Relief Class KA (RMS)	-	-	40 KA	-	-	-											
Total Creepage Distance	300	300	300	300	300	300	600	600	900	900	900	1800	1800	3075	3625	6125	6125



Polymer housed distribution class Lighning Arresters 11kv DT LA 22kv DT LA 33kv DT LA

1. System Voltage KV (RMS)	11	11	22			22	33	33
2. Rating KV (RMS)	9.06	12	18			21	30	36
3. MCOV KV (RMS)	7.65	10.2	15.3			17.85	25	28.8
4. Discharge Current (KA)	5 KA/10 kA							
5. Line Discharge Class	Distribution Medium (DM) / Distribution High (DH)							
6. Rated Frequency (Hz)	50 Hz							
7. A. IR at MCOV	Less than 400 Micro Amp							
B. IC at MCOV	About 1000 micro Amps							
8. Max. RDV (KVp) at								
A. 2.5KA	30	40	60			70	88	108
B. 5.0KA	32	42	64			74	110	132
C. 10 KA	36	48	72			84	125	150
9. Max. Steep C RDV (KVp)	36	48	72			84	125	150
10. High Current Impulse withstand, KA	65 KA Peak /100 KA Peak							
11. T.O.V.KV (p) at								
IV. 0.1 sec.	15		20	31		36	51	61

V.	1.0 sec.	14	19	29				34	48	58
VI.	10.0 sec.	13	18	28				32	46	56
12. Insulation withstand										
A. Lightning IMP (Dry) (KVp)		75	75	125				125	170	170
B. Power Freq. (Dry) KV RMS		28	28	50				50	70	70
C. Power Freq. (Wet) KV RMS		28	28	50				50	70	70
13. Partial Discharge P.D.					Less than 50 PC					
14. PR Relief Class					N.A.					
15. Total Creepage Distance		300/372			600 /744			900/1116		

The modular design of the polymer (HTV –Silicon rubber) arrester causes a lot of advantage in application

- **Modular construction** avoids moldings junctures arrester surface sensitive against pre-discharges by pollution.
- **Modular construction** avoids lockup of air bubbles which can cause inner partial discharges by using of special permanent pressure of components against each other.
- **Modular construction** leads to excellent high specific break down voltage of housing interfaces due to special permanent pressure of the components against each other.
- **Modular construction** permits modification of flashover –and creep age distance of arrester.
- The used electrically and mechanically optimized pressures at **modular construction** nearly avoid aging of flexibility of polymer going bail for high service life of arresters.

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WA 93522-90987

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INSULATING BASE

A high voltage lightning arrester provided with a surge counting device mounted adjacent to its uppermost terminal by insulating members. These are arranged in a way to prevent them from being discharged directly to the ground and through the surge counter which indicate surge as well as the continuous leakage current.

Following attractive features of Insulating Base:

- Highly efficient and durable
- Provide high performance
- Suitable for outdoor applications upto 245 KV

Depending on the diameter different types of Insulating Bases are as below:

- For up to 33KV - Insulating Base with 60mm diameter.
- From 66 kV to 220 KV LA suit-Insulating Base with 78 mm diameter.

INSULATING BASE up to 33KV LA

INSULATING BASE from 66 KV to 220 kV LA

SURGE MONITOR

FEATURES

- Reliability of operation
- In-built leakage current indicating device along with surge counter indicator
- No external source required
- Simplicity of installation /mounting
- Maintenance free
- Sensitive to discharges of minor nature
- Anti corrosive housing & connecting terminals.
- Performance not affected by the outside environment
- Tested for Ingress Protection – 67

Surge Monitor

Mounting: Surge Arrestor is mounted on an insulating base and surge monitor is to be connected in series with arrester. The surge monitor is to be fixed at 1.5 m from the ground level for better viewing of the monitored data.

Maintenance: Surge monitor needs no maintenance. In case the surge monitor is removed and sends for repair at the manufacturer's works, the connecting lead from the arrester is to be positively earthed. Surge monitor should not be removed in charged condition under any circumstances.

Surge monitor provided with surge counter and Millimeter.

Surge counter indicates number of surges experienced by surge arrester. Millimeter provides data of leakage current through arrestor in normal conditions of operation. The leakage current meter has green bond for 0 to 2 mA and red band between 2 mA to 5 mA.

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WA 93522-90987

Extra table

Distribution Class LA

TYPE	Rated Voltage (KV)	Continuous operating voltage (KV)	Temporary Overvoltage		Residual voltage at steep, lightning and switching impulse current									
			1 Sec (KV)	100 Sec (KV)	10KA 1/20µs(KV)	5KA 8/20 µs(KV)	10KA 8/20 µs(KV)	20KA 8/20 µs(KV)		125A 30/75 µs(KV)	250A 30/75 µs(KV)	500A 30/75 µs(KV)	1000A 30/75 µs(KV)	
EE-PLA-3	3	2.4	3.2	2.8	9.6	8.4	9.0	10.0		6.6	6.8	7.0	7.3	
	6	4.6	6.4	5.6	19.3	16.7	18.0	20.0		13.1	13.6	14.0	14.6	
	9	7.2	9.6	8.4	28.9	25.1	27.0	30.0		19.7	20.3	21.1	21.9	
	12	9.6	12.8	11.2	37.5	32.6	35.0	38.9		25.6	26.4	27.3	28.4	
	15	12.0	16.1	14.0	42.8	37.2	40.0	44.4		29.2	30.1	31.2	32.4	
	18	14.4	19.3	16.7	52.4	45.6	49.0	54.4		35.8	36.9	38.2	39.7	
	21	16.6	22.5	19.5	62.1	53.9	58.0	64.4		42.3	43.7	45.2	47.0	
	23	19.2	25.7	22.3	70.6	61.4	66.0	73.3		48.2	49.7	51.2	53.5	
	27	21.6	28.9	25.1	80.3	69.8	75.0	83.3		54.8	56.5	58.5	60.8	
	30	24	32.1	27.9	85.6	74.4	80.0	88.8		58.4	60.2	62.4	64.8	
	31	25.0	33.2	28.6	91.0	79.1	85.0	94.4		62.1	64.0	66.3	68.9	
	33	26.4	35.2	30.7	94.2	81.8	88.0	97.7		64.2	66.3	68.6	71.3	
	36	28.8	38.5	33.5	104.9	91.1	98.0	108.8		71.5	73.8	78.4	79.4	