

Disconnecting Switches/ Lightning Arresters



INTEGRATION
OF POWER SYSTEM

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22.8KV Substation in every 10 floor.

- CRTR :3P 22.8KV 2~4MVA * 70 PCS
- PANEL :3P HV&LV* 1780 SETS



161KV Substation in B4 Belong to TPC

- TR :3P 161/22.8KV 60MVA * 4 PCS
- GIS:3P 161/22.8KV 60MVA * 4 PCS

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Disconnecting Switches

(1) Performance

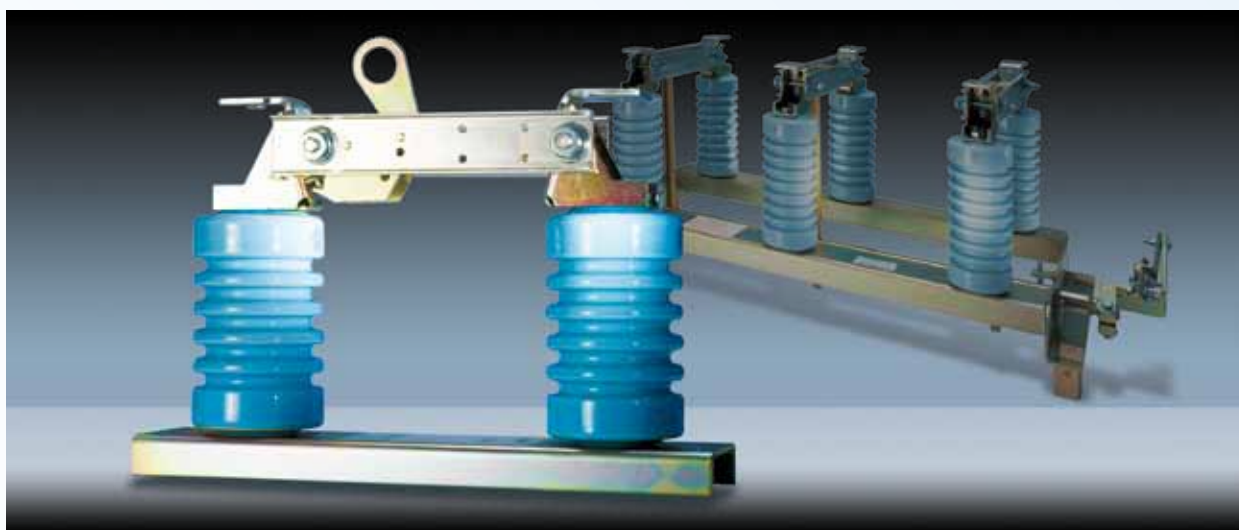
Rated Voltage (kV)	Insulation Withstand Test Voltage (kV)		
	B. I. L. Impulse 1.2 × 50 μS (kV) (Crest)	Power - Frequency	
		Dry (1 Min)	Wet (10 Sec)
15	95 (indoor)	35	--
15	110 (outdoor)	50	45
25	125 (indoor)	60	--

(2) Operation Instructions

This disconnecting switch is suitable for applications at an ambient temperature 40°C or less.

Switch can only be operated when there is no load on circuit.

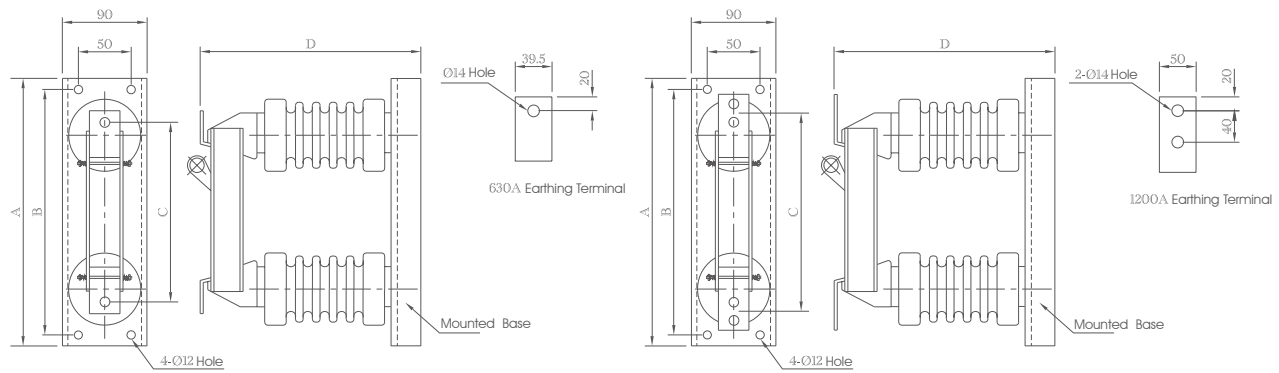
To switch off, operate the switch stick in a vertical direction.



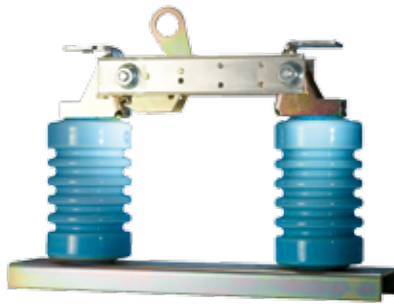
(3) Specifications

Type	Rated Voltage(kV)	Rated Current(A)	1sec Current Rating(kA)
SDS-HE6N (indoor)	15	630	25
SDS-HE12N (indoor)	15	1200	40
SDS-HF6N (indoor)	25	630	25
SDS-HF12N (indoor)	25	1200	40
SDS-3HE6N (indoor)	15	630	25
SDS-3HE12N (indoor)	15	1200	40
SDS-3HF6N (indoor)	25	630	25
SDS-3HF12N (indoor)	25	1200	40
SDS-HE6B (indoor)	15	630	25
SDS-HE12B (indoor)	15	1200	40
SDS-HF6B (indoor)	25	630	25
SDS-HF12B (indoor)	25	1200	40
SDS-3HE6B (indoor)	15	630	25
SDS-3HE12B (indoor)	15	1200	40
SDS-3HF6B (indoor)	25	630	25
SDS-3HF12B (indoor)	25	1200	40
SDS-DE6 (outdoor)	15	630	25

Indoor Use

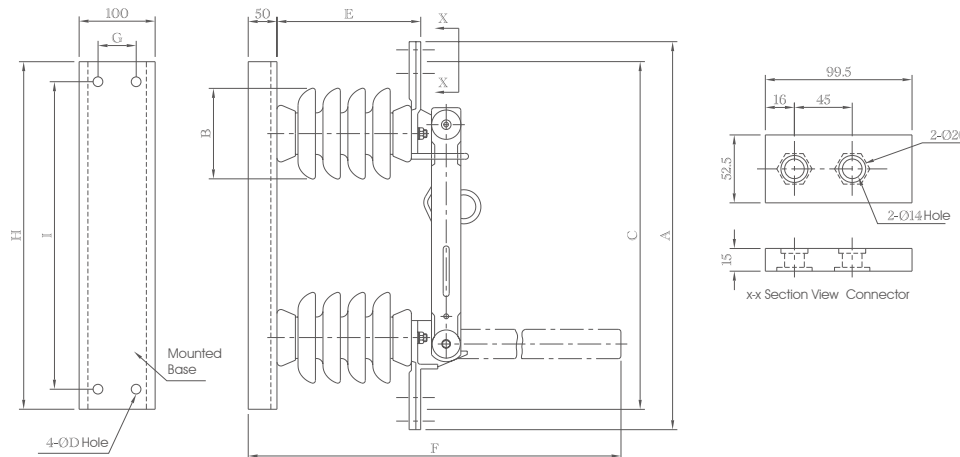


Unit : mm



Type Rated	Dimension				Weight(kg)	Note
	A	B	C	D		
SDS-HE6N 15kV, 630A	400	370	260	260	7.8	Porcelain Insulator Type
SDS-HE12N 15kV, 1200A	400	370	290	265	9.2	
SDS-HF6N 25kV, 630A	450	422	310	330	9.7	
SDS-HF12N 25kV, 1200A	450	422	340	335	11.2	
SDS-HE6B 15kV, 630A	400	370	260	246	5	Epoxy Insulator Type
SDS-HE12B 15kV, 1200A	400	370	290	251	6.5	
SDS-HF6B 25kV, 630A	450	422	310	324	7	
SDS-HF12B 25kV, 1200A	450	422	340	329	8.5	

Outdoor Use



Unit : mm

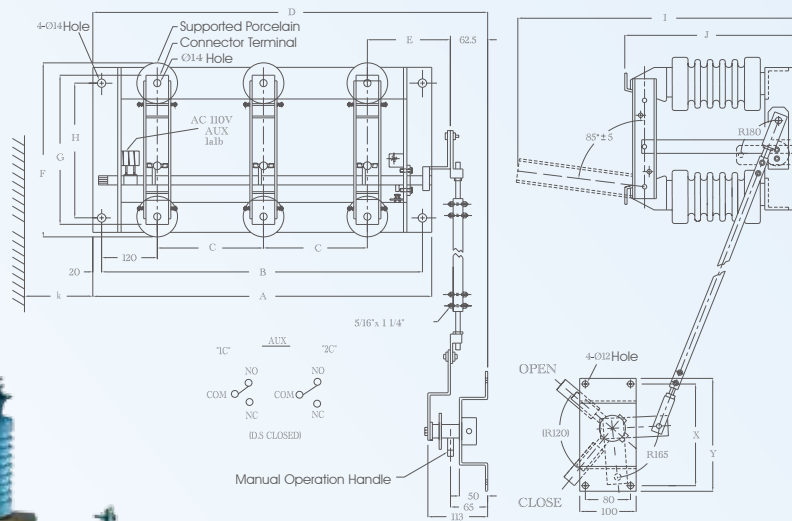
Type Rated	Dimension									Weight(kg)
	A	B	C	D	E	F	G	H	I	
SDS-DE6 15kV, 630A	580	142	510	14	190	590	50	610	540	15

Indoor Use

Unit : mm

Type Rated	Dimension											Weight(kg)	Note
	A	B	C	D	E	F	G	H	I	J	K		
SDS-3HE6N 15kV, 630A												35	Porcelain Insulator Type
SDS-3HE12N 15kV, 1200A	720	680	220	818	175	335	300	248	485	315	30	36	
SDS-3HF6N 25kV, 630A	880	840	300	1043	240	387	352	300	605	383	130	37	
SDS-3HF12N 25kV, 1200A												38	
SDS-3HE6B 15kV, 630A	720	680	220	818	175	335	300	248	471	301	30	27	Epoxy Insulator Type
SDS-3HE12B 15kV, 1200A												28	
SDS-3HF6B 25kV, 630A	880	840	300	1043	240	387	352	300	591	369	130	29	
SDS-3HF12B 25kV, 1200A												30	

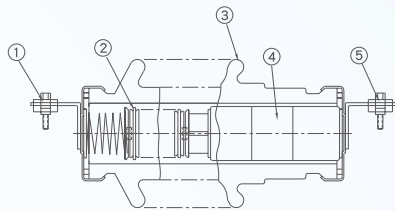
	X	Y
With Electric Interlock	232	252
Non Electric Interlock	180	200



15/25kV, 630/1200A

Lightning Arresters

A. [Construction & Principles]
(Interior Construction Illustrated In fig.1)



(fig. 1 Construction of Lightning Arrester)

1. (Line Terminal)
2. (Series Gap)
3. (Porcelain Insulator)
4. (Element)
5. (Earthing Terminal)

[ARC Extinction of Magnet]

Construction of gap illustrated in fig. 2(a). It comprises of a mica gap between two pressed brass plate. One disk magnet is fitted at each side of the pole, so the two magnets face each other at the same pole to form a magnetic field at the gap, so that the arc generated during discharge will be dispersed as shown in fig. 2(b) instead of concentrated to one point. Thus, it increases the capability of arc extinction and minimize the consumption at the pole.

This magnet is a ferrite magnet with a large magnetic resistance and electrical resistance. Most of the current can pass through the surrounding metal gap consistently. So, there is no concern of magnetic decrease, and the heat resistance is very stable.

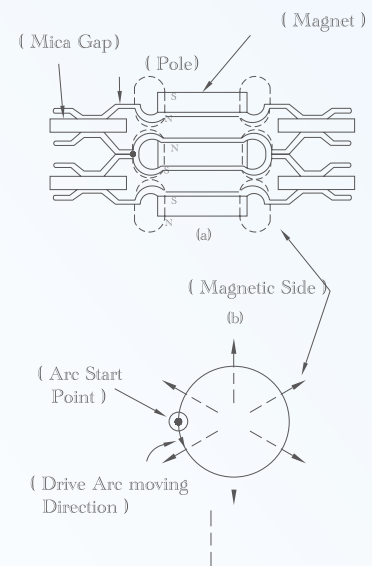


fig. 2 Principles of Lightning Arrester Gap Construction

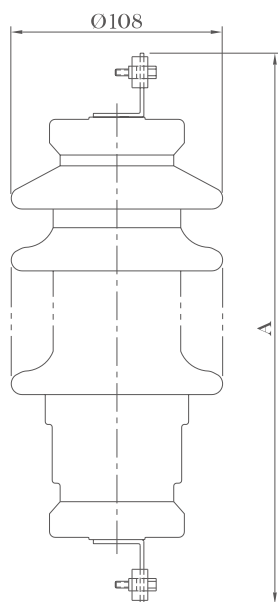
B. Characteristics

Characteristics of our lightning arresters, as shown in Table 1, consistent with (CNS) C4032 and ANSI C62.2 specifications.

(Table 1.)

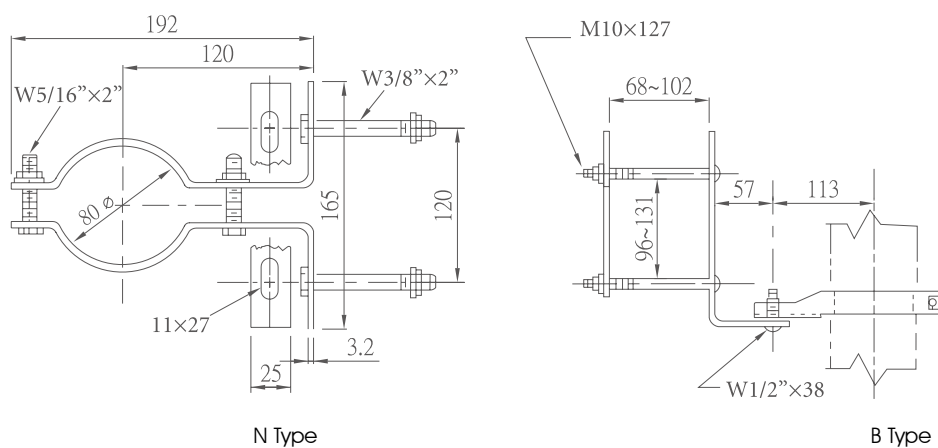
Rated Voltage (kV)	Insulation Withstand Test Voltage(kV)			Maximum Power-Frequency Discharge-Voltage (kV)	Maximum Front-of-Wave Impulse Sparkover Voltage (kV) (Crest)	Maximum Discharge-Voltage (Crest)8x20 μs			Withstand Discharge Current 4~6x10~15 μs (kA) (Crest)
	Impulse (Crest) 1.2x50 μs	Power Frequency (r.m.s)				5kA	10kA	20kA	
		Dry(1Min)	Wet(10 Sec)						
4.5	60	21	20	6.75 and above	32	22	26	30	65
9	75	27	24	13.5 and above	55	39	43	48	65
12	85	31	27	18 and above	73	46	52	60	65
18	125	42	36	27 and above	91	66	76	90	65

C. Outline Dimension

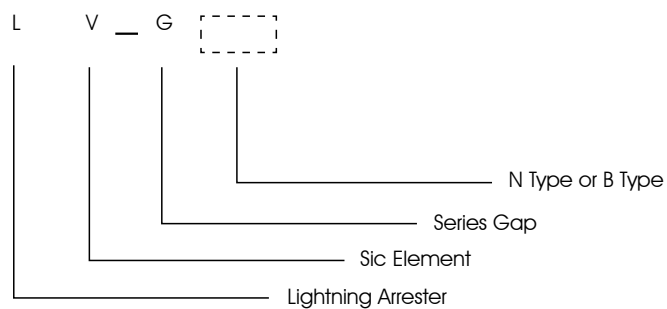


kV	4.5	9	12	18
A	235	300	350	440

D. Accessories-Installation Device



E. LV Lightning Arrester Type Code



(2) ZnO Lightning Arrester

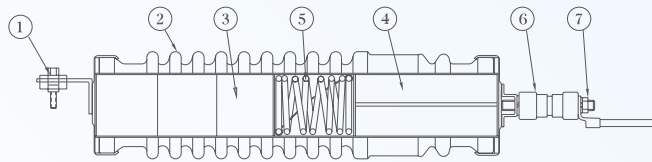
A. Introduction

The gapless ZnO-type lightning arrester used in power distribution is a result of our Company's R&D Team in technical cooperation with General Electric in the United States. This s item has long been used in the United States electric system since 1976 and has proven perfect in protecting the power distribution circuit from surge current.

B. Advantages

- Excellent in withstanding surge voltage.
- Stable ZnO element; non-continuous current; gapless; and instant response to lightning shock.
- Damp proof; air-tight test guaranteed and highly pollution-free.
- Leakage test guaranteed and absolutely safe.
- Guaranteed over-voltage protection in the range of 50/60Hz.
- Check-free and maintenance-free suitable for long-term use.
- Disconnecter is provided, which separates the lightning arrester body and the distribution circuit whenever the the arrester receives a long time period continuous overrated surge current.

C. Construction



- (1) Line Terminal.
- (2) Porcelain Insulator.
- (3) ZnO Element.
- (4) Gap Tube.
- (5) Spring.
- (6) Disconnecter.
- (7) Earthing Terminal.

Fig. 1 Structure of the ZnO lightning arrester

D. Characteristics

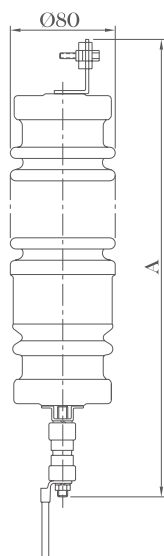
The design and functions meet the ANSI C62.11 Standard.

The features of protection and insulation are indicated in Table 1:

(Table 1.)

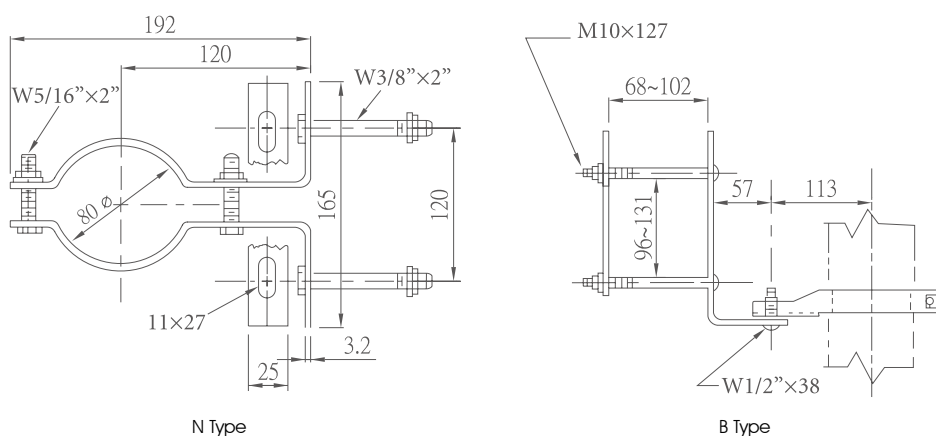
Rated Voltage (kV) RMS	Maximum Continuous Operating Voltage(kV)	Maximum Wavefront Protective Level 0.5 μ s (kV Crest)	Max Discharge Voltage (kV Crest) Using an 8x20 μ s Current Wave			Withstand Discharge Current 4~6x10~15 μ s (kA Crest)	1.2x50 μ s Impulse Voltage 1.2x50 μ s Full Wave (kV Crest)	Power-Frequency Voltage (kV RMS)	
			5kA	10kA	20kA			Dry(1Min)	Wet(10Sec)
4.5	3.82	25.2	20.5	22.5	25.7	100	60	21	20
9	7.65	40	37	40	44	100	75	27	24
12	10.20	46	37.4	41	46.7	100	85	31	27
15	12.75	64	50	55	64	100	95	35	30
18	15.30	67.2	54.7	60	68.5	100	125	42	36
27	22.00	100.8	82.1	90	102.5	100	150	70	60

E. Outline Dimension



Voltages (kV)	Operating Size(A)
4.5	325
9	355
12	435
15	435
18	520
27	645

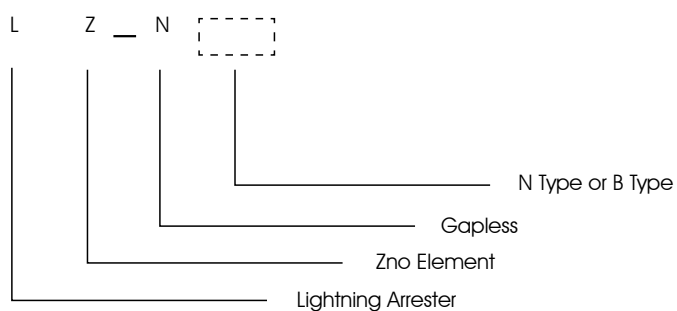
F. Accessories-Installation Device



G. Selection

(1) Shihlin Zno-type Lightning Arrester Type Code:

(2) Selection of rated voltages:
The max. system line-to-earth voltage should not exceed the max. continuous operating voltage value listed in Table 1.



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INTEGRATION OF POWER SYSTEM

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