



Smart solutions.
Strong relationships.

Surge Arresters



Business Edge

The Switchgear Works of Crompton Greaves is located on a 1,32,540 sq.mtrs. plot in Nashik on the Mumbai Agra National Highway and is demarcated in four main divisions: EHV SF6 Gas Switchgear, EHV Instrument Transformer, Medium Voltage Vacuum Switchgear and Surge Arresters. Operations commenced in 1980 with the manufacture of Medium Voltage Switchgear, which was relocated from Kanjur Mumbai Works.

A specialised Business Unit spearheads the export thrust for in-house products as well as carefully out-sourced synergistic products for supply to Trade, Industry, OEMs and Power Utilities.

Our regional establishments throughout India have factory-trained personnel to provide prompt after sales service, supporting our service personnel located at the factory.



CG House, Mumbai

Global Leadership

Today, Crompton Greaves is well on its way to becoming a Global Leader in the field of Transmission & Distribution. In May 2005, CROMPTON GREAVES acquired the entire Pauwels Group, a leading transformer manufacturer in Europe. With this acquisition, it has become one of the top 10 transformer manufacturers in the world. To further augment its position in the Transmission & Distribution sector, CROMPTON GREAVES has recently acquired two Hungarian companies. Ganz Transelektro, engaged in manufacture of EHV Transformers, Gas Insulated Switchgear, rotating machines and Ganz Transverticum, involved in the project business & specializing in high-end engineering & substation capabilities.

With the latest acquisition, the turnover of CROMPTON GREAVES has crossed the US\$ 2 billion mark; making it the first truly Indian multinational. CROMPTON GREAVES has manufacturing facilities on all five continents spanning - India, Belgium, Ireland, USA, Canada, Indonesia, Hungary. International business today accounts for over 50% of the sales.

Crompton Greaves already possesses the distinction of producing world-class, quality products that are globally competitive. The acquisition has given CROMPTON GREAVES access to new technologies – 765kV transformers, GIS upto 300kV. The integration process now underway will strengthen the technological capability of CROMPTON GREAVES and its subsidiaries and allow the CROMPTON GREAVES group to emerge as leader at the cutting edge of Transmission & Distribution business on a global scale.



Introduction

Components in any power system face in service, overvoltages that arise either due to natural lightning or inevitable switching operations.

Surge arresters are used to protect power system installations and equipment against Lightning Overvoltages, Switching Surges etc. Generally arresters are connected across the equipment to be protected, typically between phase and earth for three phase installations.

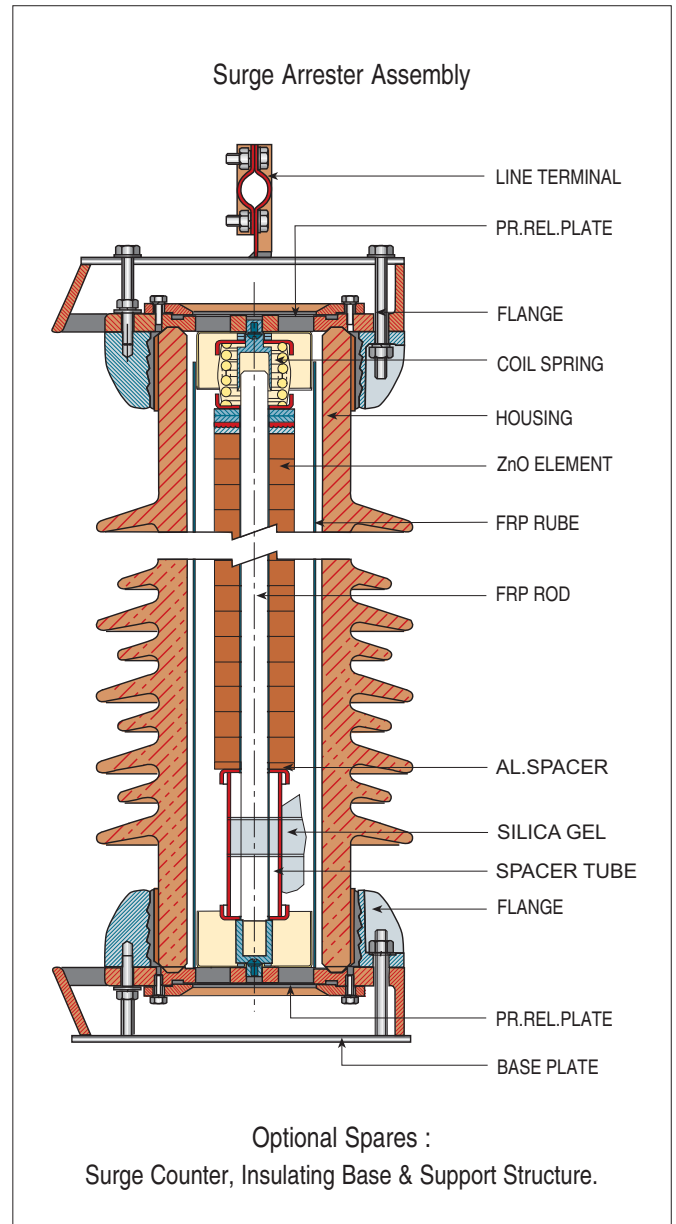
CG metal oxide Surge Arresters consist of active part, which is a series of highly nonlinear ceramic resistors made essentially of Zinc Oxide. Fine Zinc Oxide crystals are surrounded by other metal oxides (additives).

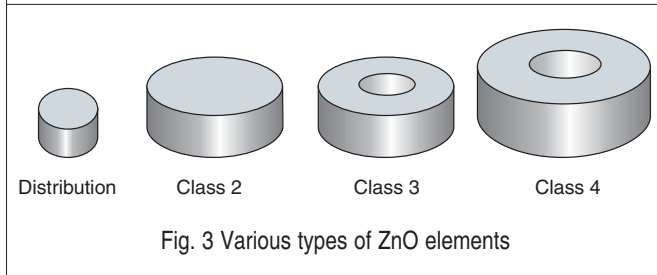
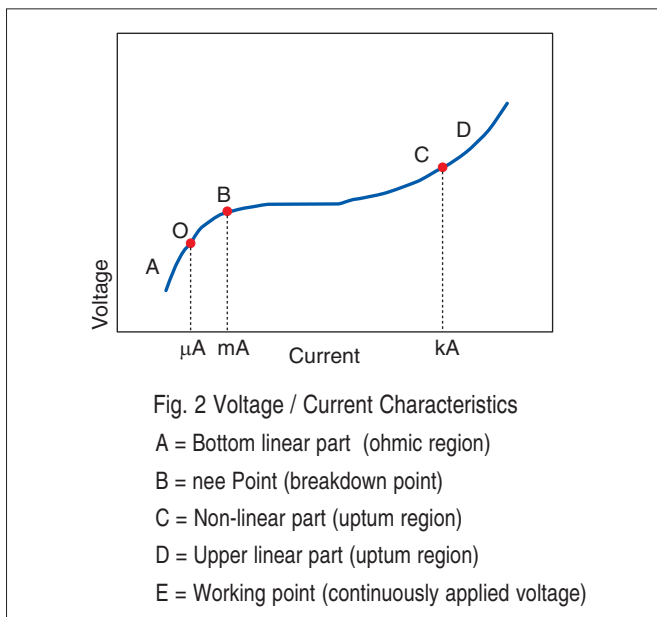
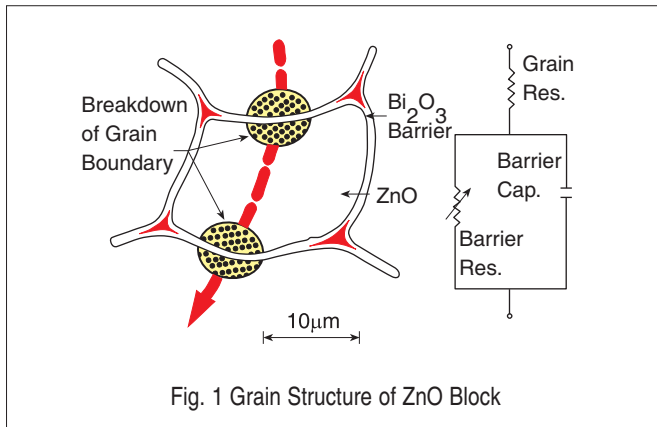
Special Features

- Unique doughnut construction of ZnO elements offer high energy capability, provide uniform density and temperature distribution
- Shatter proof performance
- Simple, robust construction of Arresters
- Extremely high non-linearity of ZnO elements
- Positive locking of Zinc Oxide elements
- Low power loss resulting in enhanced performance at elevated temperatures
- Controlled environment assembly line
- Ultra stable elements resulting in enhanced overvoltage protection capacity
- Available in Brown & ANSI-Grey Porcelains

All CG Arresters in this Catalog are designed in line with the requirements of ANSI-IEEE Standard C62.11 & IEC 60099-4.

Note : CG Ltd. reserves the right to change Design and specifications in this catalogue without notice, due to continuous product improvements.





Explanation of Terms

- Voltage Rating :**

The voltage rating of an arrester is that voltage which can be applied for a limited time after the arrester has absorbed a large amount of energy as established in the operating duty tests. The rated voltage is used as a reference parameter for the specification of operating characteristics.

- Maximum Continuous Operating Voltage (MCOV) :**

The MCOV is the maximum permissible rms value of power frequency voltage that may be applied continuously between the terminals of the arrester.

- Temporary Overvoltage Capability :**

An arrester must be selected with a high enough voltage rating to withstand temporary overvoltages which might be caused by various occurrences on the system. The most common event causing a temporary overvoltage is a single line to ground fault. For an effectively grounded system such faults will normally be cleared in less than one second. Therefore an overvoltage capability based on a duration of one second is usually recommended. Also, the below table shows Temporary Overvoltage Capability for a time range of 0.1 to 1,000 seconds.

Arrester Voltage Ratings

The chart below indicates the minimum MCOV customers need to specify for an arrester as a function of system voltage.

The minimum recommended ratings for solidly grounded systems allow for a temporary voltage rise of at least 40% over a period of one second. Higher temporary overvoltages may require higher MCOV.

Over Voltage Period (in sec)	TOV per unit of MCOV with prior duty
0.1	1.42
1	1.37
10	1.3
100	1.24
1000	1.17



- CG Arresters can be customized to meet virtually all the duty cycle voltage (Voltage Rating) & MCOV requirements.

Arrester Application Information

CG Arresters are designed to use at altitudes of 1000 M. Arresters can be customized to meet requirements for higher altitudes. CG arresters can be used at an average temperature of 40°C & where daily maximum temperature does not exceed 60 degC (140° F). The energy absorption capability – a two shot energy discharge within one minute, signifies the switching surge capability of these arresters.

Wherever Grading Ring is a requirement, it is dispatched along with the Arresters.

The base mounting & Terminal options can be customized to specific needs in addition to the options provided in this Catalog. Surge Counters to monitor Arrester discharges are available with built in milli-ammeters. Where Surge Counters is a requirement, it is supplied with suitable Insulating bases (IBs) for Arrester isolation from earth. All Arresters are identified with a unique serial number; multi-stack arresters have unit name-plates indicating position of the unit in the column. Arrester name-plates have information on the rated voltages, MCOV, Pressure relief current, serial number, etc.



Ultrasonic Cleaning Arrangement

SR. NO.	SYSTEM PARAMETERS	SURGE ARRESTER PARAMETERS
1	System Voltage	Rated Voltage Maximum Continuous Operating Voltage (MCOV)
2	Maximum System Voltage	Rated Voltage Maximum Continuous Operating Voltage (MCOV)
3	System Earthing	Rated Voltage Maximum Continuous Operating Voltage (MCOV)
4	Basic Insulation levels (LI, SI)	Residual Voltage (LI, SI)
5	Line length, Energy involved	Line discharge class
6	Short Circuit level	Pressure relief class
7	System over-voltages	Temporary over-voltages
8	Pollution level	Creepage distance
9	Altitude	Arcing distance, Creepage

With available Surge Arrester parameters and from appropriate table, other ratings of Surge Arrester can be determined. The tables show typical requirements from customers. Surge Arrester with different parameters can also be supplied.



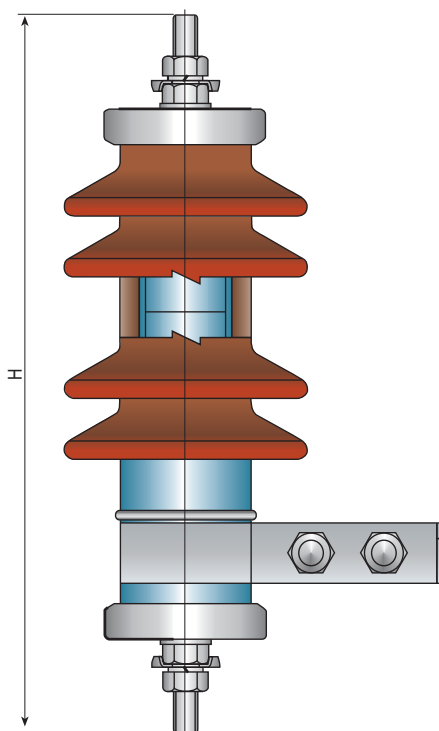
Reference Standard	-	IEC 60099-4, ANSI IEEE Std C62.11, IS 3070 (Part-3)
Arrester Type & Class	-	Gapless, Distribution class
Rated Frequency	Hz	48-62 Hz
Line Discharge Class	-	75A, 1000 micro-sec
Nominal Discharge Current	kAp	5
Energy Handling Capability	kJ / kV of Rating	0.5
Continuous Leakage current at MCOV		

Resistive (Max.)	micro-amps	150
Capacitive (Max.)	micro-amps	600

Product Range

2.7kV to 36 kV

Unique Ref. No.	Rated Voltage	MCOV	Steep Impulse RV at 5kA (1/ 2microsec)	Lightning Impulse RV (8/20 micro-sec) at					Creepage distance mm	Overall Height (H) mm
				1.5kA	2.5kA	3.0kA	5kA	10kA		
ZYPD002	2.7	2.3	11.2	8.5	9.0	9.5	10.0	11.2	150	230
ZYPD003	3	2.55	12.3	9.4	9.9	10.5	11.0	12.3	150	230
ZYPD004	4.5	3.6	18.5	14.0	14.9	15.7	16.5	18.5	150	230
ZYPD005	5.1	4.2	22.4	17.0	18.0	19.0	20.0	22.4	150	230
ZYPD005	6	5.1	24.6	18.7	19.8	20.9	22.0	24.6	150	230
ZYPD007	9	7.65	33.6	25.5	27.0	28.5	30.0	33.6	300	300
ZYPD008	10	8.4	35.3	26.8	28.4	29.9	31.5	35.3	300	300
ZYPD010	12	10.2	49.3	37.4	39.6	41.8	44.0	49.3	300	300
ZYPD013	15	12.7	58.2	44.2	46.8	49.4	52.0	58.2	600	425
ZYPD015	18	15.3	67.2	51.0	54.0	57.0	60.0	67.2	600	425
ZYPD017	21	17	71.7	54.4	57.6	60.8	64.0	71.7	600	425
ZYPD019	24	19.5	90	68.0	72.0	76.0	80.0	90	600	425
ZYPD022	27	22	101	76.5	81.0	85.5	90.0	101	900	530
ZYPD024	30	24.4	106	80.3	85.1	89.8	94.5	106	900	530
ZYPD029	36	29	134	102.0	108.0	114.0	120.0	134	900	530



2.7kV – 36kV Dist. Class SA
(Normal Duty)

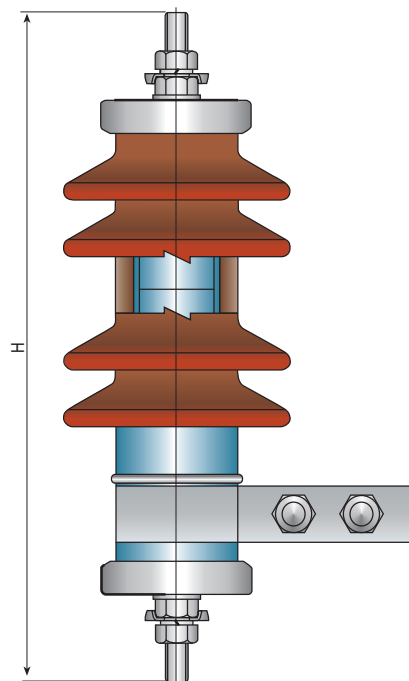
* Diagram not to scale

Reference Standard	-	IEC 60099-4, ANSI IEEE Std C62.11, IS 3070 (Part-3)
Arrester Type & Class	-	Gapless, Distribution class
Rated Frequency	Hz	48-62 Hz
Line Discharge Class	-	125A, 2000 micro-sec
Nominal Discharge Current	kAp	10
Energy Handling Capability	kJ / kV of Rating	1.0
Continuous Leakage current at MCOV		

Resistive (Max.)	micro-amps	250
Capacitive (Max.)	micro-amps	1000

Product Range 2.7kV to 36 kV

Unique Ref. No.	Rated Voltage	MCOV	Steep Impulse RV at 10kA (1/2microsec)	Lightning Impulse RV (8/20 micro-sec) at					Creepage distance mm	Overall Height (H) mm
				1.5kA	3.0kA	5kA	10kA	20kA		
ZPR1002	2.7	2.3	11.2	9.3	9.4	9.5	10	11.2	150	230
ZPR1003	3	2.55	12.3	10.2	10.3	10.5	11	12.3	150	230
ZPR1004	4.5	3.6	18.5	15.3	15.5	15.7	17	18.5	150	230
ZPR1005	5.1	4.2	21.3	17.7	17.9	18.1	19	21.3	150	230
ZPR1005	6	5.1	24.6	20.5	20.7	20.9	22	24.6	150	230
ZPR1007	9	7.65	33.6	27.9	28.2	28.5	30	33.6	300	300
ZPR1008	10	8.4	35.8	29.8	30.1	30.4	32	35.8	300	300
ZPR1010	12	10.2	43.1	35.8	36.2	36.6	38.5	43.1	300	300
ZPR1013	15	12.7	53.8	44.6	45.1	45.6	48	53.8	600	425
ZPR1015	18	15.3	64.4	53.5	54.1	54.6	57.5	64.4	600	425
ZPR1017	21	17	68.9	57.2	57.8	58.4	61.5	68.9	600	425
ZPR1019	24	19.5	86	71.6	72.4	73.2	77	86	600	425
ZPR1022	27	22	97	80.4	81.3	82.2	86.5	97	900	530
ZPR1024	30	24.4	108	89.3	90.2	91.2	96	108	900	530
ZPR1029	36	29	129	107	108	109	115	129	900	530

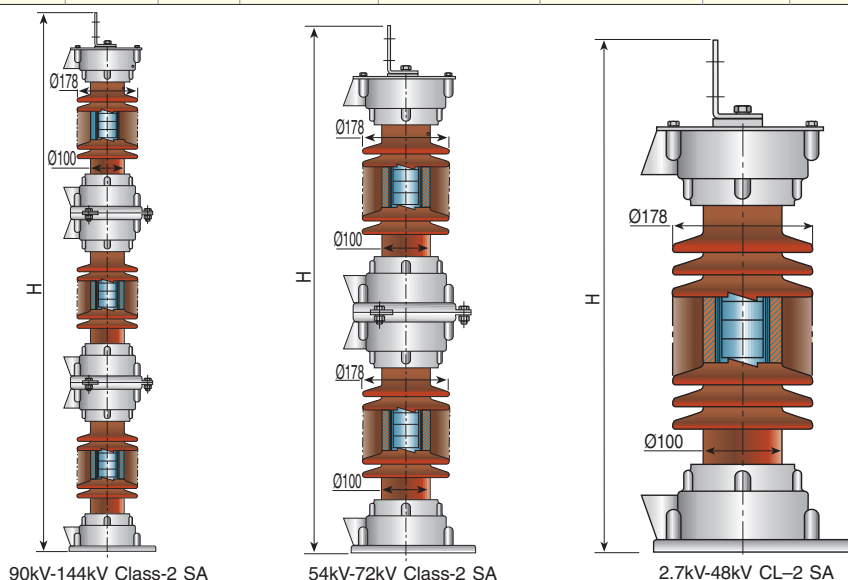


2.7kV – 36kV Dist. Class SA (Heavy Duty)

* Diagram not to scale

Reference Standard	-	IEC 60099-4, ANSI IEEE Std C62.11, IS 3070 (Part-3)
Arrester Type & Class	-	Gapless, Station class
Rated Frequency	Hz	48-62 Hz
Line Discharge Class	-	2
Nominal Discharge Current	kAp	10
Pressure Relief Class	kArms	A / 40
Energy Handling Capability	kJ / kV of Rating	4.0
Continuous Leakage current at MCOV	Resistive (Max.)	micro-amps – 400 & Capacitive (Max.) – micro-amps – 1500
Cantilever strength	Kg-m	325 upto 144kV
Product Range		2.7kV to 144kV

Unique Ref. No.	Rated Voltage	MCOV	Steep Impulse RV at 10kA (1/ 2microsec)	Switching Impulse RV at 125A (30/60microsec)	Switching Impulse RV at 500A (30/60microsec)	Lightning Impulse RV (8/20 micro-sec) at					Creepage distance mm	Overall Height (H) mm
						1.5kA	3.0kA	5kA	10kA	20kA		
ZLA2002	2.7	2.3	8.7	5.9	6.1	6.9	7.2	7.4	7.8	8.7	150	470
ZLA2003	3	2.55	9.2	6.2	6.4	7.2	7.5	7.8	8.2	9.2	150	470
ZLA2005	6	5.1	18.3	12.4	12.7	14.3	15.0	15.5	16.3	18.3	150	470
ZLA2007	9	7.65	27.4	18.6	19.1	21.5	22.5	23.2	24.5	27.4	300	470
ZLA2008	10	8.4	30.4	20.7	21.2	23.9	25.0	25.8	27.2	30.4	300	470
ZLA2010	12	10.2	36.5	24.8	25.4	28.7	30.0	31.0	32.6	36.5	300	470
ZLA2013	15	12.7	45.7	31.0	31.8	35.9	37.5	38.7	40.8	45.7	300	470
ZLA2015	18	15.3	54.8	37.2	38.2	43.0	45.0	46.5	48.9	54.8	600	560
ZLA2017	21	17	63.9	43.4	44.5	50.2	52.5	54.2	57.1	63.9	600	560
ZLA2019	24	19.5	71.4	48.4	49.7	56.1	58.6	60.6	63.7	71.4	600	560
ZLA2022	27	22	80.3	54.5	55.9	63.1	66.0	68.1	71.7	80.3	900	640
ZLA2024	30	24.4	90	60.8	62.4	70.4	73.6	76.0	80.0	89.7	900	640
ZLA2029	36	29	107	72.7	74.6	84.1	88.0	90.8	95.6	107	900	640
ZLA2031	39	31.5	114	77.6	79.7	89.9	94.0	97.0	102.1	114	1050	680
ZLA2036	45	36.5	132	90	92	104	108	112	118	132	1050	680
ZLA2039	48	39	141	96	98	111	116	119	126	141	1050	680
ZLA2042	54	42	154	104	107	121	126	131	137	154	1815	1160
ZLA2048	60	48	171	116	119	134	140	145	153	171	1815	1160
ZLA2057	72	57	205	139	143	161	169	174	183	205	1815	1160
ZLA2070	90	70	257	174	179	202	211	218	229	257	3075	1745
ZLA2076	96	76	271	184	189	213	223	230	242	271	3075	1745
ZLA2084	108	84	283	192	197	242	253	261	275	308	3625	1825
ZLA2098	120	98	314	213	219	268	281	290	305	342	3625	1825
ZLA2106	132	106	342	232	238	292	305	315	332	372	3625	1825
ZLA2115	144	115	376	255	262	321	336	347	365	409	3625	1825



* Diagram not to scale

90kV-144kV Class-2 SA

54kV-72kV Class-2 SA

2.7kV-48kV CL-2 SA

Reference Standard	-	IEC 60099-4, ANSI IEEE Std C62.11, IS 3070 (Part-3)
Arrester Type & Class	-	Gapless, Station class
Rated Frequency	Hz	48-62 Hz
Line Discharge Class	-	3
Nominal Discharge Current	kAp	10
Pressure Relief Class	kArms	A / 65
Energy Handling Capability	kJ / kV of Rating	6.0
Continuous Leakage current at MCOV	Resistive (Max.)	micro-amps — 400 & Capacitive (Max.) micro-amps – 1500
Cantilever strength	Kg-m	725
Product Range		2.7kV to 420 kV

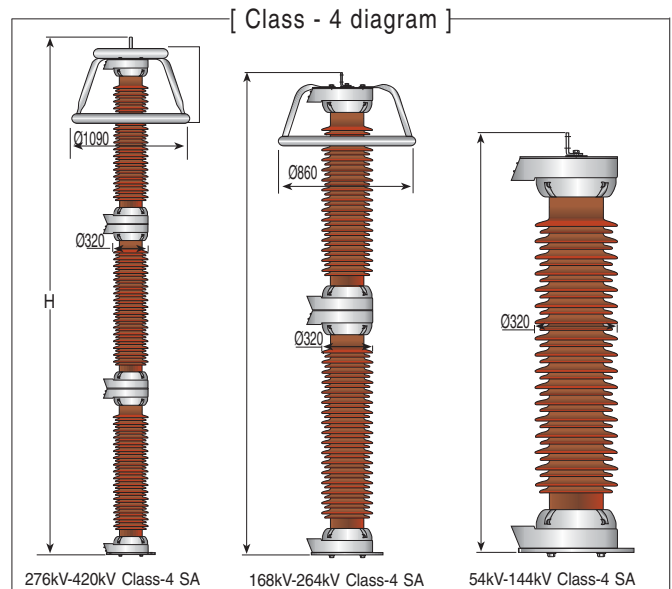
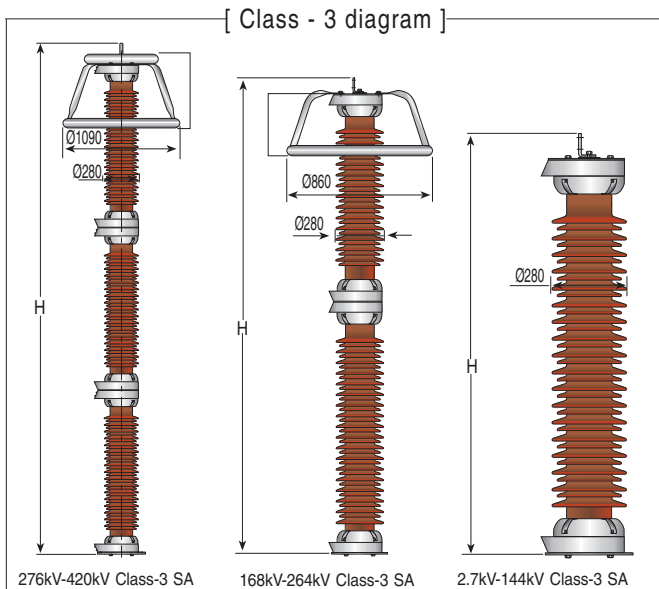
Unique Ref. No.	Rated Voltage	MCOV	Steep Impulse RV at 10kA (1/ 2microsec)	Switching Impulse RV at 250A (30/60microsec)	Switching Impulse RV at 1kA (30/60microsec)	Lightning Impulse RV (8/20 micro-sec) at					Creepage distance mm	Overall Height (H) mm
						1.5kA	3.0kA	5kA	10kA	20kA		
ZLA3002	2.7	2.30	8.5	6.2	6.3	7.2	7.2	7.3	7.7	8.6	150	460
ZLA3003	3	2.55	8.8	6.4	6.5	7.4	7.5	7.6	8.0	8.9	150	460
ZLA3005	6	5.1	17.4	12.7	13.0	14.7	14.9	15.0	15.8	17.7	150	460
ZLA3007	9	7.65	27.5	20.0	20.5	23.3	23.5	23.8	25.0	28.0	300	460
ZLA3008	10	8.4	28.5	20.7	21.3	24.1	24.4	24.6	25.9	29.0	300	460
ZLA3010	12	10.2	34.8	25.3	26.0	29.5	29.8	30.1	31.7	35.5	300	460
ZLA3013	15	12.7	43.6	31.7	32.5	36.8	37.2	37.6	39.6	44.4	300	460
ZLA3015	18	15.3	52.3	38.0	39.0	44.2	44.7	45.1	47.5	53.2	600	680
ZLA3017	21	17	59.6	43.3	44.4	50.4	50.9	51.5	54.2	60.7	600	680
ZLA3019	24	19.5	68.1	49.5	50.8	57.6	58.2	58.8	61.9	69.4	600	680
ZLA3022	27	22	76.6	55.7	57.1	64.8	65.5	66.2	69.7	78.0	900	790
ZLA3024	30	24.4	85.5	62.2	63.8	72.3	73.1	73.9	77.8	87.1	900	790
ZLA3029	36	29	102	74.3	76.2	86.4	87.3	88.2	92.9	104	900	790
ZLA3031	39	31.5	110	80.0	82.0	93.0	94.0	95.0	100	112	1050	856
ZLA3036	45	36.5	129	94	95.9	109	110	111	117	131	1050	856
ZLA3039	48	39	136	99	102	115	117	118	124	139	1050	856
ZLA3042	54	42	154	112	115	130	132	133	140	157	1815	1090
ZLA3048	60	48	171	124	127	144	146	147	155	174	1815	1090
ZLA3057	72	57	202	147	151	171	173	175	184	206	1815	1090
ZLA3070	90	70	253	184	189	214	216	219	230	258	3075	1390
ZLA3076	96	76	270	196	201	228	230	233	245	274	3075	1390
ZLA3084	108	84	307	223	229	259	262	265	279	312	3625	1600
ZLA3098	120	98	341	248	254	288	291	295	310	347	3625	1600
ZLA3106	132	106	374	272	279	316	320	323	340	381	3625	1600
ZLA3115	144	115	407	296	303	344	348	352	370	414	4495	1600
ZLA3131	168	131	475	346	354	402	406	410	432	484	4890	2283
ZLA3140	172	140	487	354	363	412	416	421	443	496	5000	2625
ZLA3144	180	144	510	371	380	432	436	441	464	520	5000	2625
ZLA3152	192	152	545	396	406	460	465	470	495	554	5440	2535
ZLA3168	198	168	561	408	418	474	479	485	510	571	6125	2883
ZLA3180	228	180	639	465	476	540	546	552	581	651	6125	2883
ZLA3190	240	190	673	490	502	569	575	581	612	685	7250	3100
ZLA3209	258	209	724	526	540	612	619	625	658	737	7250	3100
ZLA3212	264	212	741	539	553	627	634	640	674	755	7250	3100
ZLA3220	276	220	774	563	577	655	662	669	704	788	9065	4075
ZLA3230	288	230	807	587	602	683	690	697	734	822	9065	4075
ZLA3235	294	235	825	600	615	698	705	713	750	840	9065	4075
ZLA3245	312	245	876	637	653	740	748	756	796	892	9065	4075
ZLA3292	360	292	913	664	681	772	780	789	830	930	10500	4700
ZLA3303	390	303	990	720	738	837	846	855	900	1008	10500	4700
ZLA3318	396	318	1056	768	787	893	902	912	960	1015	10500	4700
ZLA3335	420	335	1120	814	835	947	957	967	1018	1076	13020	4700

Surge Arresters

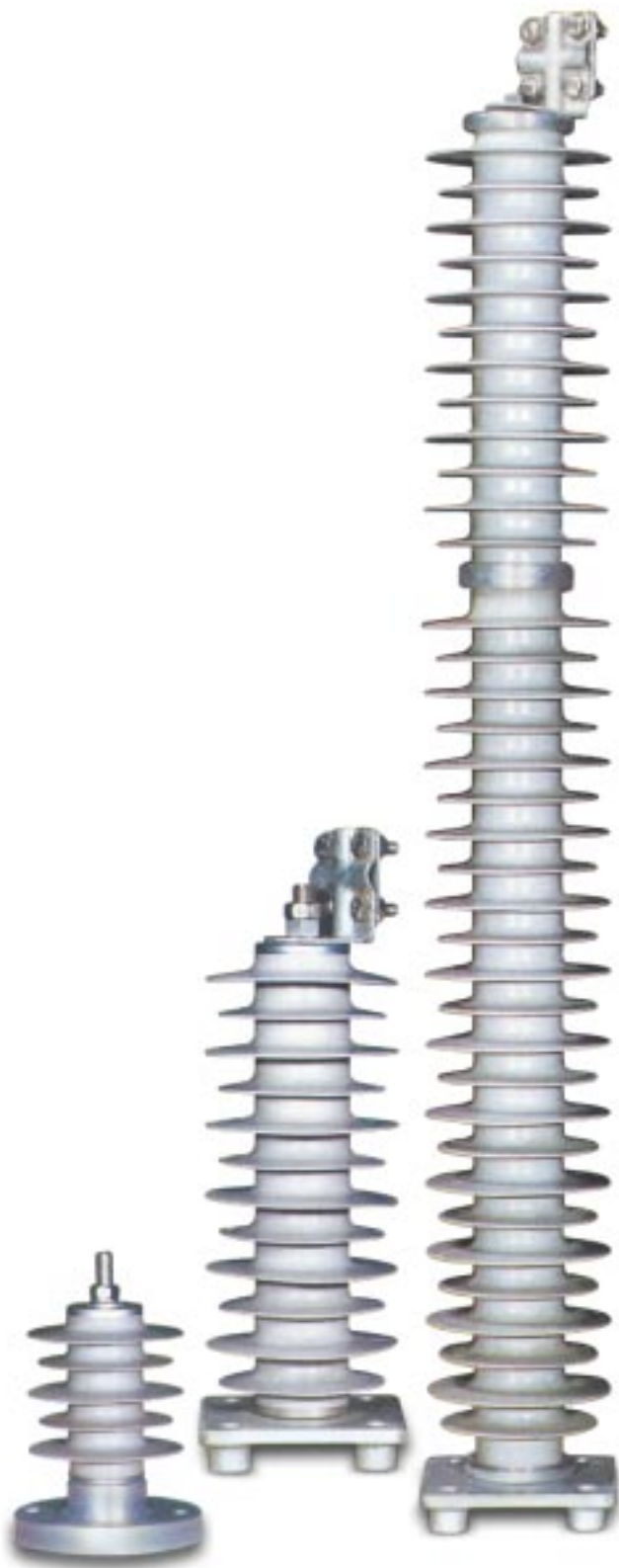
(Class - 4)

Reference Standard	-	IEC 60099-4, ANSI IEEE Std C62.11, IS 3070 (Part-3)
Arrester Type & Class	-	Gapless, Station class
Rated Frequency	Hz	48-62 Hz
Line Discharge Class	-	4
Nominal Discharge Current	kAp	20
Pressure Relief Class	kArms	A / 65kArms
Energy Handling Capability	kJ / kV of Rating	8.0
Continuous Leakage current at MCOV	Resistive (Max.)	micro-amps – 400 & Capacitive (Max.) micro-amps–1500
cantilever strength	Kg-m	1000
Product Range		54kV to 420 kV

Unique Ref. No.	Rated Voltage	MCOV	Steep Impulse RV at20kA (1/2microsec)	Switching Impulse RV at 500A (30/60microsec)	Switching Impulse RV at 2kA (30/60microsec)	Lightning Impulse RV (8/20 micro-sec) at					Creepage distance mm	Overall Height (H) mm
						1.5kA	3.0kA	10kA	20kA	40kA		
ZLA4042	54	42	177	116	120	138	140	143	150	168	1815	1368
ZLA4048	60	48	196	128	133	153	155	158	166	186	1815	1368
ZLA4057	72	57	228	148	154	177	180	183	193	216	1815	1368
ZLA4070	90	70	284	186	193	222	225	229	241	270	3075	1368
ZLA4076	96	76	314	205	213	245	249	253	266	298	3075	1368
ZLA4084	108	84	352	229	238	274	279	283	298	334	3625	1630
ZLA4098	120	98	392	256	266	305	310	315	332	372	3625	1630
ZLA4106	132	106	432	282	293	337	342	348	366	410	3625	1630
ZLA4115	144	115	470	306	318	366	372	378	398	446	4495	1630
ZLA4131	168	131	549	358	372	428	435	442	465	521	4890	2623
ZLA4140	172	140	562	367	381	438	445	452	476	533	5000	2623
ZLA4144	180	144	588	383	398	458	466	473	498	558	5000	2623
ZLA4152	192	152	627	409	425	489	496	504	531	595	5440	2623
ZLA4168	198	168	647	422	438	504	512	521	548	614	6125	2623
ZLA4180	228	180	713	466	484	556	565	574	605	677	6125	2623
ZLA4190	240	190	781	510	530	609	619	629	662	741	7250	2623
ZLA4209	258	209	840	548	570	655	666	676	712	797	7250	2888
ZLA4212	264	212	859	561	582	670	681	692	728	815	7250	2888
ZLA4220	276	220	897	585	608	699	711	722	760	851	9065	3153
ZLA4230	288	230	937	611	635	730	742	754	794	889	9065	3153
ZLA4235	294	235	956	624	648	745	757	770	810	907	9065	3153
ZLA4245	312	245	1015	662	688	791	804	817	860	963	9065	4710
ZLA4292	360	292	1171	764	794	913	928	942	992	1111	10500	4710
ZLA4303	390	303	1269	828	860	989	1005	1021	1075	1204	10500	4710
ZLA4318	396	318	1281	836	869	999	1015	1032	1086	1216	10500	4710
ZLA4335	420	335	1371	895	930	1069	1086	1104	1162	1301	13020	4710



* Diagram not to scale



Design

The new generation of polymeric housed surge arresters incorporates a superior polymeric material that is recognised by the industry.

Our station class polymeric surge arresters are designed & tested in accordance with the IEC-60099-4 standard. These polymeric surge arresters are suitable for both indoor & outdoor applications.

These surge arresters are available in the range from 3kV - 96kV and have the following features:

- **Excellent protection against the ingress of moisture**
- **Improved cantilever strength**
- **High fault current capability**
- **Excellent protective characteristics**
- **Light weight**
- **High durability**
- **Superior performance in the presence of contamination**

These Polymeric-housed surge arresters are designed to protect against overvoltage due to lightning or switching. Station class arresters are used in large electric utility and industrial sub-stations to protect transformers and other substation equipments from lightning & switching surge-generated overvoltage. Our polymeric arresters provide both excellent protective characteristics and temporary over-voltage capability.

The type ZPL2 station class arresters offer the benefits of polymer housings for system voltages up to 110kV. The ZPL2 arresters are approximately 1/5 the weight of the porcelain equivalent. Handling and installation are much easier as a result. The risk of damage to the housing is significantly reduced by comparison with porcelain.

Performance

Rated 3 to 96kV, 2.55kV to 81kV MCIV.2.4 to 110kV system line to line voltage. The ZPL2 arrester design is tested in accordance with the latest industry standards for metal oxide arresters. The ZPL2 arresters consistently withstand the following minimum design tests.

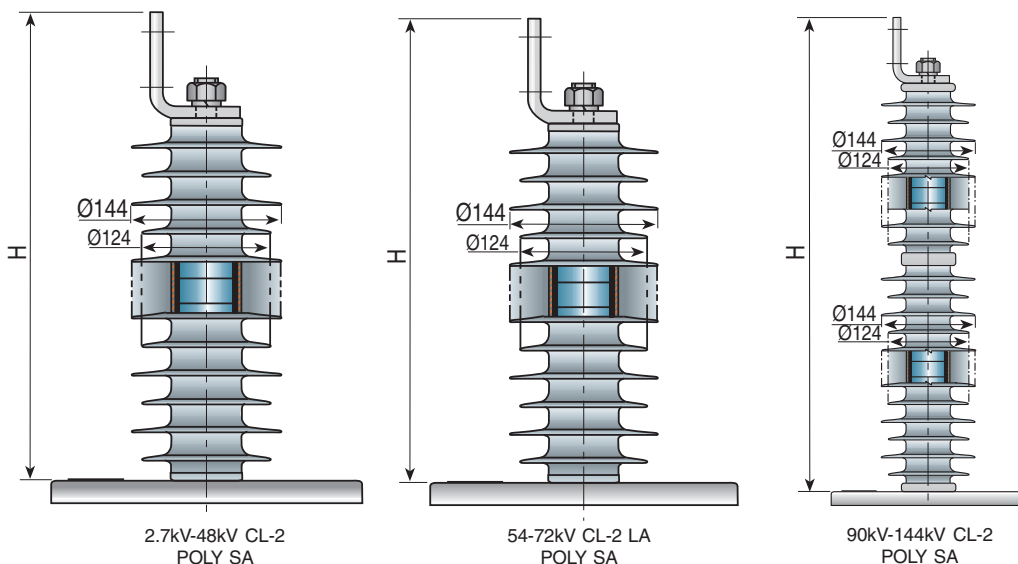
- **High Current-Short Duration: 100 kAp**
- **Nominal discharge current (IEC): 10kA**
- **Line Discharge Class (IEC): Class 2**
- **Minimum Energy Capability: 4.94 kJ / kV MCOV**
- **Pressure Relief Capability: 65kA rms sym.**
- **Working Cantilever strength: 60 kg-m**

Surge Arresters

(Class - 2 - Polymeric Surge Arrester)

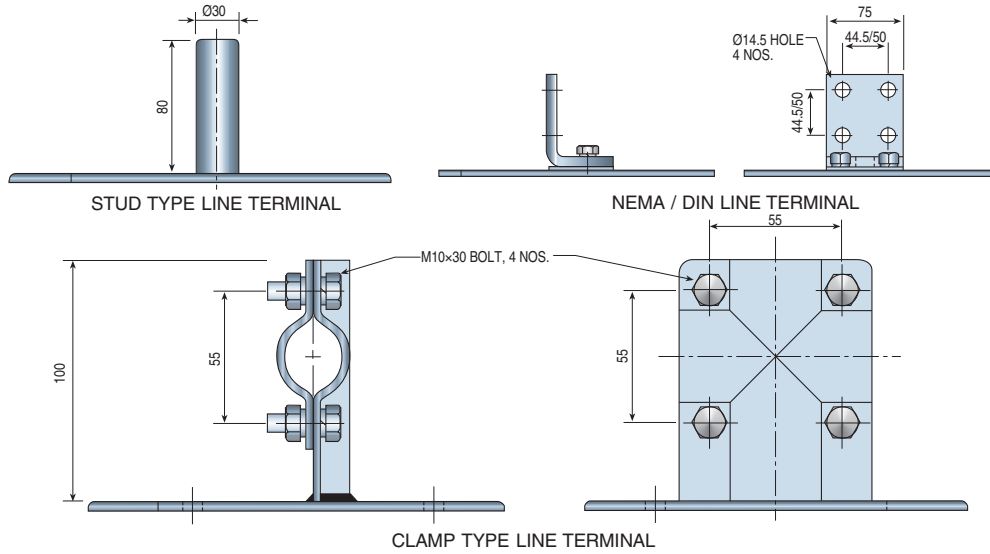
Reference Standard	-	IEC 60099-4, ANSI IEEE Std C62.11, IS 3070 (Part-3)
Arrester Type & Class	-	Gapless, Station class
Rated Frequency	Hz	48-62 Hz
Line Discharge Class	-	2
Nominal Discharge Current	kAp	10
Pressure Relief Class	kArms	A / 65
Energy Handling Capability	kJ / kV of Rating	4.0
Continuous Leakage current at MCOV	Resistive (Max.)	micro-amps – 400 & Capacitive (Max.) – micro-amps – 1500
Cantilever strength	Kg-m	325 upto 144kV
Product Range		2.7kV to 144kV

Unique Ref. No.	Rated Voltage	MCOV	Steep Impulse RV at 10kA (1/ 2microsec)	Switching Impulse RV at 125A (30/60microsec)	Switching Impulse RV at 500A (30/60microsec)	Lightning Impulse RV (8/20 micro-sec) at					Creepage distance mm	Overall Height (H) mm
						1.5kA	3.0kA	5kA	10kA	20kA		
ZPL2002	2.7	2.3	8.7	5.9	6.1	6.9	7.2	7.4	7.8	8.7	150	250
ZPL2003	3	2.55	9.2	6.2	6.4	7.2	7.5	7.8	8.2	9.2	150	250
ZPL2005	6	5.1	18.3	12.4	12.7	14.3	15.0	15.5	16.3	18.3	150	250
ZPL2007	9	7.65	27.4	18.6	19.1	21.5	22.5	23.2	24.5	27.4	300	250
ZPL2008	10	8.4	30.4	20.7	21.2	23.9	25.0	25.8	27.2	30.4	300	250
ZPL2010	12	10.2	36.5	24.8	25.4	28.7	30.0	31.0	32.6	36.5	300	250
ZPL2013	15	12.7	45.7	31.0	31.8	35.9	37.5	38.7	40.8	45.7	300	250
ZPL2015	18	15.3	54.8	37.2	38.2	43.0	45.0	46.5	48.9	54.8	600	435
ZPL2017	21	17	63.9	43.4	44.5	50.2	52.5	54.2	57.1	63.9	600	435
ZPL2019	24	19.5	71.4	48.4	49.7	56.1	58.6	60.6	63.7	71.4	600	435
ZPL2022	27	22	80.3	54.5	55.9	63.1	66.0	68.1	71.7	80.3	900	435
ZPL2024	30	24.4	90	60.8	62.4	70.4	73.6	76.0	80.0	89.7	900	435
ZPL2029	36	29	107	72.7	74.6	84.1	88.0	90.8	95.6	107	900	435
ZPL2031	39	31.5	114	77.6	79.7	89.9	94.0	97.0	102.1	114	1050	540
ZPL2036	45	36.5	132	90	92	104	108	112	118	132	1050	540
ZPL2039	48	39	141	96	98	111	116	119	126	141	1050	540
ZPL2042	54	42	154	104	107	121	126	131	137	154	1815	785
ZPL2048	60	48	171	116	119	134	140	145	153	171	1815	785
ZPL2057	72	57	205	139	143	161	169	174	183	205	1815	785
ZPL2070	90	70	257	174	179	202	211	218	229	257	3075	1155
ZPL2076	96	76	271	184	189	213	223	230	242	271	3075	1155
ZPL2084	108	84	283	192	197	242	253	261	275	308	3625	1825
ZPL2098	120	98	314	213	219	268	281	290	305	342	3625	1825
ZPL2106	132	106	342	232	238	292	305	315	332	372	3625	1825
ZPL2115	144	115	376	255	262	321	336	347	365	409	3625	1825

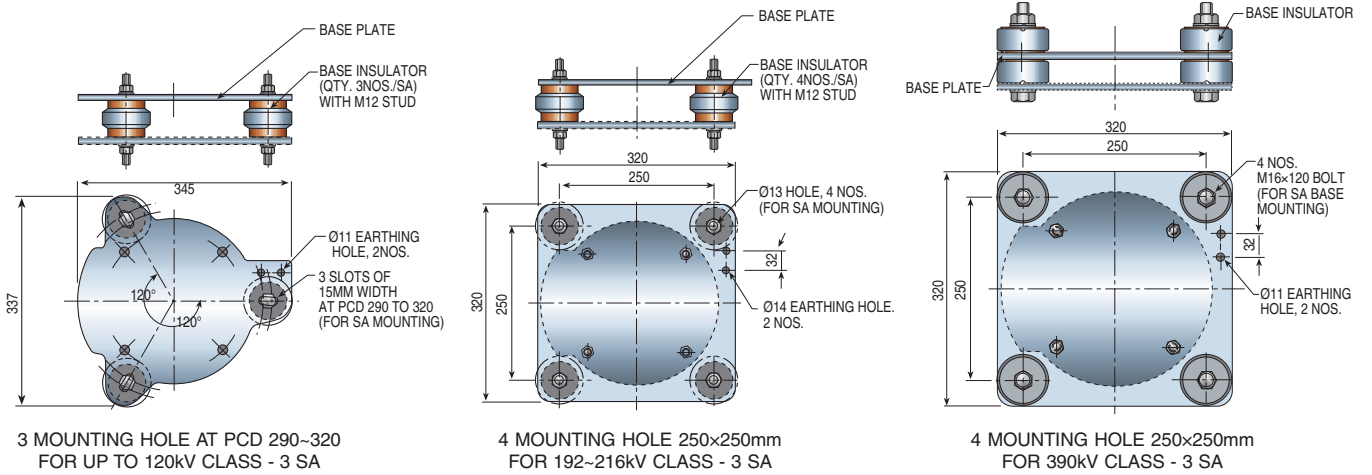


* Diagram not to scale

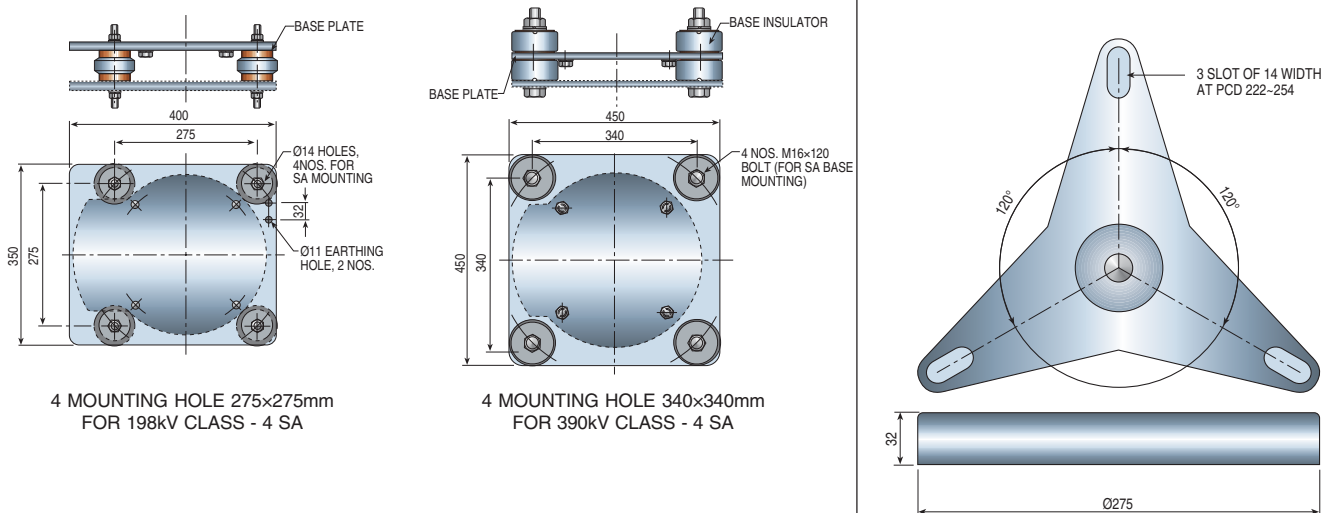
Line Terminals General Arrangement



Base plate General Arrangement



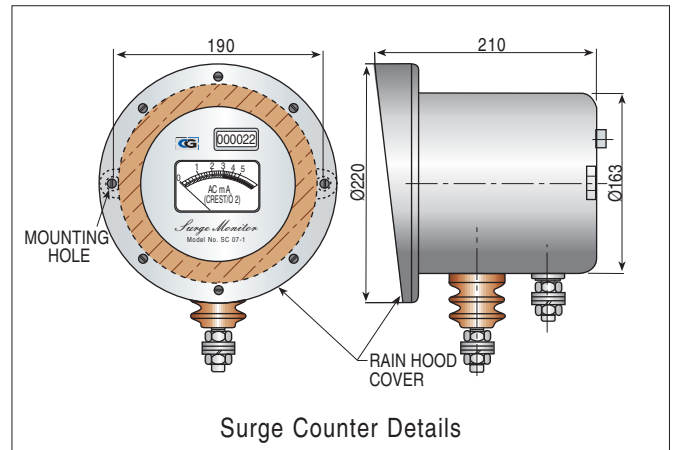
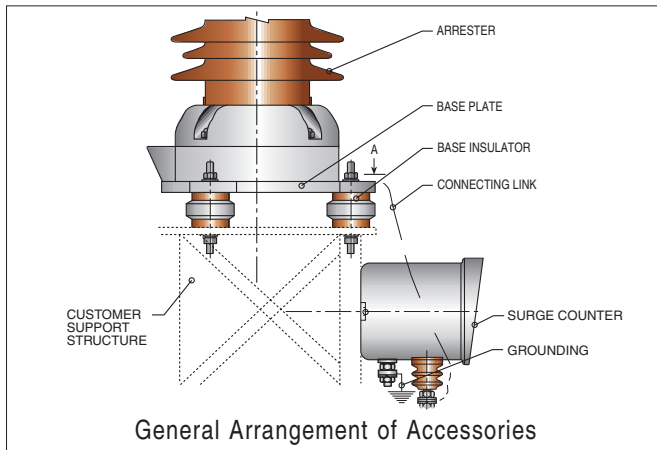
Base plate General Arrangement for polymeric sa



* Diagram not to scale

Surge Arresters

Line Terminals General Arrangement



ACCESSORIES :

Surge Arrestors may be supplied with following accessories on request :

- Surge counter
- Insulating base (required in case surge counter is to be used)
- Cable conductor of specific length (required in case surge counter is to be used)

Note : Grading rings are supplied with CG Surge Arresters for CLASS 3 & 4 and for KV rating higher than or equal to 144 KV.

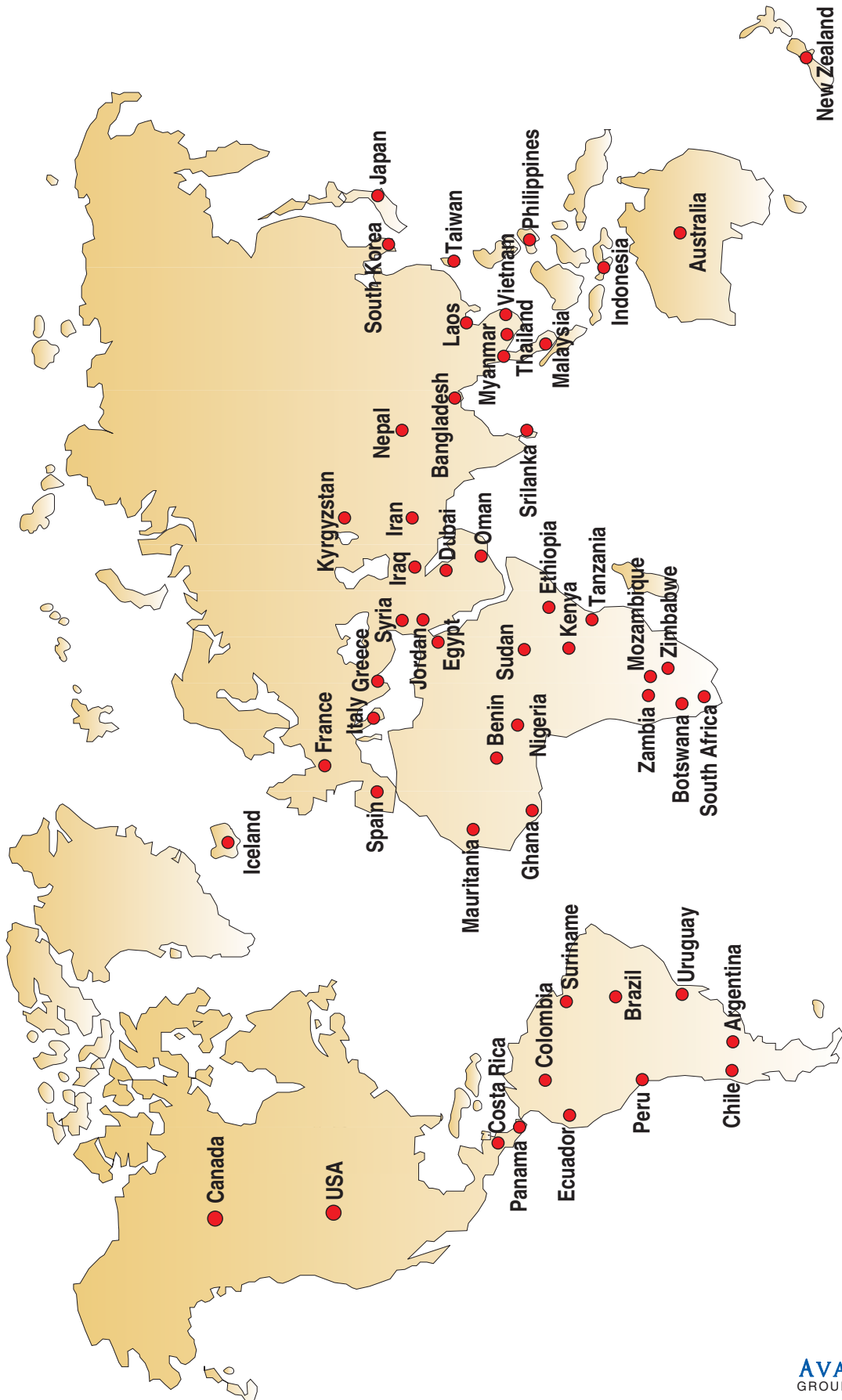


Test Lab



Impulse Generator - 2000kVp

OUR INTERNATIONAL PRESENCE



Smart solutions.
Strong relationships.

Data subject to change



AVANTHA
GROUP COMPANY

Crompton Greaves Limited

Switchgear Complex

A-3, MIDC, Ambad, Nashik - 422 010 India

Tel : (+91) 253 2301661 to 674

Fax : (+91) 253 2381247

E-mail : govindaraj.sethuraman@cgglobal.com

URL : www.cgionline.com

Regd. Office : 6th Floor, CG House,
Dr. Annie Besant Road, Worli, Mumbai - 400 030, India.

Cat.No. SA-111 (4/10/1K) / Sangam