

Arrester Series

Basic Principle

Arrester is a kind of overvoltage protector mainly applied for the protection of various electrical appliances (such as transformer, switch, capacitor, trap, mutual inductor, generator, motor and power cable etc.) in power system, railway electrification system and communication system from being damaged by atmosphere overvoltage, operation overvoltage and power frequency temporary overvoltage etc. The arrester is the basis of insulation coordination in power system. The core elements of metal oxide arrester(resistor disc)applies an advanced formulate with zinc oxide as the main material and has an outstanding nonlinear properties(voltage-ampere). That is, under the normal operating voltage, the current passing through is only on microampere level. When overvoltage is incurred, the current passing through can be thousands of ampere instantly and the arrester is switched into conduction to release the energy of overvoltage. By this means the damage caused by overvoltage on the electric transmission and transformation equipments can be effectively restrained. The traditional silicon carbide arrester has high steep wave discharging voltage caused by steep wave discharging and the operation wave discharging voltage is high caused by discharge dispersity. While the zinc oxide arrester has good steep wave response properties and make no delay on steep wave voltage and provide low residual voltage during operation; and also has the advantage of no discharge dispersity. The arrester can greatly improve the protective margin of the steep wave and operation wave. And on insulation coordination, the proactive margins of steep wave, lightning wave and operation wave are nearly consistent and best protection ca be provided for the power equipments. Composite coating metal oxide arrester applies integrated extruding shaping and both-end envelopment techniques and can provide high performances of sealing and anti-explosion, pollution resistance, free of cleaning and reducing the wet flashover in foggy conditions. The product is also featured by electrical erosion resistance, aging resistance, small volume, light weight and easy installation and maintenance; and is the upgraded new generation product of porcelain sheath arrester.

Technical Standard

The applicable standards of the product include GB11032-2010 (eqv IEC60099-4:2006) Metal-oxide surge arresters without gaps for a. c. systems and JB/T8952-2005 Polymer-housed metal oxide surge arresters without gaps for a.c. systems.

Environmental Conditions for Application

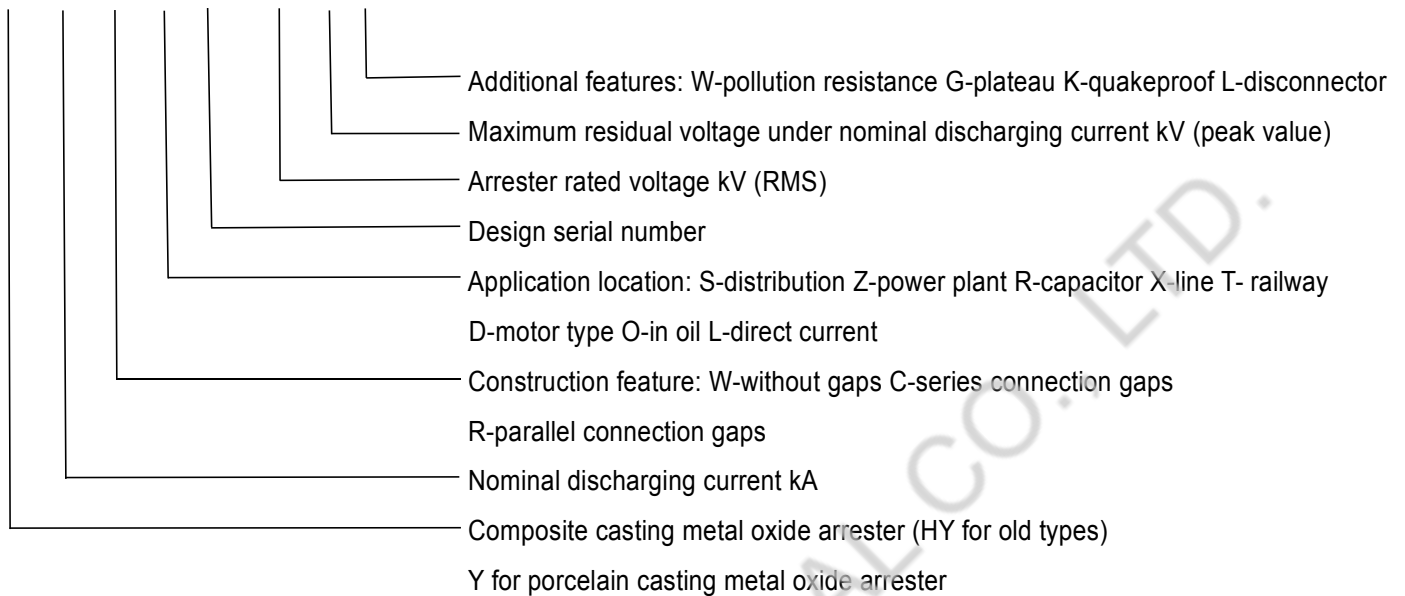
Power supply frequency	48-62Hz
Ambient temperature	-40°C~+40°C
Maximum wind speed	≤35m/s
Altitude	≤2000m
Earthquake intensity	≤8
Ice thickness	≤10mm

1. Long-term applied power frequency voltage does not exceed its constant operation voltage.
2. Sunray radiation: The impact of a maximum sunray (1.1kW/m²) has been taken into account in the

product form. If other heat resources exist around the arrester, please consult the manufacture for the application of arrester.

Type Specifications

YH 5 W S 5 - 17 / 50 □



Product Features

1. Small in size, light in weight, durable in collision, clash and breakage free in transportation, easy in installation, suitable for application in the switchboard;
2. Special structure, integrated extruding shaping, without air gap, good sealing performance, damp prevention and explosion prevention;
3. Long creepage distance, good hydrophobicity performance, strong pollution resistance abilities, and stable performance, reducible in operating maintenance;
4. Zinc oxide resistor disc in special formula, small leakage current, slow aging speed, long service life;
5. The actual DC reference voltage, square wave discharge capacity and heavy current tolerance value are all higher than the state standards.

User Notice

1. Before installation, the arresters shall be stored in clean and dry rooms and kept away from the corrosion by corrosive gas or liquid.
2. Before put into operation, preventative testing shall be made on the arrester. And after the arrester has been put into operation, regular testing shall be made as follows and comparison shall be made with the data before the operation according to the attached table. (Every 5 years for arrester of 10kV or under, and every 2 years for arrester of 35kV and above)
 - A. Measure the insulation resistance of the arrester;
 - B. Measure the reference voltage of the arrester under the direct current of 1mA;
 - C. Measure the leakage current under the reference voltage of 0.75 time direct current of 1mA.

Zinc Oxide Lighting Arrester (export type)

Usage & Feature

The zinc oxide lighting arrester protects the electrical equipments in AC power systems against being damaged by atmospheric overvoltage and operational overvoltage.



6KV



9KV



12KV



15KV



15KV



18KV



21KV



24KV



24KV



27KV



27-30KV



30-33KV



33-36KV



33-36KV



36-42KV

Metal-oxide Lighting Arrester without Gaps (nominal discharge current 5kA) (export type)

Type	Rated voltage kV(ms)	Maximum continuous operation voltage kV(ms)	1/4 steep current impulse kV(crest)	8/20 μ s lighting current impulse kV(ms)	30/60 μ s switching current impulse kV(ms)	2ms square wave current impulse withstand A(crest)	4/10 μ s high current impulse kA(crest)
YH5W-3	3	2.55	11.3	9	8.9	150	65
YH5W-6	6	5.1	22.6	18	16.8	150	65
YH5W-9	9	7.65	33.7	27	23.8	150	65
YH5W-10	10	8.4	36	30	23	150	65
YH5W-11	11	9.4	40	33	30	150	65
YH5W-12	12	10.2	42.2	36	27	150	65
YH5W-15	15	12.7	51	45	38.5	150	65
YH5W-18	18	15.3	61.5	54	46.2	150	65
YH5W-21	21	17.0	71.8	63	54.2	150	65
YH5W-24	24	19.5	82	72	62	150	65
YH5W-27	27	22	92	81	69.8	150	65
YH5W-30	30	24.4	102	90	79	150	65
YH5W-33	33	27.5	112	99	86.7	150	65
YH5W-36	36	29.0	123	108	92.4	150	65

Metal-oxide Lighting Arrester without Gaps (nominal discharge current 10kA) (export type)

Type	Rated voltage kV(ms)	Maximum continuous operation voltage kV(ms)	1/4 steep current impulse kV(crest)	8/20 μ s lighting current impulse kV(ms)	30/60 μ s switching current impulse kV(ms)	2ms square wave current impulse withstand A(crest)	4/10 μ s high current impulse kA(crest)
YH10W-3	3	2.55	11.3	9	8.9	250	100
YH10W-6	6	5.1	22.3	18	16.8	250	100
YH10W-9	9	7.65	33.7	27	23.8	250	100
YH10W-10	10	8.4	36	30	23	250	100
YH10W-11	11	9.4	40	33	30	250	100
YH10W-12	12	10.2	42.2	36	27	250	100
YH10W-15	15	12.7	51	45	38.5	250	100
YH10W-18	18	15.3	61.5	54	46.2	250	100
YH10W-21	21	17	71.8	63	54.2	250	100
YH10W-24	24	19.5	82	72	62	250	100

YH10W-27	27	22	92	81	69.8	250	100
YH10W-30	30	24.4	102	90	79	250	100
YH10W-33	33	27.5	112	99	86.7	250	100
YH10W-36	36	29	123	108	92.4	250	100

TLB Disconnecter

General

As a special supporting product for arrester, the disconnector is series connected with arrester. When the arrester comes across any fault, it would operate quickly and let the failed arrester disconnect from the power grid, meanwhile, it would give obvious disconnection symbol, so that the maintenance personnel would find the point of failure and change the arrester in time. On the other hand, when the arrester works normally, disconnector does not work and is under low impedance state, it would not affect the protective

characteristics of arrester. The arresters that have been equipped with disconnectors really realize safe operation, maintenance free, convenient and reliable performance. It is popular to use disconnectors for distribution type, power station type and line type arresters in power grid in Japan, Occident countries and other developed countries and districts.

The disconnectors produced by our company adopt the latest thermal-explosion design, with advantages of fast response and misoperation free, can be equipped with arresters of various models of 3kV above, having the same operating conditions with that of arresters.



Typical Ampere-Second Characteristic Parameters Of Disconnector

Current (A)	800	200	20	5	0.5	0.05
Operation times (s)	0.01-0.02	0.02-0.05	0.1-0.2	0.5-1.0	20-50	200-600

Outstanding Advantages

A. Wide range of operating current

Considering the features of power networks in china, disconnection available not only under heavy power frequency fault current (>50A) but also under light fault current(50mA)

B. High disconnection speed

Supportable with the reclosing function of the disconnector, not only applicable for various types of arrester on all voltage grades but also for all types of earthing systems(neutral earthing and non-earthing systems)

C. Strong impulse resistance abilities

Not operating under the square wave of 2ms and heavy current of 4/10 μ s

D. High mechanical strength and sealing performance before blasting

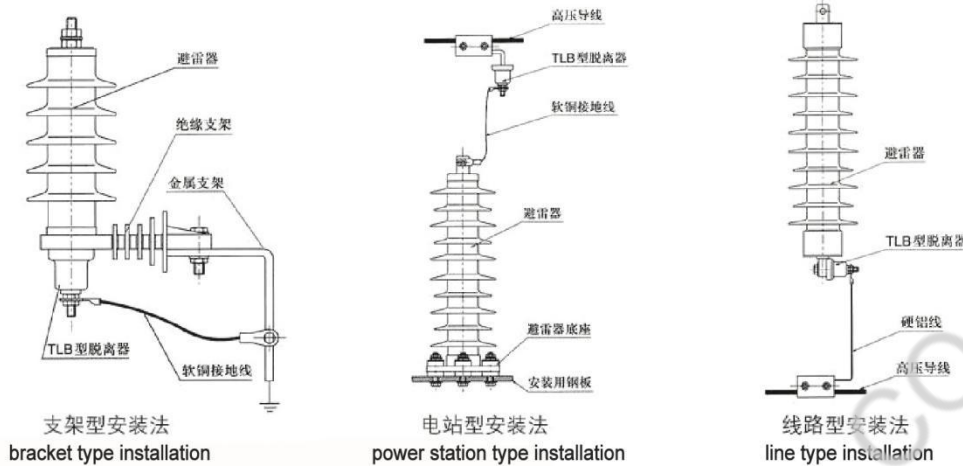
TLB-5 type can match with arresters of 35kV or below.

TLB-6 type can match with arresters of 35~220kV.

E. Easy installation and replacement

Screw-thread external interface, reliable and convenient serial connection with arrester, extremely easy for replacement of disconnector after operating

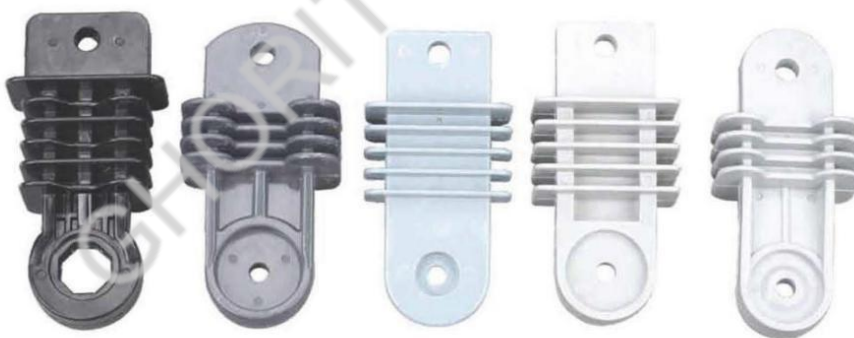
Installation Schematic Diagram of Disconnector



Note:

1. See above diagram for conventional mounting mode of disconnector, other mounting methods also can be used for special conditions according to the actual conditions.
2. Please refer to our operating manual of disconnector for detailed description and direction of disconnector. "L" followed the standard model means that the arrester has been equipped with disconnector. For example, YH5WS-17/50-L means that the arrester YH5WS-17/50 has been with disconnector.

Insulating Mounting Bracket



Installation Method Instruction

1. Arresters with the Voltage grades of 36kV or below shall be installed with insulating mounting bracket. That's to say, the arrester is fixed to the intended installation place with the insulating mounting bracket and the disconnector is installed on the lower connector terminals of the arrester. The earth connection applies weaved annealed copper wire with the length of about 250mm to ensure enough insulation distance when departing from the arrester body. Attention shall be paid that composite casting arrester shall be selected without the general insulation method of metal hoop to avoid effects caused on the radial electric field of the

arrester and cause the hidden dangers of accidents.

2. For plant type arresters of 35-110kV(seat type Installation), the disconnecter shall be connected with high voltage connecting wires by clips. The disconnecter and arrester shall be connected with weaved annealed copper wire(with the length of about 300-600mm and cross-sectional area of 200mm²)

3. For circuit type arresters without gapes of 35-220kV (including protective cable and power plant type suspension installation), the disconnecter shall be installed directly on the lower terminal of the arrester and connected with the high voltage wire with duralumin wire of Ø10. The length of the duralumin wire range from 300 to 900mm according to different voltage grades. The duralumin wire can make effective prevention on the self swinging of connecting wire after the disconnection and avoid new hidden accident dangers.

4. The upper screw and lower dimension of the disconnecter can be adjusted flexibly according to the connector terminal dimension of the arrester and relevant regulations.

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