

XIKAI

Surge Arresters

Effective protection of electrical
networks against overvoltages



Constructing
World Bridge of Power System,
Providing Excellent Products From
XIYA

Key Of Power Electric Professional

- Composite Insulator
- Disconnecting Switch
- SF6 & Vacuum Circuit Breaker
- Surge Arrester
- Whole Set Cabinet
- Fitting&Clamp (Hardware)
- Wall Bushing
- Loadbreak Switch
- Switchgear
- Fuse Cutout
- Cable Accessories
- Vacuum interrupter



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XIKAI

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Metal-oxide Surge Arrester

Metal-oxide Surge Arrester

Metal-oxide Surge Arrester

Application

Protection of medium/ high voltage AC networks against both, multiple atmospheric and switching overvoltages as well as Very Fast Transients (VFT). Suitable for the protection of transformers, transformers in arc furnace applications, cables, generators, parallel to capacitor banks, and railway vehicles. Can be used mechanically as support insulator or as suspension insulator in case of application as line arrester. For indoor and outdoor installation.

Keystone

The metal-oxide surge arrester (MOSA) is the most advanced overvoltage protector in the word. Due to make the varistor of core component mainly adopt MOSA. Compared with the conventional silicone carbide arrester, this prescription of the product improves greatly the Voltage-Current(U-I) characteristic of the metal - oxide varistor and increased through -current capability at over- voltage so as to bring a radical-changes for the characteristic of the MOSA. Under the circumstance of normal operating voltage, the current through the MOSA just on microampere degree. When suffered from overvoltage, the MOSA's excellent non-linear characteristic will make the current through the MOSA increase to several thousand ampere, While the MOSA will be under the circulating state and release overvoltage energy so as to protecting the power transmission equipments against the damage caused by the overvoltage.

Usual service condition

- a) Ambient air temperature within the range of -55°C to +50°C。
- b) Altitude not exceeding 2000m.
- c) Frequency of the A.C. Power supply not less than 48Hz and not exceeding 62Hz.
- d) Power frequency voltage applied continuously between the terminals of the arrester not exceeding its continuous operating voltage.
- e) Maximum wind speed not exceeding 35m/s.
- f) Earthquake intensity not exceeding 7 degrees.

Advantage(XIYA MOSA)

- Low residual voltage
- Long protection distance
- High energy input capacity
- Stable U-I characteristic even after multiple strokes
- Proof against ageing
- Explosion and shatter-resistant design
- Pollution resistant and UV-stable
- Housing resistant to rough handling
- Maintenance free
- Stable against shock and vibration
- High mechanical resistance

Technical Performance

The technical performance of metal-oxide surge arrester is accord with IEC60099-4, IEEE(ANSI)C62.11 and Gb11032.

Metal-oxide Surge Arrester

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Configuration and Anatomy Design of Polymer Housing Metal-oxide Surge Arrester

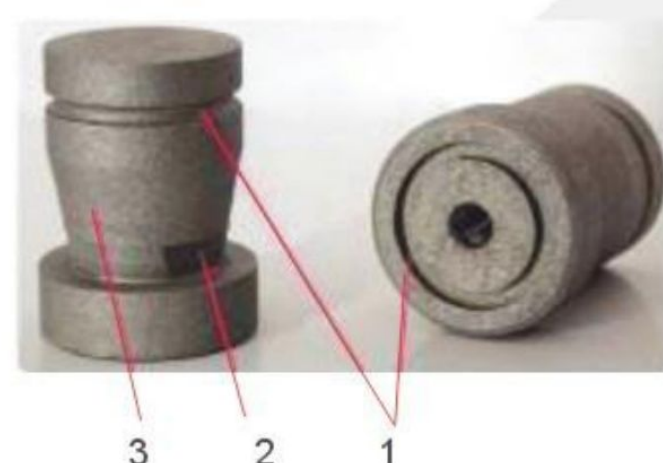
The module core design was developed in the early 80's and has over 15 years service experience, with the housing material changing in the early 90's.

The modular single column polymer housing metal-oxide surge arrester design is available up to 120kV systems.

The essential feature of the internal patented construction is the permanent homogenous resin and fiberglass bond over the complete insulating service of the metal-oxide varistor, the arrester module has an inherently high mechanical strength and provides a uniform dielectric at the insulating surface of the metal-oxide varistor.



Polymer Housing
(Silicone Rubber Housing)
Epoxy-fiberglass Wrap
Metal-oxide Varistor
Aluminum end Block



Professional design to build up resistance of antitorque and sealing
"1" special notching design
"2" hexagonal structure
"3" sand finish treatment

Metal-oxide Surge Arrester

Metal-oxide Surge Arrester Varistor

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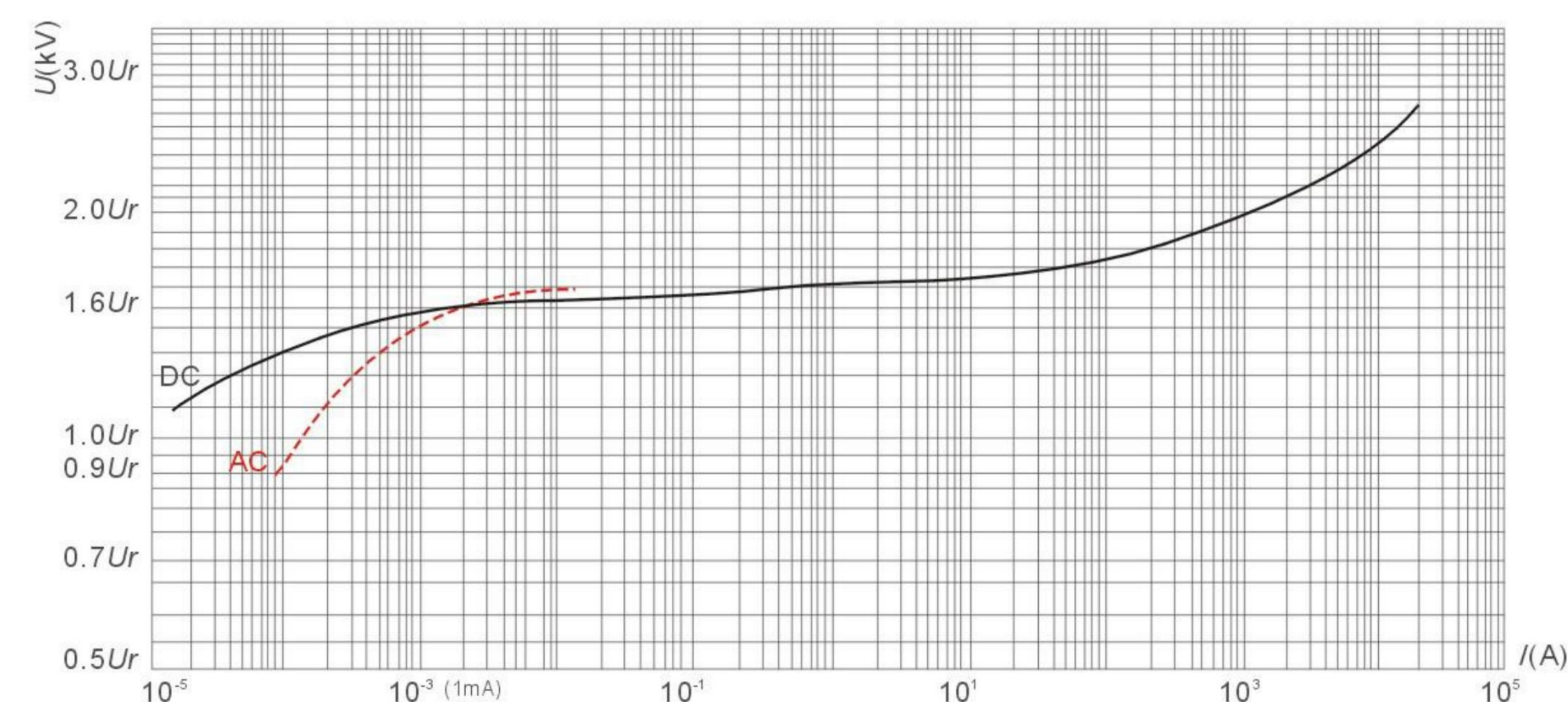
Metal-oxide Varistor

• Application

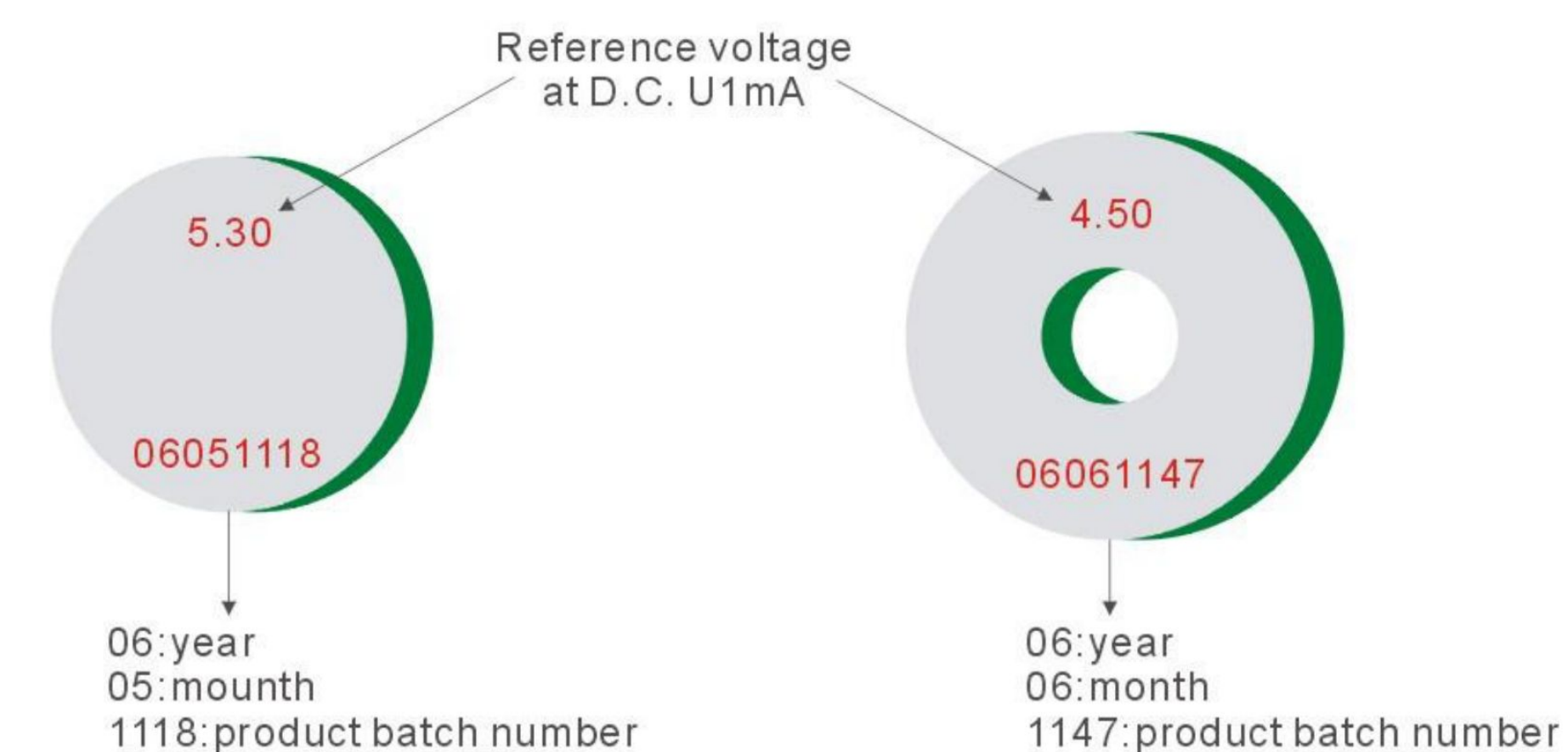
Metal-oxide varistor(MOV) are the core component of an arrester, which are sintering mainly of ZnO powder with addition of Bi₂O₃, Co₂O₃, Cr₂O₃, Sb₂O₃ and other insitoin.

As one of the biggest exporter of MOV, XIYA company is a professional manufacturer of MOV of metal-oxide surge arrester. Adopting the Japanese HITACHI protective technology, we can produce 700 tons ZnO powder (more than 5 million pieces of D3524MOV) by our full automatic production lines. XIYA company has single passed the KEMA certificate for 27 types metal-oxide surge arrester with our own MOV.

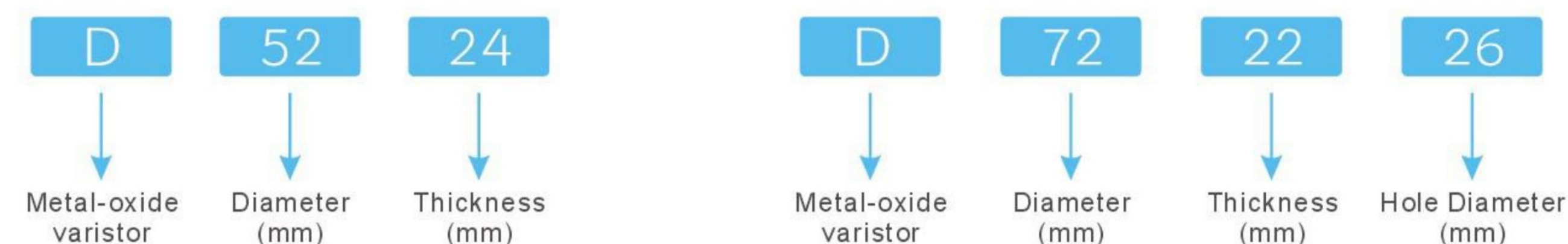
• Typical Voltage-current(U-I) Characteristic Curve of Metal-oxide Varistor



• Indication on The Surface of Metal-oxide Varistor



• Description of Type Designation of Metal-oxide Varistor



Metal-oxide Surge Arrester

Metal-oxide Surge Arrester Varistor

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• I-Main Technocal Parameter of Metal-oxide Varistor

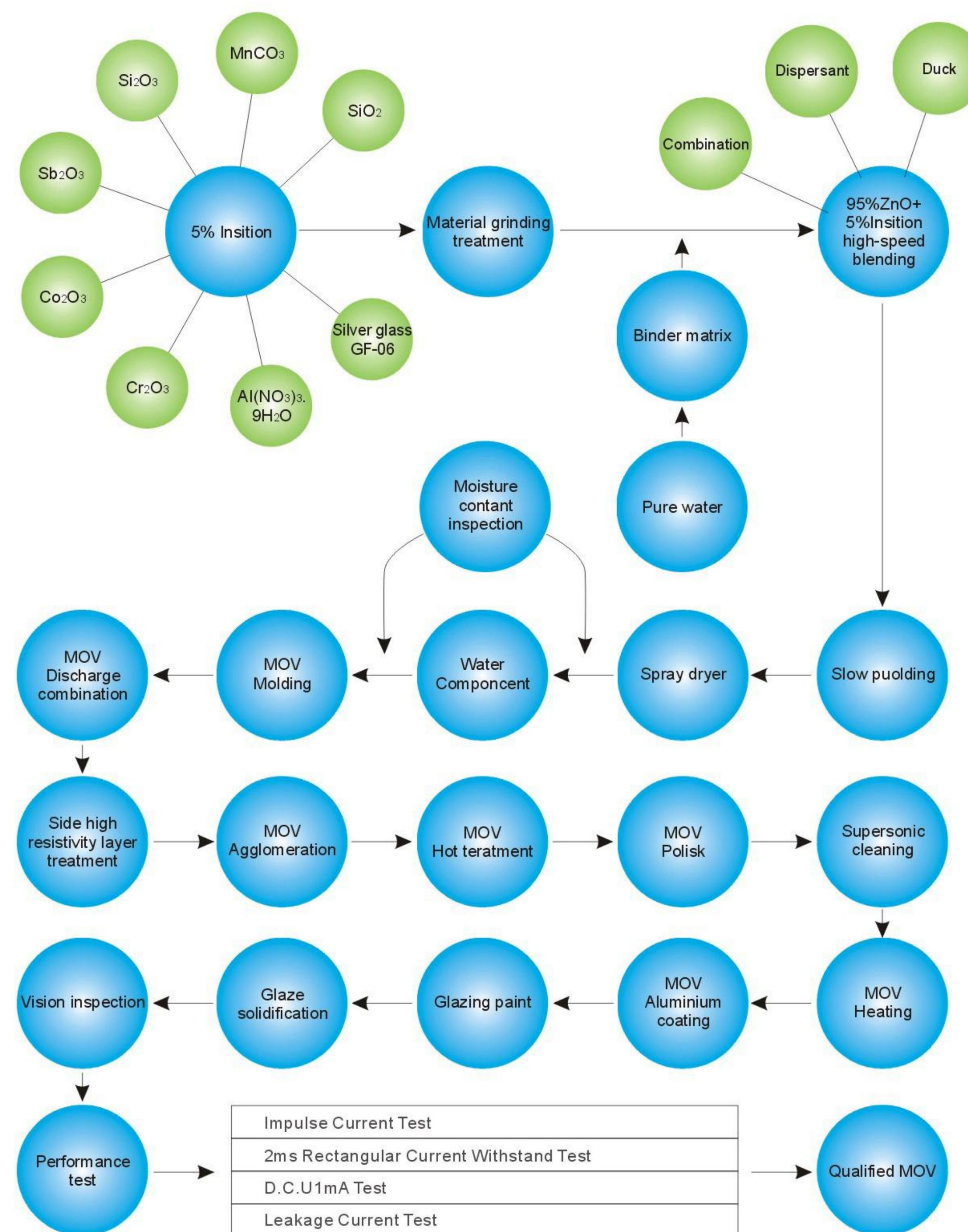
Manufacturer		Xiya Electric Equipment Co., Ltd.																
1	Type	Unit	D3022	D3024	D3522	D3524	D3822	D3824	D4222	D4224	D4924	D4922	D5222	D5224	D5624	D6024	D7222/26	D8522
2	Dimension																	
2.1	-Diameter	± 0.3mm	30.0	30.0	35.0	35.0	38.0	38.0	42.0	42.0	49.0	49.0	52.0	52.0	56.0	60.0	72.0/26.0	85.0
2.2	-Thickness	± 0.5mm	22.5	24.5	22.5	24.5	22.5	24.5	22.5	24.5	24.5	22.5	22.5	24.5	24.5	24.5	22.5	22.5
3	Reference voltage at U1 mA D.C (Uref)	± 0.3kV	4.8	5.3	4.8	5.3	4.8	5.3	4.8	5.3	5.3	4.8	4.8	5.3	5.3	5.3	4.5	4.5
4	Residual voltage at																	
4.1	-Lightning impule 8/20 μs,5kA(Max)	± 0.5kV	8.6	9.5	8.4	9.3	8.3	9.1	8.2	9.0	8.8	8.0	7.9	8.7	8.6	8.5	/	/
4.2	-Lightning impule 8/20 μs,10kA(Max)	± 0.5kV	/	/	/	/	9.0	10.0	8.8	9.8	9.6	8.7	8.6	9.5	9.4	9.3	7.8	7.5
5	Voltage ratio of a non-linear Varistor -U5kA/U1mA D.C. (Max.)		1.80	1.80	1.75	1.75	1.73	1.72	1.71	1.70	1.67	1.67	1.65	1.65	1.63	1.61	/	/
5.2	-U10kA/U1mA D.C. (Max.)		/	/	/	/	1.88	1.88	1.85	1.85	1.82	1.82	1.79	1.79	1.78	1.76	1.74	1.67
6	Non-linear coeffient (10uA-1mA)(Min)		24	24	22	22	21	21	20	20	19	19	18	18	17	16	15	13
7	Long duration current impulse withstand																	
7.1	-2ms rectangular current withstand(≥ 18 times)	A	100	100	150	150	200	200	250	250	400	400	450	450	500	600	800	1000
8	Operating duty																	
8.1	-4/10 μs high current impulse withstand (≥ 2 times)	kA	55	55	65	65	100	100	100	100	100	100	100	100	100	100	100	100
9	Accelerated ageing test(115℃ 1000h)																	
9.1	-Applied voltage ratio (Max.)		85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	90%	90%	90%
9.2	-Kct		≤ 1.2															
10	Package data																	
10.0	Net weight of each unit	g	92	100	119	130	140	153	174	190	263	241	266	290	345	405	432	730
10.2	Each carton package quantity	pcs	165	165	165	165	132	132	132	132	90	90	90	90	45	45	36	20
10.3	Carton dimensions	cm	30.8 × 15.3 × 23				30.8 × 17.8 × 22				32 × 21.5 × 22.5				31 × 19 × 22			

Metal-oxide Surge Arrester

Metal-oxide Surge Arrester Varistor

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Protective Technology Flow Chart of Metal-oxide Varistor



Metal-oxide Surge Arrester

Metal-oxide Surge Arrester Varistor

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Material



Spray dryer



Water Component



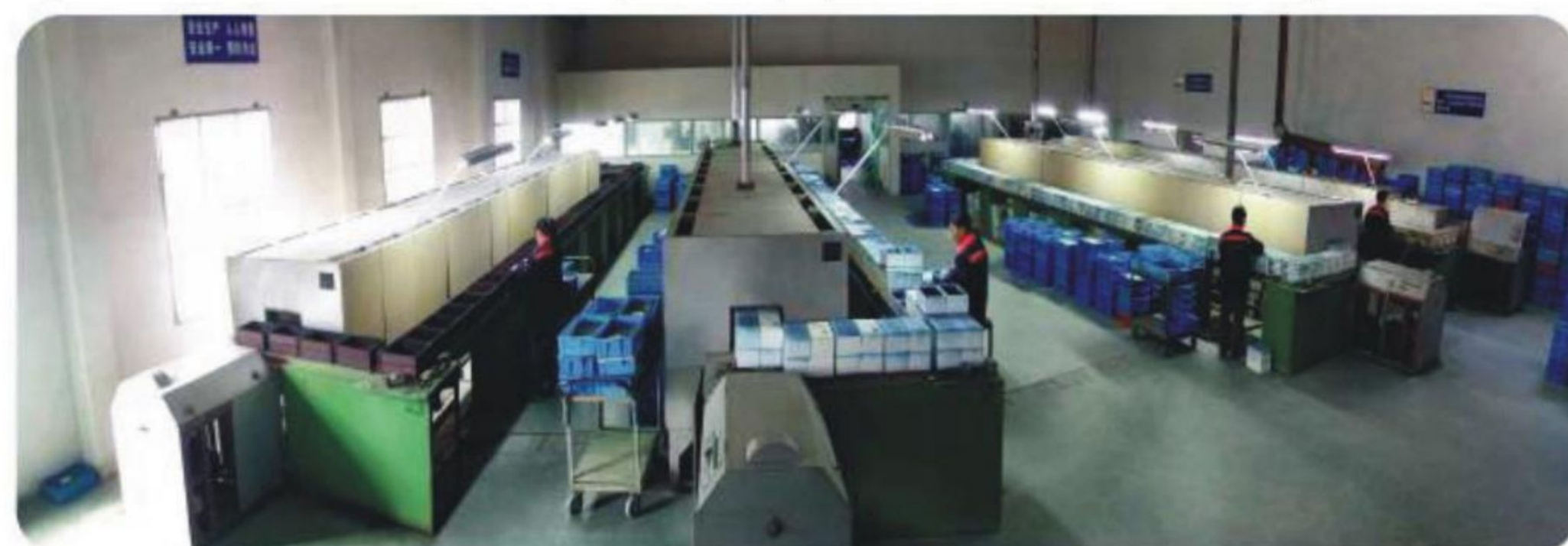
MOV Molding



Side High Resistivity layer treatment



Console systems



MOV Agglomeration
MOV Hot treatment



MOV Polisk



MOV Aluminium coating



Glazing paint



Impulse Current Test
2ms Rectangular Current Withstand Test



D.C.U1mA Test
Leakage Current Test



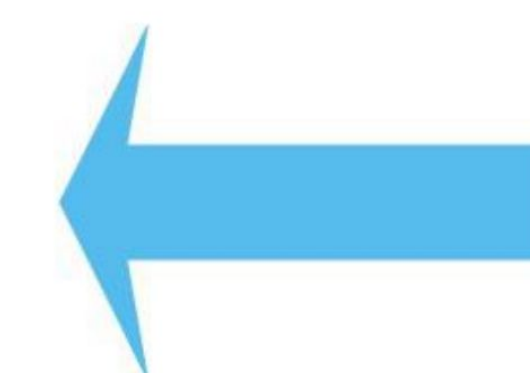
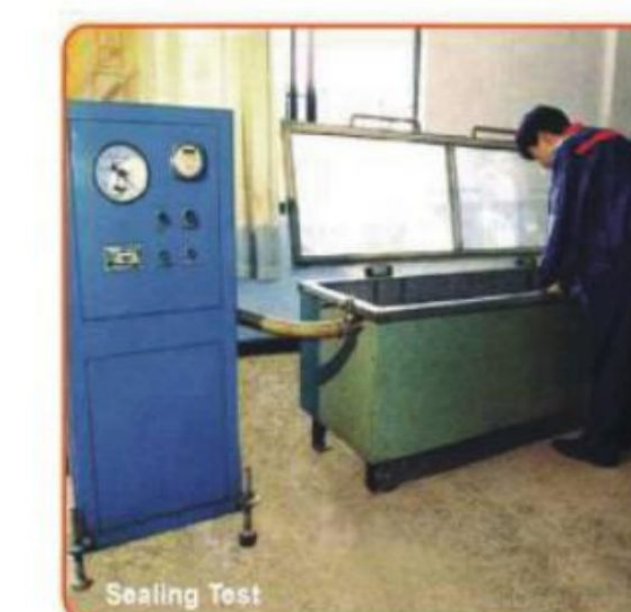
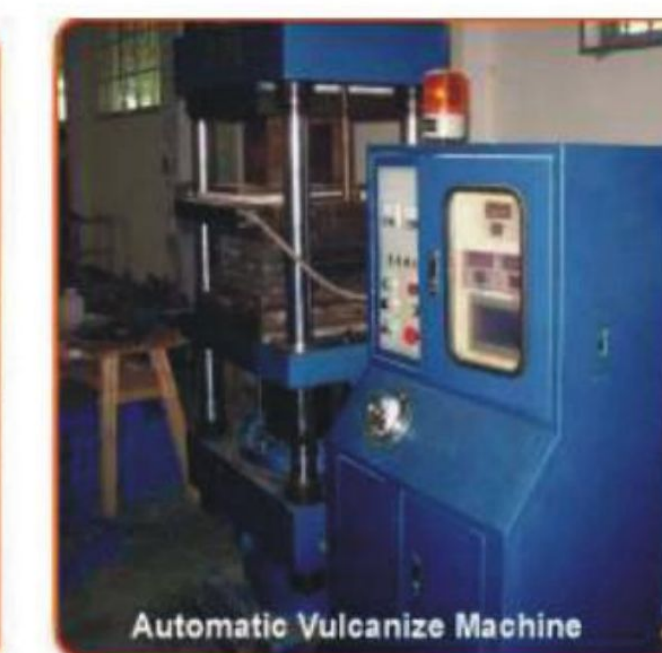
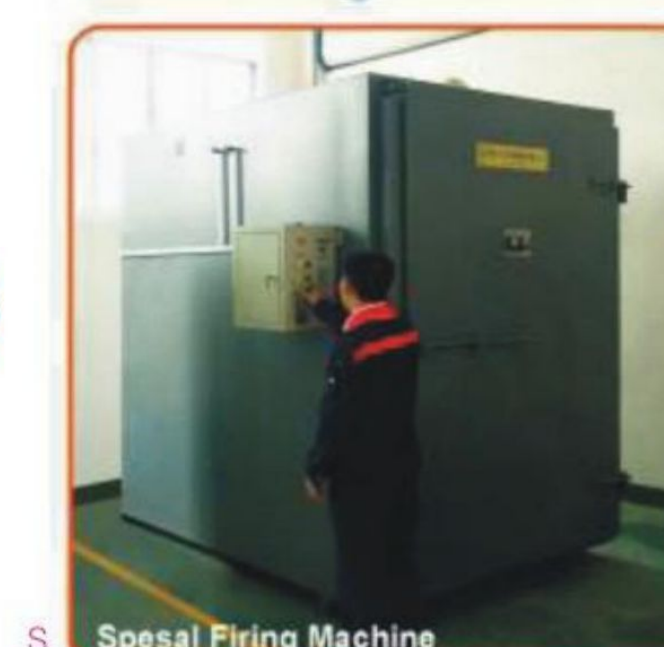
Qualified MOV

Metal-oxide Surge Arrester

Metal-oxide Surge Arrester

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Protective Technology Flow Chart of Polymer Housing Metal-oxide Surge Arrester



Metal-oxide Surge Arrester with Accessory

Metal-oxide Surge Arrester

YH5W,YH10W Series Polymer Housing Surge Arrester

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Metal-oxide Surge Arrester



Fig.B1



Fig.B2



Fig.B3



Fig.B4



Fig.B5



Fig.B6



Fig.B7



Fig.B8



Fig.B9



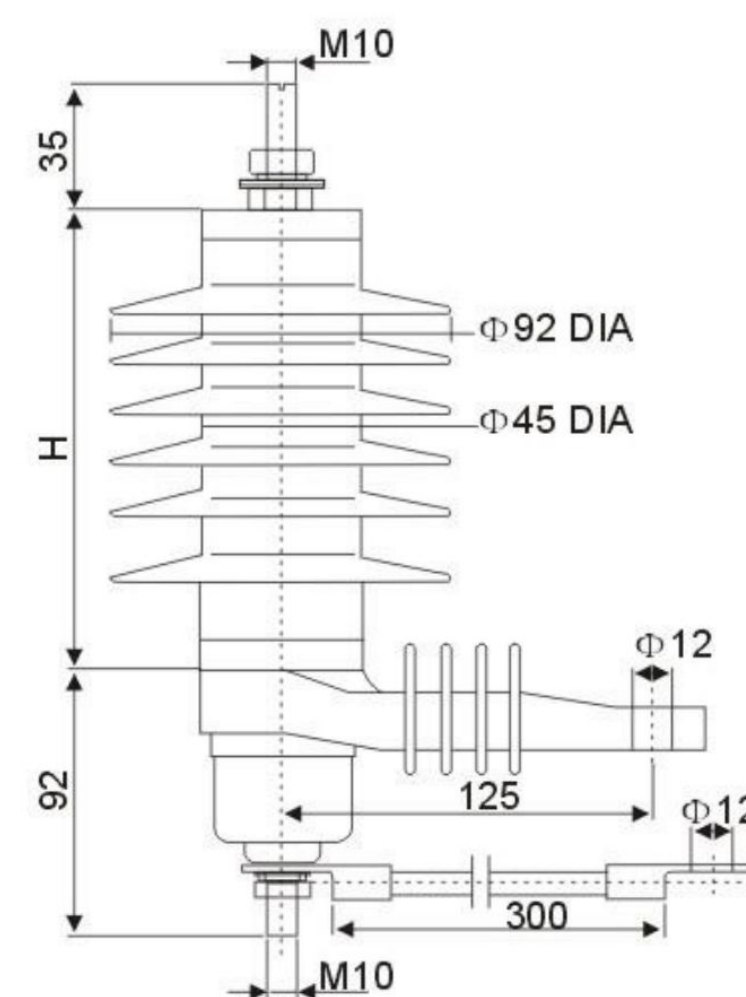
Fig.B10



Fig.B11



Fig.B12



Metal-oxide Surge Arrester

YH5W,YH10W Series Polymer Housing Surge Arrester

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>Table 1-Main Technical Parameter of Polymer Housing
Metal-oxide Surge Arrester

(Nominal Discharge Current: 5kA)

	Manufacturer		Xiya Electric Equipment Co., Ltd.													
	Rated Voltage(Ur)	KV	3	6	9	10	11	12	15	18	21	24	27	30	33	36
	Nominal discharge current(In)	kA	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1	Type		YH5W-3	YH5W-6	YH5W-9	YH5W-10	YH5W-11	YH5W-12	YH5W-15	YH5W-18	YH5W-21	YH5W-24	YH5W-27	YH5W-30	YH5W-33	YH5W-36
2	Maximun continuous operating voltage(Uc)	kV	2.55	5.10	7.65	8.40	9.35	10.20	12.70	15.30	17.00	19.50	22.00	24.40	26.70	29.00
3	Residual voltage at															
3.1	-Lightning impule 8/20 μ s	kV	8.6	17.2	25.8	28.5	31.4	34.4	43.0	47.5	57.0	66.5	76.0	83.7	95.0	104.5
3.2	-Steep current impulse 1/10 μ s	kV	9.9	19.8	29.7	32.8	36.1	39.6	49.5	54.6	65.5	76.4	87.4	96.2	109.2	125.2
3.3	-Switching impulse 30/60 μ s	kV	7.3	14.6	21.9	24.2	26.7	29.2	36.5	40.3	48.4	56.5	64.6	71.1	80.7	88.8
4	Long duration current impulse withstand															
4.1	-2ms rectangular current withstand	A	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	Operating duty															
5.1	-4/10 μ s high current impulse withstand	kA	55	55	55	55	55	55	55	55	55	55	55	55	55	55
6	Housing insulation withstand															
6.1	-Lightning impulse	kV	40	60	65	75	85	95	105	120	125	135	155	170	185	190
6.2	-Power frequency. (Wet)	kV	20	25	30	30	40	40	50	55	58	60	60	70	75	85
7	Partial discharge	pC	< 10													
8	Creepage distance	mm	169	235	301	301	367	367	433	499	565	631	697	763	829	900
9	Creepage distance/ rated voltage ratio	mm/kV	56.0	39.0	33.4	30.1	33.3	30.5	28.8	27.7	26.9	26.3	25.8	25.4	25.1	25.0
10	Mechanical section length(Drawing "H")	mm	110	135	160	160	185	185	210	235	260	285	310	335	360	385
11	Shed number	PCS	2	3	4	4	5	5	6	7	8	9	10	11	12	13
12	Mechanical strength															
12.1	-Torsional	Nm	60	60	60	60	60	60	60	60	60	60	60	60	60	60
12.2	-Cantilever	N	147	147	147	147	147	147	147	147	147	147	147	147	147	147
13	Package data															
13.1	-Net weight of each unit	Kg	1.03	1.17	1.33	1.35	1.48	1.48	1.64	1.76	1.95	2.11	2.29	2.38	2.56	2.67
13.2	-Dimensions (6PCS/CTN)	cm	33x32x23	36x32x23	38x32x23	38x32x23	40x32x23	40x32x23	43x32x23	45x32x23	48x32x23	50x32x23	53x32x23	55x32x23	58x32x23	60x32x23
14	Figure No.		Fig.B1	Fig.B2	Fig.B3	Fig.B3	Fig.B4	Fig.B4	Fig.B5	Fig.B6	Fig.B7	Fig.B8	Fig.B9	Fig.B10	Fig.B11	Fig.B12

Metal-oxide Surge Arrester

YH5W,YH10W Series Polymer Housing Surge Arrester

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Fig.B13

Fig.B14

Fig.B15

Fig.B16

Fig.B17



Fig.B18

Fig.B19

Fig.B20

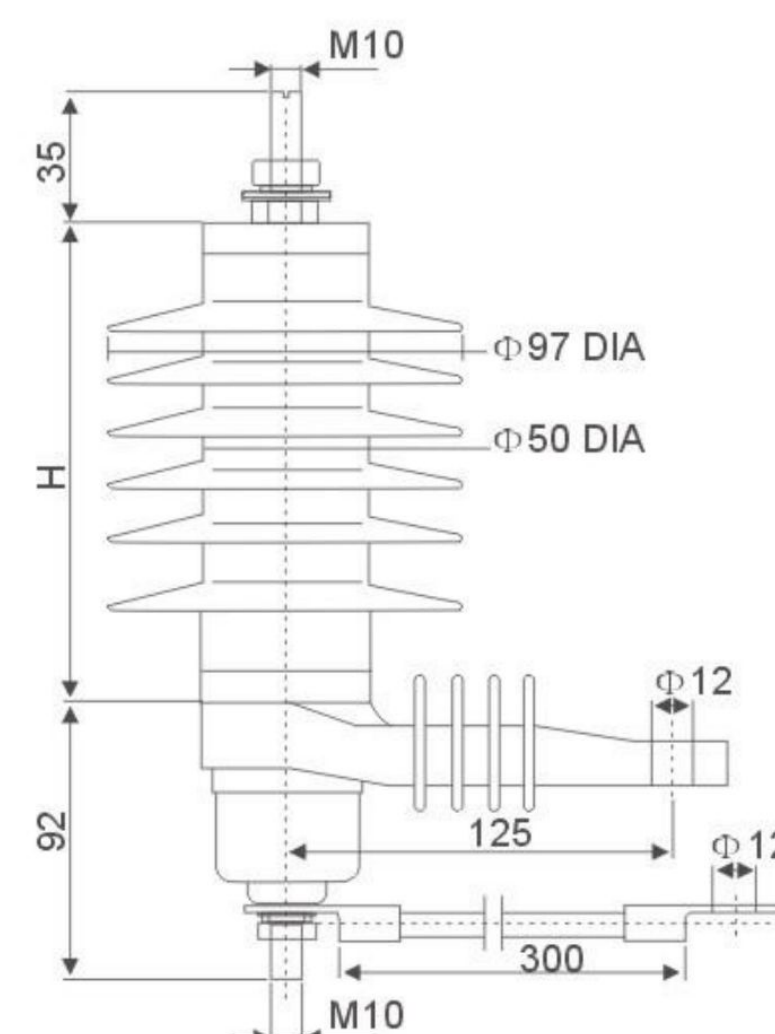
Fig.B21



Fig.B22

Fig.B23

Fig.B24



Metal-oxide Surge Arrester

YH5W,YH10W Series Polymer Housing Surge Arrester

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Table 2-Main Technical Parameter of Polymer Housing
Metal-oxide Surge Arrester

(Nominal Discharge Current: 5kA)

	Manufacturer		Xiya Electric Equipment Co., Ltd.													
	Rated Voltage(Ur)	KV	3	6	9	10	11	12	15	18	21	24	27	30	33	36
	Nominal discharge current(In)	kA	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1	Type		YH5W-3	YH5W-6	YH5W-9	YH5W-10	YH5W-11	YH5W-12	YH5W-15	YH5W-18	YH5W-21	YH5W-24	YH5W-27	YH5W-30	YH5W-33	YH5W-36
2	Maximum continuous operating voltage(Uc)	kV	2.55	5.10	7.65	8.40	9.35	10.20	12.70	15.30	17.00	19.50	22.00	24.40	26.70	29.00
3	Residual voltage at															
3.1	-Lightning impulse 8/20 μ s	kV	8.4	16.8	25.2	27.9	30.7	33.6	42.0	46.5	55.8	65.1	74.4	83.7	93.0	102.0
3.2	-Steep current impulse 1/10 μ s	kV	9.6	19.2	28.8	32.0	35.3	38.6	48.0	53.5	64.1	74.8	85.5	96.2	106.9	117.6
3.3	-Switching impulse 30/60 μ s	kV	7.1	14.2	21.3	23.7	26.0	28.4	35.5	39.5	47.4	55.3	63.2	71.1	79.0	87.7
4	Long duration current impulse withstand															
4.1	-2ms rectangular current withstand	A	150	150	150	150	150	150	150	150	150	150	150	150	150	150
5	Operating duty															
5.1	-4/10 μ s high current impulse withstand	kA	65	65	65	65	65	65	65	65	65	65	65	65	65	65
6	Housing insulation withstand															
6.1	-Lightning impulse	kV	40	60	65	75	85	95	105	120	125	135	155	170	185	190
6.2	-Power frequency. (Wet)	kV	20	25	30	30	40	40	50	55	58	60	65	70	75	85
7	Partial discharge	pC	<10													
8	Creepage distance	mm	140	205	270	270	335	335	400	465	530	600	675	750	855	920
9	Creepage distance/ rated voltage ratio	mm/kV	46.7	34.2	30.0	27.0	30.0	27.9	26.6	25.8	25.2	25.0	25.0	25.0	25.9	25.5
10	Mechanical section length(Drawing "H")	mm	85	110	135	135	160	160	185	210	235	260	285	310	360	385
11	Shed number	PCS	2	3	4	4	5	5	6	7	8	9	10	11	13	14
12	Mechanical strength															
12.1	-Torsional	Nm	60	60	60	60	60	60	60	60	60	60	60	60	60	60
12.2	-Cantilever	N	147	147	147	147	147	147	147	147	147	147	147	147	147	147
13	Package data															
13.1	-Net weight of each unit	Kg	1.09	1.28	1.47	1.47	1.66	1.66	1.83	2.03	2.23	2.43	2.59	2.82	3.15	3.35
13.2	-Dimensions (6PCS/CTN)	cm	31x32x23	33x32x23	36x32x23	36x32x23	38x32x23	38x32x23	41x32x23	43x32x23	45x32x23	48x32x23	51x32x23	53x32x23	58x32x23	30x32x23
14	Figure No.		Fig.B13	Fig.B14	Fig.B15	Fig.B15	Fig.B16	Fig.B16	Fig.B17	Fig.B18	Fig.B19	Fig.B20	Fig.B21	Fig.B22	Fig.B23	Fig.B24

Metal-oxide Surge Arrester

YH5W,YH10W Series Polymer Housing Surge Arrester

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Fig.B25

Fig.B26

Fig.B27

Fig.B28

Fig.B29



Fig.B30

Fig.B31

Fig.B32

Fig.B33



Fig.B34

Fig.B35

Fig.B36

Metal-oxide Surge Arrester

YH5W,YH10W Series Polymer Housing Surge Arrester

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Table 3-Main Technical Parameter of Polymer Housing Metal-oxide Surge Arrester

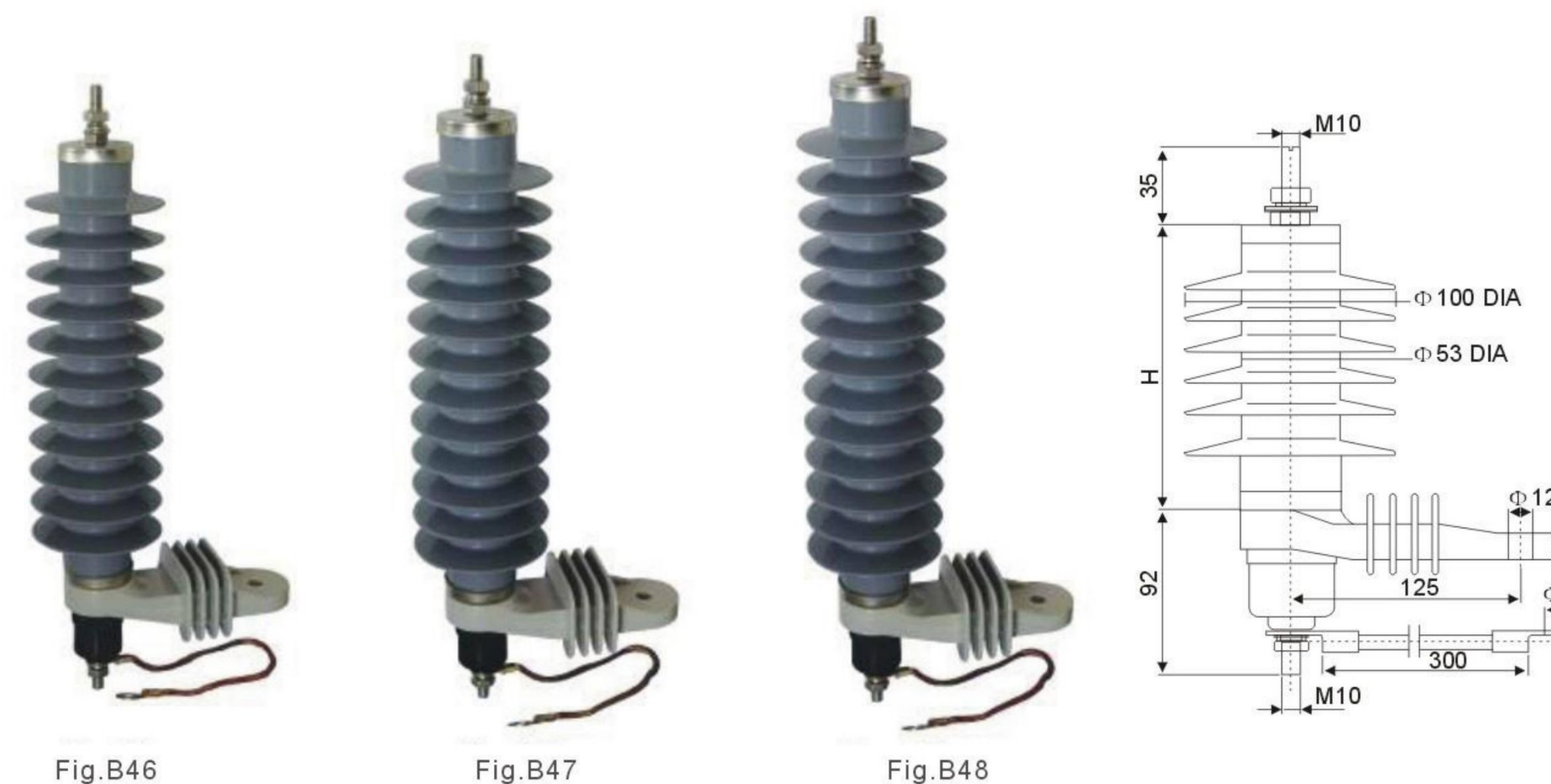
(Nominal Discharge Current: 5kA)

	Manufacturer		Xiya Electric Equipment Co., Ltd.													
	Rated Voltage(Ur)	KV	3	6	9	10	11	12	15	18	21	24	27	30	33	36
	Nominal discharge current(In)	kA	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1	Type		YH5W-3	YH5W-6	YH5W-9	YH5W-10	YH5W-11	YH5W-12	YH5W-15	YH5W-18	YH5W-21	YH5W-24	YH5W-27	YH5W-30	YH5W-33	YH5W-36
2	Maximum continuous operating voltage(Uc)	kV	2.55	5.10	7.65	8.40	9.35	10.20	12.70	15.30	17.00	19.50	22.00	24.40	26.70	29.00
3	Residual voltage at															
3.1	-Lightning impulse 8/20 μ s	kV	8.2	16.4	24.6	27.0	29.9	32.8	41.0	45.0	54.0	63.0	72.0	81.0	90.0	99.0
3.2	-Steep current impulse 1/10 μ s	kV	9.4	18.8	28.2	30.9	34.3	37.6	47.0	51.5	61.8	72.1	82.4	92.7	103.0	113.3
3.3	-Switching impulse 30/60 μ s	kV	7.0	14.0	21.0	22.8	25.4	28.0	35.0	38.0	45.6	53.2	60.8	68.4	76.0	83.6
4	Long duration current impulse withstand															
4.1	-2ms rectangular current withstand	A	250	250	250	250	250	250	250	250	250	250	250	250	250	250
5	Operating duty															
5.1	-4/10 μ s high current impulse withstand	kA	65	65	65	65	65	65	65	65	65	65	65	65	65	65
6	Housing insulation withstand															
6.1	-Lightning impulse	kV	40	60	65	75	85	95	105	120	125	135	155	170	185	190
6.2	-Power frequency. (Wet)	kV	20	25	30	30	40	40	50	55	58	60	65	70	75	85
7	Partial discharge	pC	<10													
8	Creepage distance	mm	120	240	369	369	432	432	510	576	693	780	837	975	1122	1188
9	Creepage distance/ rated voltage ratio	mm/kV	40.0	40.0	41.0	36.9	39.3	36.0	34.0	32.0	33.0	32.5	31.0	32.5	34.0	33.0
10	Mechanical section length(Drawing "H")	mm	90	113	157	157	175	175	198	218	259	281	312	343	386	406
11	Shed number	PCS	1	3	5	5	6	6	7	8	10	11	12	14	16	17
12	Mechanical strength															
12.1	-Torsional	Nm	60	60	60	60	60	60	60	60	60	60	60	60	60	60
12.2	-Cantilever	N	147	147	147	147	147	147	147	147	147	147	147	147	147	147
13	Package data															
13.1	-Net weight of each unit	Kg	1.31	1.63	2.09	2.09	2.33	2.33	2.64	2.90	3.34	3.73	3.90	4.34	4.78	5.01
13.2	-Dimensions (6PCS/CTN)	cm	31x41x29	33x41x29	37x41x29	37x41x29	39x41x29	39x41x29	41x41x29	43x41x29	48x41x29	50x41x29	53x41x29	56x41x29	60x41x29	62x41x29
14	Figure No.		Fig.B25	Fig.B26	Fig.B27	Fig.B27	Fig.B28	Fig.B28	Fig.B29	Fig.B30	Fig.B31	Fig.B32	Fig.B33	Fig.B34	Fig.B35	Fig.B36

Metal-oxide Surge Arrester

YH5W,YH10W Series Polymer Housing Surge Arrester

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Metal-oxide Surge Arrester

YH5W,YH10W Series Polymer Housing Surge Arrester

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Table 4-Main Technical Parameter of Polymer Housing
Metal-oxide Surge Arrester

Nominal Discharge Current:10kA

	Manufacturer		Xiya Electric Equipment Co., Ltd.													
	Rated Voltage(Ur)	KV	3	6	9	10	11	12	15	18	21	24	27	30	33	36
	Nominal discharge current(In)	kA	10	10	10	10	10	10	10	10	10	10	10	10	10	10
1	Type		YH10W-3	YH10W-6	YH10W-9	YH10W-10	YH10W-11	YH10W-12	YH10W-15	YH10W-18	YH10W-21	YH10W-24	YH10W-27	YH10W-30	YH10W-33	YH10W-36
2	Maximum continuous operating voltage(Uc)	kV	2.55	5.10	7.65	8.40	9.35	10.20	12.70	15.30	17.0	19.50	22.00	24.40	26.70	29.00
3	Residual voltage at															
3.1	-Lightning impulse 8/20 μ s	kV	9.0	18.0	27.0	30.0	33.0	36.0	45.0	50.0	60.0	70.0	80.0	90.0	99.0	108.0
3.2	-Steep current impulse 1/10 μ s	kV	10.3	20.6	30.9	34.5	37.8	41.2	51.5	57.5	69.0	80.5	92.0	103.5	113.8	124.2
3.3	-Switching impulse 30/60 μ s	kV	7.6	15.2	22.8	25.5	25.6	30.4	38.0	42.5	51.0	59.5	68.0	76.5	84.1	91.8
3.4	-Switching surge (Peak current)	A	500	500	500	500	500	500	500	500	500	500	500	500	500	500
4	Long duration current impulse withstand															
4.1	-2ms rectangular current withstand	A	200	200	200	200	200	200	200	200	200	200	200	200	200	200
4.2	-Line discharge class(10kA & up)		1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Operating duty															
5.1	-4/10 μ s high current impulse withstand	kA	100	100	100	100	100	100	100	100	100	100	100	100	100	100
6	Housing insulation withstand															
6.1	-Lightning impulse	kV	40	60	65	75	85	95	105	120	125	135	155	170	185	190
6.2	-Power frequency. (Wet)	kV	20	25	30	30	40	40	50	55	58	60	65	70	75	85
7	Partial discharge	pC	<10													
8	Creepage distance	mm	164	230	296	296	362	362	428	494	560	626	692	758	825	900
9	Creepage distance/ rated voltage ratio	mm/kV	54.0	38.0	32.8	29.6	32.9	30.0	28.5	27.4	26.7	26.0	25.6	25.2	25.1	25.0
10	Mechanical section length(Drawing "H")	mm	110	135	160	160	185	185	210	235	260	285	310	335	360	385
11	Shed number	pcs	2	3	4	4	5	5	6	7	8	9	10	11	12	13
12	Mechanical strength															
12.1	-Torsional	Nm	60	60	60	60	60	60	60	60	60	60	60	60	60	60
12.2	-Cantilever	N	147	147	147	147	147	147	147	147	147	147	147	147	147	147
13	Package data															
13.1	-Net weight of each unit	Kg	1.13	1.32	1.51	1.51	1.75	1.75	2.01	2.24	2.51	2.69	2.95	3.17	3.38	3.56
13.2	-Dimensions (6PCS/CTN)	cm	33x32x23	36x32x23	38x32x23	38x32x23	40x32x23	40x32x23	43x32x23	45x32x23	48x32x23	50x32x23	53x32x23	55x32x23	58x32x23	60x32x23
14	Figure No.		Fig.B37	Fig.B38	Fig.B39	Fig.B39	Fig.B40	Fig.B41	Fig.B42	Fig.B43	Fig.B44	Fig.B45	Fig.B46	Fig.B47	Fig.B48	Fig.B49

Metal-oxide Surge Arrester

YH5W,YH10W Series Polymer Housing Surge Arrester

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Fig.B49

Fig.B50

Fig.B51

Fig.B52

Fig.B53



Fig.B54

Fig.B55

Fig.B56

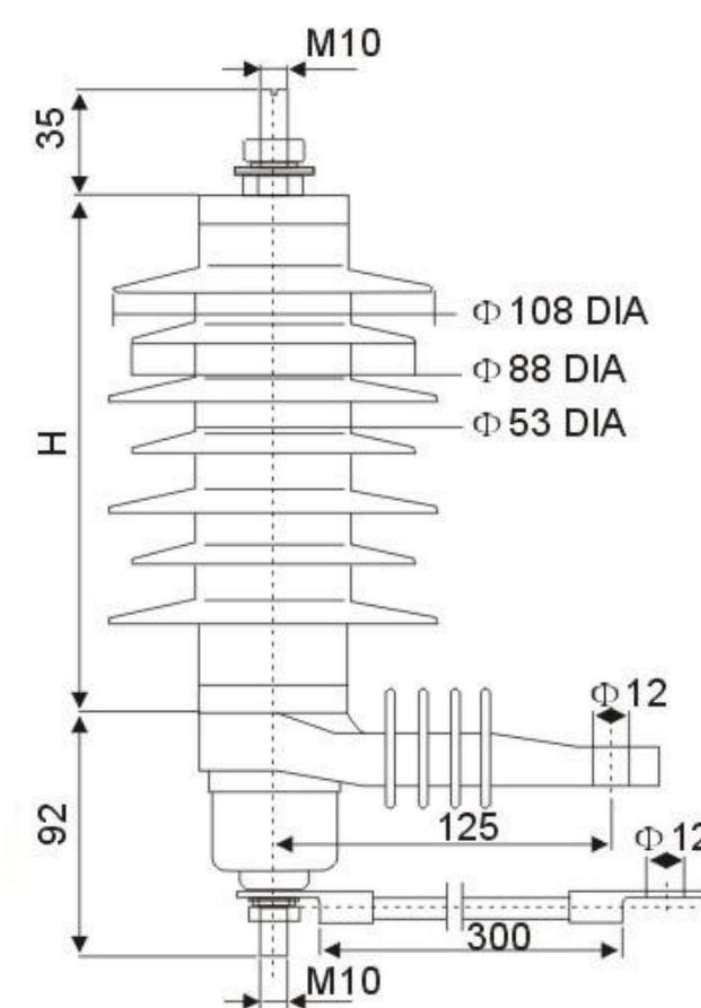
Fig.B57



Fig.B58

Fig.B59

Fig.B60



Metal-oxide Surge Arrester

YH5W,YH10W Series Polymer Housing Surge Arrester

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Table 5-Main Technical Parameter of Polymer Housing
Metal-oxide Surge Arrester

Nominal Discharge Current: 10kA

	Manufacturer		Xiya Electric Equipment Co., Ltd.													
	Rated Voltage(Ur)	KV	3	6	9	10	11	12	15	18	21	24	27	30	33	36
	Nominal discharge current(In)	kA	10	10	10	10	10	10	10	10	10	10	10	10	10	10
1	Type		YH10W-3	YH10W-6	YH10W-9	YH10W-10	YH10W-11	YH10W-12	YH10W-15	YH10W-18	YH10W-21	YH10W-24	YH10W-27	YH10W-30	YH10W-33	YH10W-36
2	Maximum continuous operating voltage(Uc)	kV	2.55	5.10	7.65	8.40	9.35	10.20	12.70	15.30	17.00	19.50	22.00	24.40	26.70	29.00
3	Residual voltage at															
3.1	-Lightning impulse 8/20 μs	kV	8.8	17.6	26.4	29.4	32.3	35.2	44.0	49.0	58.8	68.6	78.4	88.2	98.0	107.8
3.2	-Steep current impulse 1/10 μs	kV	10.1	20.2	30.3	33.6	37.0	40.4	50.5	56.0	67.2	78.4	89.6	100.8	112.0	123.2
3.3	-Switching impulse 30/60 μs	kV	7.4	14.8	22.2	24.9	25.6	29.6	37.0	41.5	49.8	58.1	66.4	74.7	83.0	91.3
3.4	-Switching surge (Peak current)	A	500	500	500	500	500	500	500	500	500	500	500	500	500	500
4	Long duration current impulse withstand															
4.1	-2ms rectangular current withstand	A	250	250	250	250	250	250	250	250	250	250	250	250	250	250
4.2	-Line discharge class(10kA & up)		1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Operating duty															
5.1	-4/10 μs high current impulse withstand	kA	100	100	100	100	100	100	100	100	100	100	100	100	100	100
6	Housing insulation withstand															
6.1	-Lightning impulse	kV	40	60	65	75	85	95	105	120	125	135	155	170	185	190
6.2	-Power frequency. (Wet)	kV	20	25	30	30	40	40	50	55	58	60	65	70	75	85
7	Partial discharge	pC	< 10													
8	Creepage distance	mm	146	211	276	276	341	341	406	471	536	601	675	750	861	926
9	Creepage distance/ rated voltage ratio	mm/kV	48.0	35.0	30.0	27.6	31.0	28.4	27.0	26.0	25.5	25.0	25.0	25.0	26.0	25.7
10	Mechanical section length(Drawing "H")	mm	85	110	135	135	160	160	185	210	235	260	285	310	360	385
11	Shed number	pcs	2	3	4	4	5	5	6	7	8	9	10	11	12	13
12	Mechanical strength															
12.1	-Torsional	Nm	60	60	60	60	60	60	60	60	60	60	60	60	60	60
12.2	-Cantilever	N	147	147	147	147	147	147	147	147	147	147	147	147	147	147
13	Package data															
13.1	-Net weight of each unit	Kg	1.19	1.52	1.69	1.69	1.99	1.99	2.32	2.63	2.93	3.18	3.33	3.68	4.00	4.27
13.2	-Dimensions (6PCS/CTN)	cm	31x32x23	33x32x23	36x32x23	36x32x23	38x32x23	38x32x23	41x32x23	43x32x23	45x32x23	48x32x23	51x32x23	53x32x23	58x32x23	60x32x23
14	Figure No.		Fig.B49	Fig.B50	Fig.B51	Fig.B51	Fig.B52	Fig.B52	Fig.B53	Fig.B54	Fig.B55	Fig.B56	Fig.B57	Fig.B58	Fig.B59	Fig.B60

Metal-oxide Surge Arrester

Y5W,Y5C,Y10W,Y10C Series Porcelain Housing Surge Arrester

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Y5W,Y5C,Y10W,Y10C Series Porcelain Housing Metal-oxide Surge Arrester

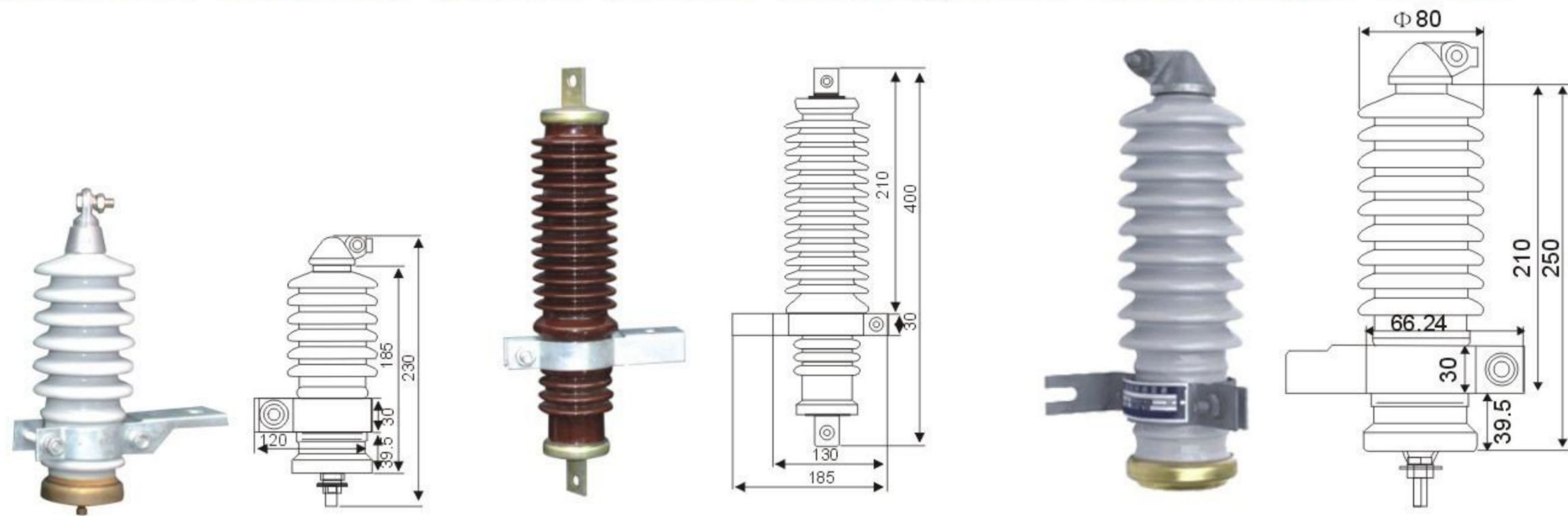


Fig.B61 Ur:3~6kV
Creepage distance:280mm

Fig.B62 Ur:9~12kV
Creepage distance:460mm

Fig.B63 Ur:9~12kV
Creepage distance:350mm



Fig.B64 Ur:9~12kV
Creepage distance:340mm

Fig.B65 Ur:12~15kV
Creepage distance:490mm

Fig.B66 Ur:15~21kV
Creepage distance:655mm



Fig.B67 Ur:18~24kV
Creepage distance:570mm

Fig.B68 Ur:24~27kV
Creepage distance:675mm

Fig.B69 Ur:27~36kV
Creepage distance:900mm

Metal-oxide Surge Arrester

Y5W,Y5C,Y10W,Y10C Series Porcelain Housing Surge Arrester

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Table 6-Main Technical Parameter of Porcelain Housing
Metal-oxide Surge Arrester with Series Gaps

Nominal Discharge Current:5kA

	Manufacturer	Xiya Electric Equipment Co., Ltd.													
	Rated Voltage	KV	3	6	9	10	12	15	18	21	24	27	30	33	36
	Nominal discharge current	kA	5	5	5	5	5	5	5	5	5	5	5	5	5
1	Type		Y5C-3	Y5C-6	Y5C-9	Y5C-10	Y5C-12	Y5C-15	Y5C-18	Y5C-21	Y5C-24	Y5C-27	Y5C-30	Y5C-33	Y5C-36
2	continuous operating voltage	kV	2.55	5.10	7.65	8.40	10.20	12.70	15.30	17.00	19.50	22.00	24.40	26.70	29.00
3	Residual voltage at Lightning impule 8/20 μ s	kV	9	18	27	30	36	45	54	63	72	81	90	99	108
4	Power frequency discharge voltage ≥	kV	5.5	11	16	18	22	26	33	36	40	45	50	56	61
5	1.2/50 μ s Impulse discharge voltage ≤	kV	9	18	27	30	36	45	54	63	72	81	90	99	108
6	2ms rectangular current withstand	A	100/150	100/150	100/150	100/150	100/150	100/150	100/150	100/150	100/150	100/150	100/150	100/150	100/150
7	4/10 μ s high current impulse withstand	kA	65	65	65	65	65	65	65	65	65	65	65	65	65
8	Housing insulation level														
8.1	-Power frequency,wet	kV	40	60	65	75	95	105	120	125	135	155	170	185	190
8.2	-Lightning impulse	kV	100	110	110	140	140	140	160	170	180	190	200	220	240
9	Creepage distance/ rated voltage ratio	mm/kV	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25

Table 7-Main Technical Parameter of Porcelain Housing
Metal-oxide Surge Arrester with Series Gaps

Nominal Discharge Current:10kA

	Manufacturer	Xiya Electric Equipment Co., Ltd.													
	Rated Voltage	KV	3	6	9	10	12	15	18	21	24	27	30	33	36
	Nominal discharge current	kA	10	10	10	10	10	10	10	10	10	10	10	10	10
1	Type		Y10C-3	Y10C-6	Y10C-9	Y10C-10	Y10C-12	Y10C-15	Y10C-18	Y10C-21	Y10C-24	Y10C-27	Y10C-30	Y10C-33	Y10C-36
2	continuous operating voltage	kV	2.55	5.10	7.65	8.40	10.20	12.70	15.30	17.00	19.50	22.00	24.40	26.70	29.00
3	Residual voltage at Lightning impule 8/20 μ s	kV	9	18	27	30	36	45	54	63	72	81	90	99	108
4	Power frequency discharge voltage ≥	kV	5.5	11	16	18	22	26	33	36	40	45	50	56	61
5	1.2/50 μ s Impulse discharge voltage ≤	kV	9	18	27	30	36	45	54	63	72	81	90	99	108
6	2ms rectangular current withstand	A	200/250	200/250	200/250	200/250	200/250	100/150	200/250	200/250	200/250	200/250	200/250	200/250	200/250
7	4/10 μ s high current impulse withstand	kA	100	100	100	100	100	100	100	100	100	100	100	100	100
8	Housing insulation level														
8.1	-Power frequency,wet	kV	40	60	65	75	95	105	120	125	135	155	170	185	190
8.2	-Lightning impulse	kV	100	110	110	140	140	140	160	170	180	190	200	220	240
9	Creepage distance/ rated voltage ratio	mm/kV	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25

Notes:

Porcelain housing metal-oxide surge arrester without gaps technical performance see about ("Table 1~3" of Nominal Discharge current 5kA,"Table 4~6 " of Nominal Discharge current 10kA),Without "H".

Metal-oxide Surge Arrester

Station Series Metal-oxide Surge Arrester

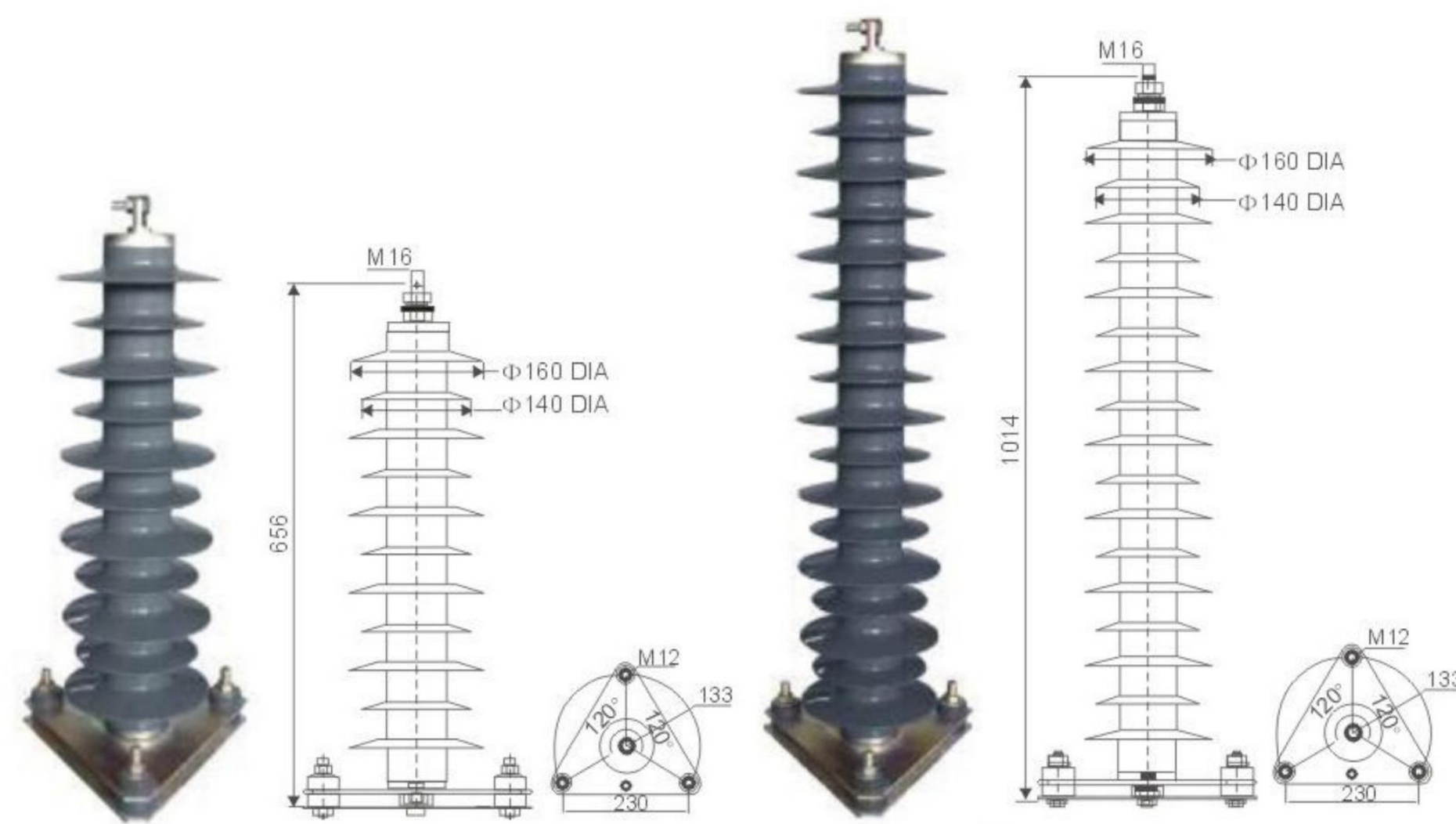
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Fig.B70 Ur:39-54kV

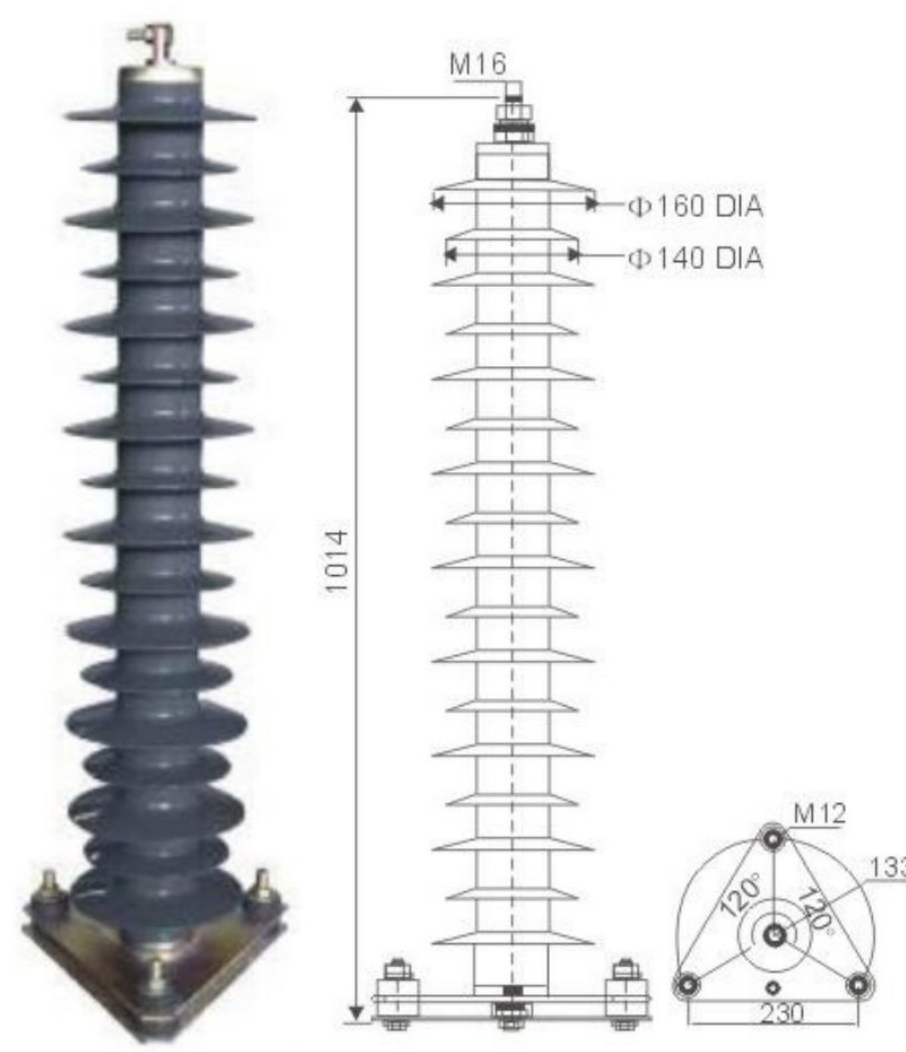


Fig.B72 Ur:60-84kV



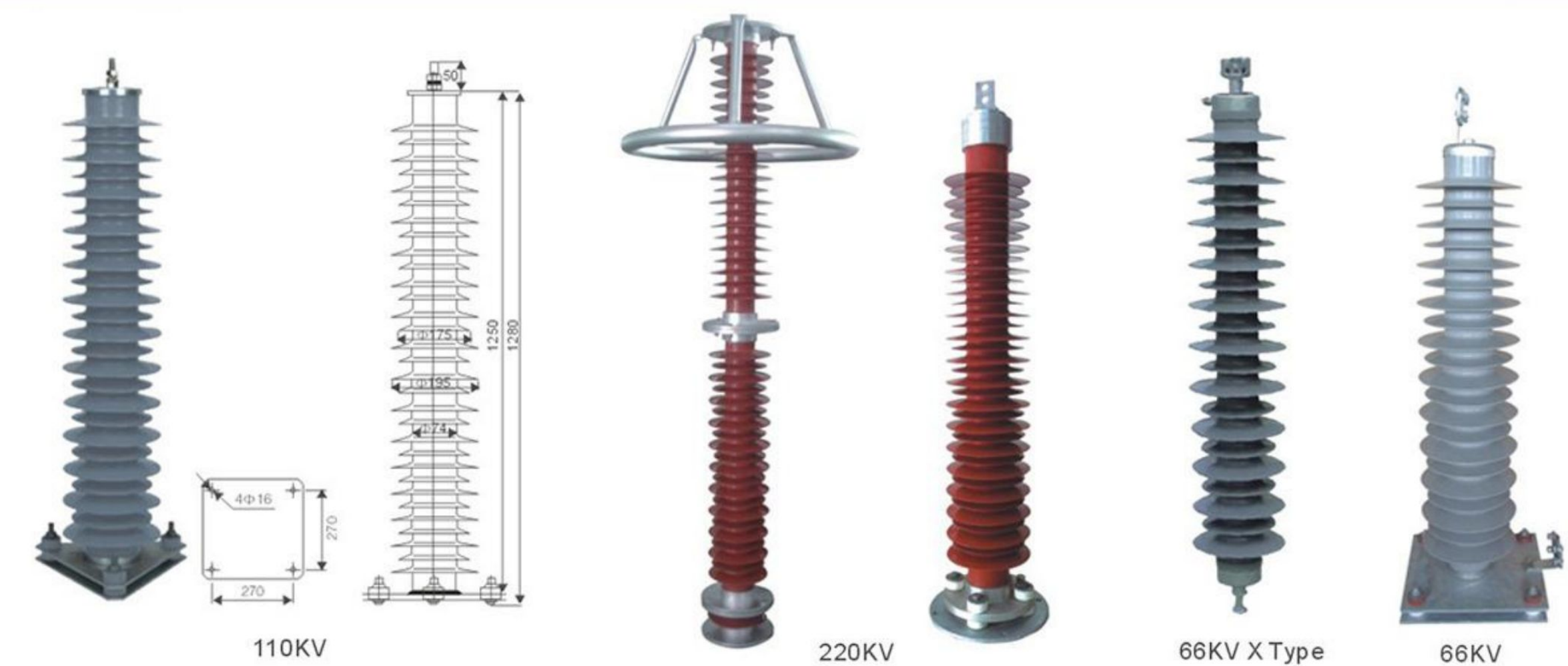
Fig.B74 Ur:90-120kV



LINE TERMINAL OPTIONS				
EARTH TERMINAL OPTIONS				
ACCESSORIES				
Discharge counter : MDC3				

Metal-oxide Surge Arrester

Station Series Metal-oxide Surge Arrester

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Main Technical Parameter of Polymer Housing Surge Arrester

Nominal Discharge Current:10kA

Manufacturer		Xiya Electric Equipment Co., Ltd.															
Rated Voltage	KV	39	42	45	48	51	54	60	66	69	72	75	84	90	96	108	120
Nominal discharge current	kA	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
1 Type		YH10W-39	YH10W-42	YH10W-45	YH10W-48	YH10W-51	YH10W-54	YH10W-60	YH10W-66	YH10W-69	YH10W-72	YH10W-75	YH10W-84	YH10W-90	YH10W-96	YH10W-108	YH10W-120
2 continuous operating voltage	kV	31.5	33.6	36.5	39.0	40.8	42.0	48.0	52.8	55.2	57.0	60.0	67.2	70.0	76.0	84.0	98.0
3 Residual voltage at																	
3.1 -Lightning impulse 8/20 μs	kV	103	111	119	127	135	143	159	175	183	191	199	218	222	237	266	295
3.2 -Steep current impulse 1/10 μs	kV	117	126	128	139	151	160	178	196	205	214	223	244	249	265	298	330
3.3 -Switching impulse 30/60 μs(10kA&up)	kV	94	101	102	110	115	119	132	145	152	158	165	181	184	197	221	245
3.4 -Switching surge(class 1)	kA	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
4 Long duration current impulse withstand																	
4.1 -Line discharge class(10kA & up)		1/2/3															
4.2 -2ms rectangular current withstand	A	400/600/1000															
5 Operating duty																	
5.1 -4/10 μs high current impulse withstand	kA	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
6 Housing insulation level																	
6.1 -Lightning impulse	kV	200	210	210	240	240	240	250	280	290	300	315	350	380	400	450	500
6.2 -Power frequency. Wet 1 min	kV	100	110	110	140	140	140	160	170	180	190	200	220	240	250	280	320
7 Partial discharge	pC	<10															
8 Creepage distance/rated voltage ratio	mm/kV	>31	>31	>31	>31	>31	>31	>31	>31	>31	>31	>31	>31	>31	>31	>31	>31

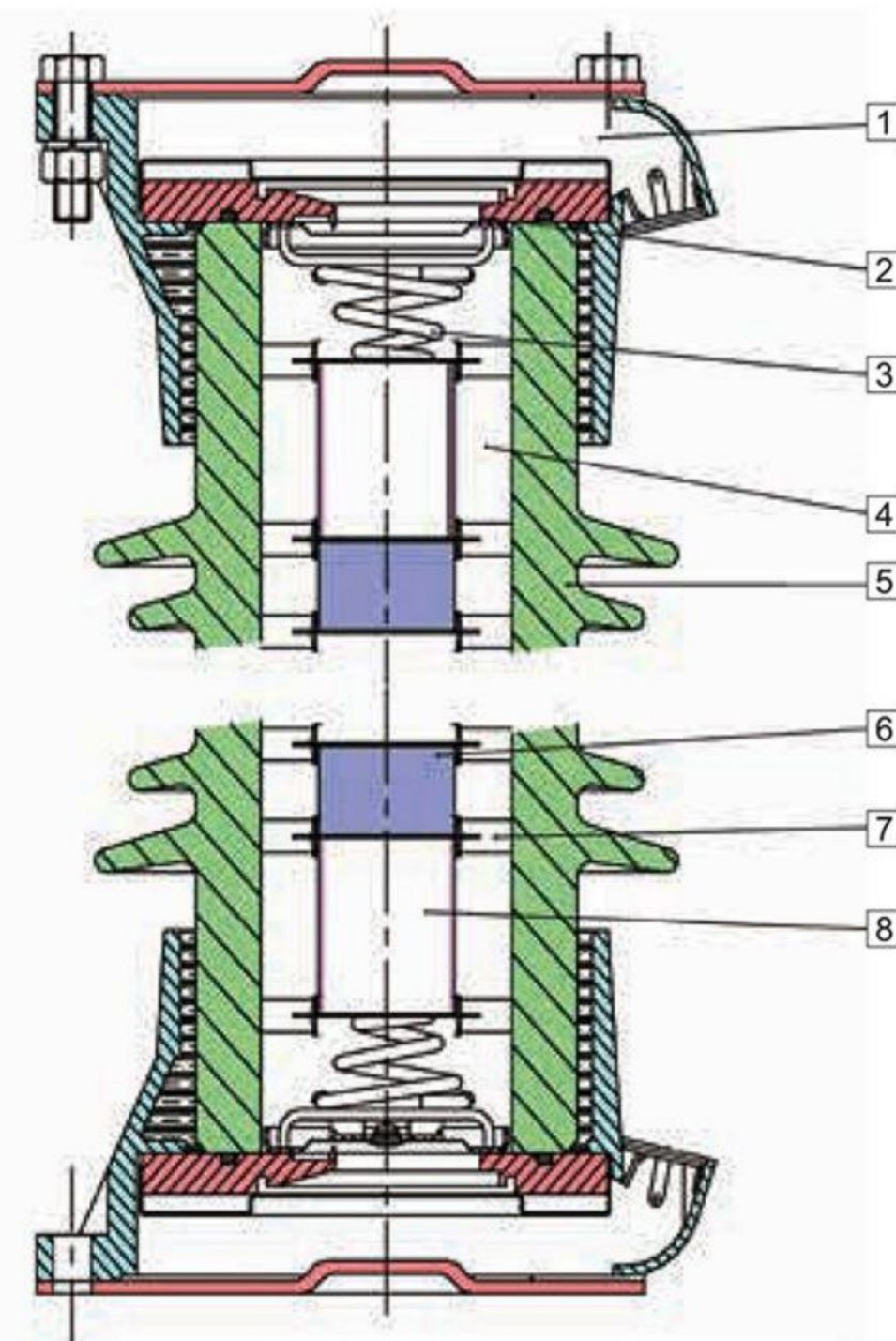
Metal-oxide Surge Arrester

Station Series Metal-oxide Surge Arrester

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General

Y10W series Surge Arresters from XIYA incorporate the latest in metal oxide varistor (MOV) technology. These arresters are totally gapless and are constructed of a single series column of 60mm to 115mm diameter MOV disks. The arrester is designed and tested exclusively to the requirements of the IEC 99-4 and is available for the protection of high voltage systems through 500 kV. The wet-process porcelain housing features an alternating shed design that provides excellent resistance to the effects of atmospheric housing Contamination. YH10W arresters are optionally available with extra creepage porcelains for use in areas with extreme conditions of natural atmospheric and man-made pollution. The dielectric properties of the porcelain are coordinated with the electrical protective characteristics of the arrester in accordance with the requirements of IEC99-4.



- | | |
|------------------|------------------|
| 1. Sealing cover | 5. Porcelain |
| 2. Venting duct | 6. Zno resistor |
| 3. Spring | 7. Locating ring |
| 4. Dry air | 8. Spacers |



Fig.B74 Ur:50-100kV

Metal-oxide Surge Arrester

Station Series Metal-oxide Surge Arrester



Fig.B71 Ur:39-54kV

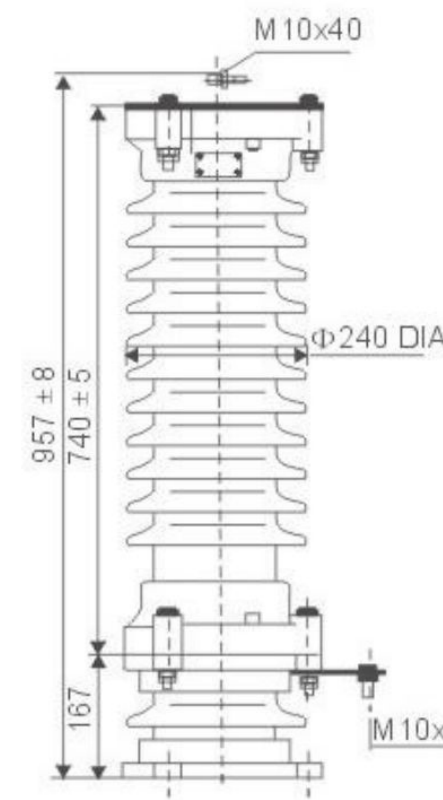


Fig.B73 Ur:60-84kV

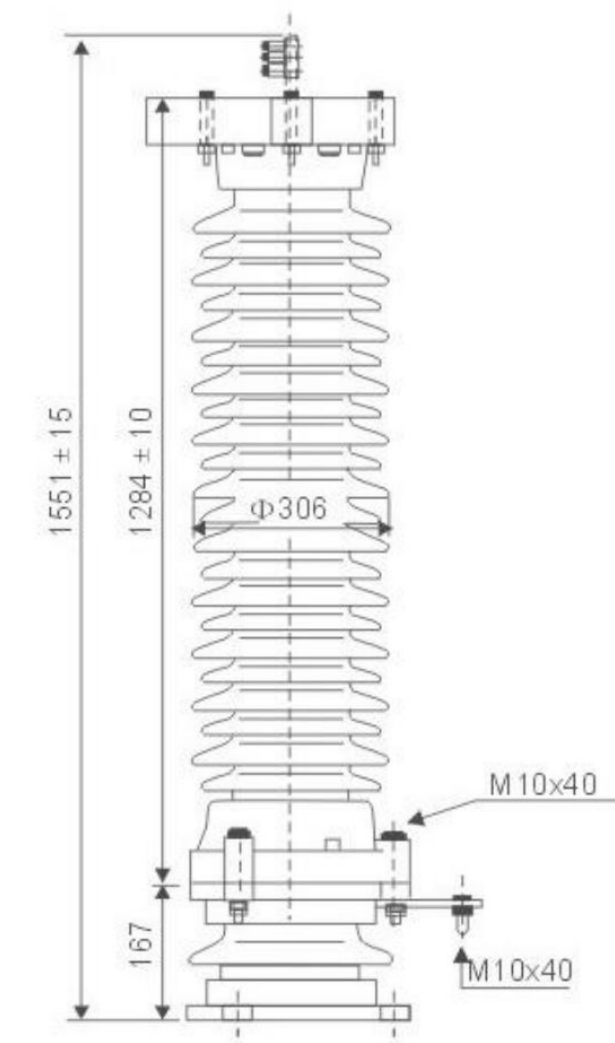
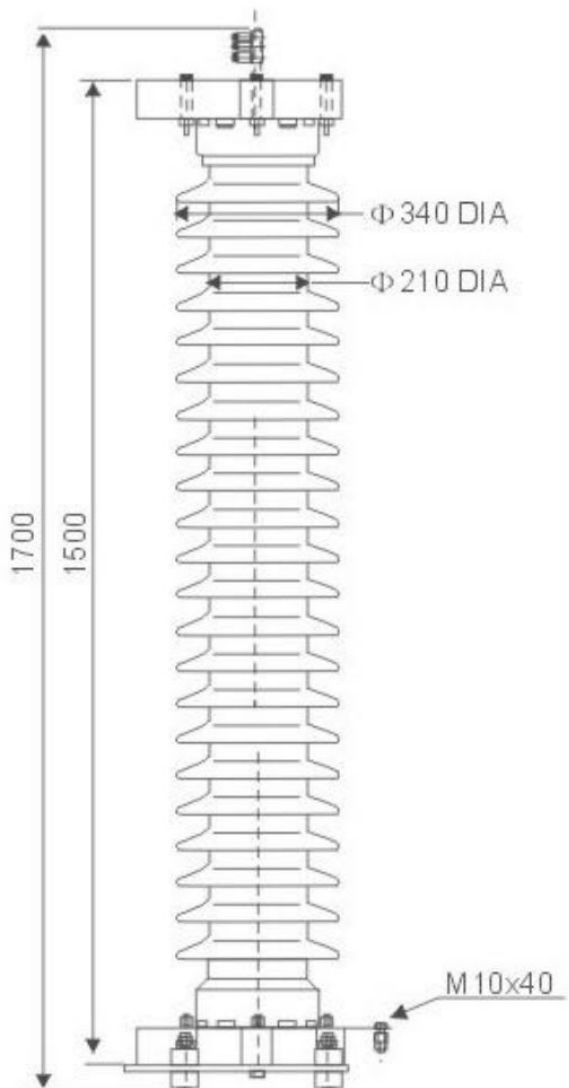


Fig.B75 Ur:90-120kV



Main Technical Parameter of Porcelain Housing Surge Arrester

Class2 15-210kV (10kA)

Model	Rated Voltage (kV)	MCOV (kV)	2ms square wave impulse withstand (A)	Max residual voltage with current wave					TOV 1s kV	External insulation		Height mm	Leakage distance mm
				30/60μs		8/20μs				1.2/50 μs kV (dry)	50 Hz (60s) kV (wet)		
				125A kV	500A kV	5kA kV	10kA kV	20kA kV					
Y10W2-48	48	38	600	94.0	100	121	130	148	55.0	400	185	750	1600
Y10W2-60	60	48	600	115	122	148	160	182	68.5	400	185	750	1600
Y10W2-72	72	57.6	600	137	146	176	190	216	83.0	400	185	750	1600
Y10W2-75	75	60	600	144	153	186	200	227	86.0	400	185	750	1600
Y10W2-96	96	76.8	600	182	193	234	252	286	110.0	575	295	1060	2400
Y10W2-108	108	86.4	600	202	215	260	281	319	123.0	575	295	1060	2400
Y10W2-120	120	96	600	225	239	286	312	354	137.0	750	360	1260	3800
Y10W2-138	138	110	600	261	277	336	363	411	157.0	750	360	1260	3800
Y10W2-144	144	115	600	271	288	349	377	427	164.0	750	360	1260	3800
Y10W2-150	150	120	600	285	303	367	396	449	171.0	940	450	1800	5400
Y10W2-168	168	134	600	314	333	404	435	494	192.0	940	450	1800	5400
Y10W2-180	180	144	600	338	359	435	470	533	205.0	940	450	1800	5400

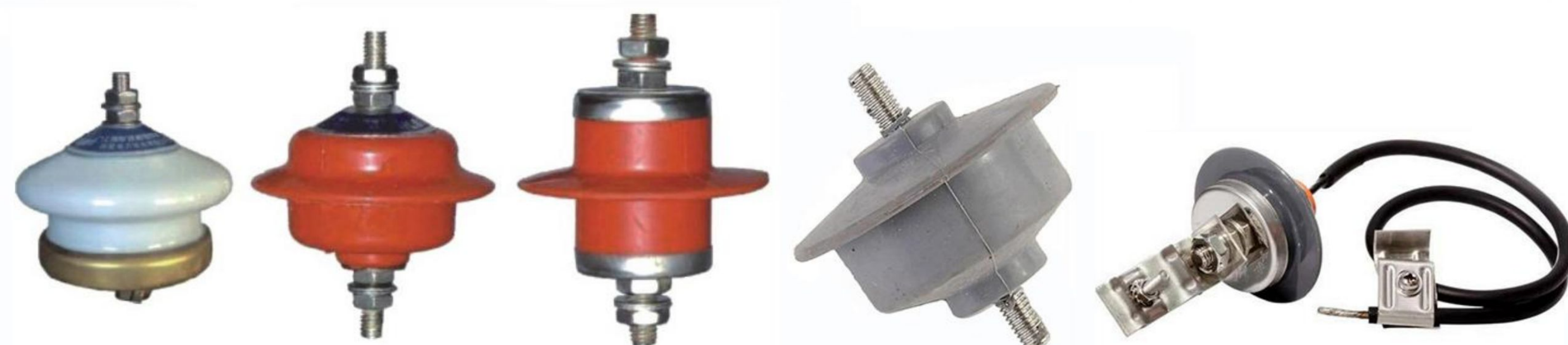
Class3 96-228kV (10kA)

Model	Rated Voltage (kV)	MCOV (kV)	2ms square wave impulse withstand (A)	Max residual voltage with current wave					TOV 1s kV	External insulation		Height mm	Leakage distance mm
				30/60μs		8/20μs				1.2/50 μs kV (dry)	50 Hz (60s) kV (wet)		
				500A kV	1kA kV	5kA kV	10kA kV	20kA kV					
Y10W3-96	96	77	1000	185	191	215	226	249	110	775	360	1220	2800
Y10W3-108	108	86	1000	208	214	242	254	280	124	775	360	1220	2800
Y10W3-120	120	96	1000	231	238	269	282	310	137	800	375	1330	3520
Y10W3-138	138	110	1000	265	274	309	325	357	151	800	375	1330	3520
Y10W3-150	150	120	1000	288	298	335	353	388	172	975	460	1870	5650
Y10W3-168	168	131	1000	323	333	376	395	435	186	975	460	1870	5650
Y10W3-180	180	144	1000	346	357	402	423	466	207	975	460	1870	5650
Y10W3-192	192	154	1000	369	381	429	452	497	220	975	460	1870	5650
Y10W3-198	198	158	1000	381	393	443	466	512	227	1160	585	2430	7650
Y10W3-210	210	168	1000	404	417	469	494	543	241	1160	585	2430	7650
Y10W3-228	228	182	1000	438	452	510	536	590	262	1160	585	2430	7650

Metal-oxide Surge Arrester

Other Series Metal-oxide Surge Arrester

Key of Power
Electric Professional
>



0.22(0.38)kV

0.22(0.38)kV

0.22(0.38)kV

Application

The metal-oxide surge arrester (MOSA) is the most advanced over voltage protector in the world. Due to the metal-oxide varistor (MOV) core component mainly adopt MOSA. Compared with the conventional silicon carbide arrester, this prescription of the product improves greatly the Voltage-Current (U-I) characteristic of the metal-oxide varistor and increased through-current capability at over-voltage so as to bring a radical change for the characteristic of the MOSA.

Under the circumstance of normal operating voltage, the current through the MOSA is just microampere degree. When suffered from over voltage, the MOSA's excellent non-linear characteristic will make the current through the MOSA increase to several thousand ampere. While the MOSA will be under the circulating state and release over voltage energy so as to protecting the power transmission equipments against the damage caused by the over voltage.

Technical Datas for low voltage polymeric type arrester

Model	Nominal voltage kVr.m.s	Rated Voltage kVr.m.s	continuous operation voltage kVr.m.s	Residual voltage of Lightning impulse kVp	DC 1mA reference voltage kVp	Flow capacity of 2ms square wave A
YH1.5W-0.28/1.3	0.22	0.28	0.24	1.3	0.6	50
YH1.5W-0.5/2.6	0.38	0.50	0.42	2.6	1.2	50
YH3W-0.28/1.3	0.22	0.28	0.24	1.3	0.6	50
YH3W-0.5/2.6	0.38	0.5	0.42	2.6	1.3	50



Metal-oxide Surge Arrester

Other Series Metal-oxide Surge Arrester

Dropout Surge Arrester

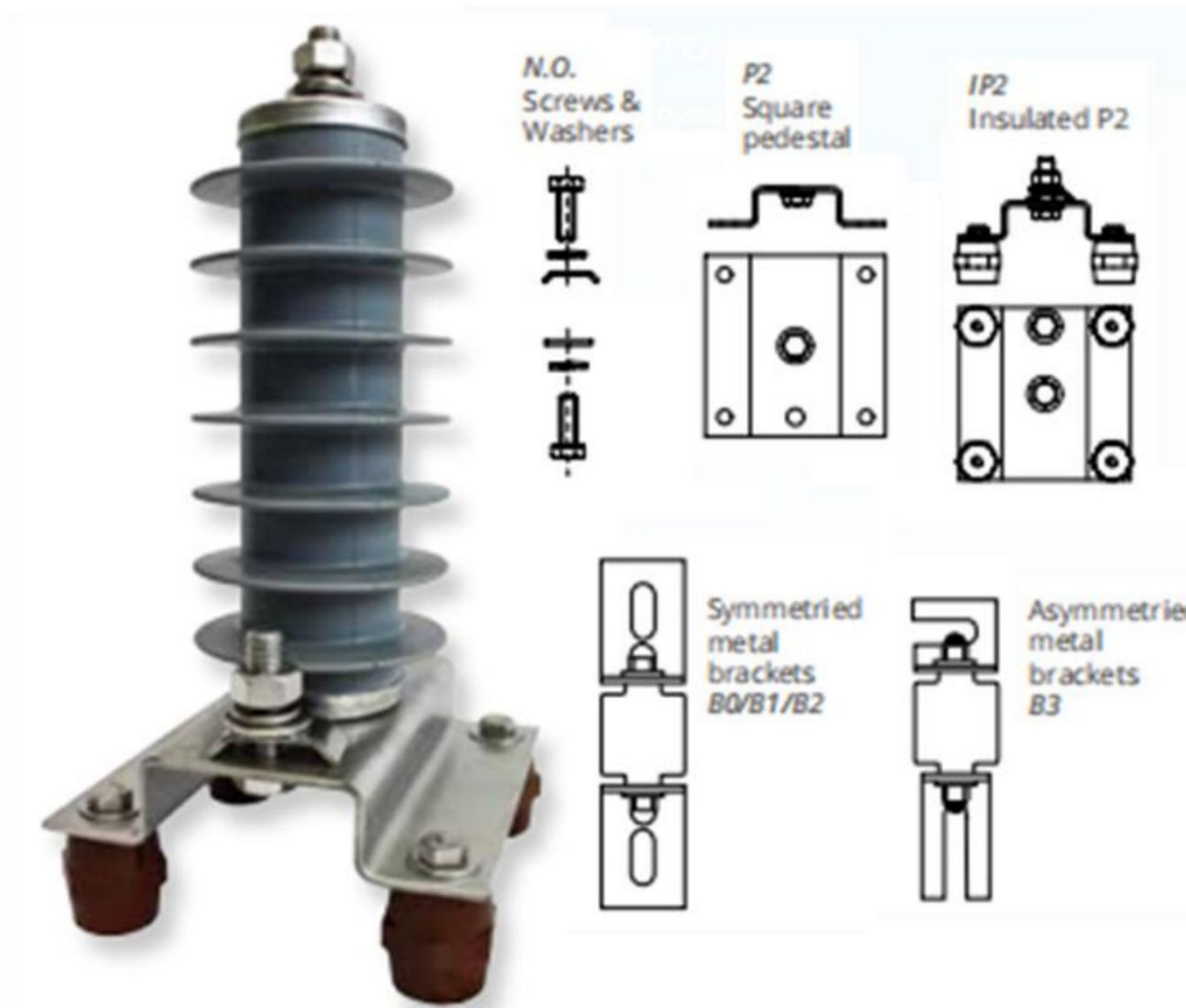
- The environment temperature: $-40^{\circ}\text{C} \sim +40^{\circ}\text{C}$;
- Altitude is no greater than 3000m;
- Power frequency: 48Hz~62Hz;
- Maximum wind speed is no more than 35m/s;
- Areas of seismic intensity 7 and below;



Electrical Parameters

Arrester model	Rated system voltage	Lightning arrester rated voltage	Continuous operating voltage	(U1mA) D.C. reference voltage	Residual voltage under lightning impulse	Residual voltage under operating current impulse	2ms Long duration current impulse withstand	High current Impulse capacity	Service places
	kV			kV	kV		A	kA	
HY5WS-10/30DL	6	10	8	15	30	25.6	150	40	Distribution
HY5WS-10/30DL-TR									
HY5WS-10/30DL-TB									
HY5WS-17/52DL	10	17	13.6	25	50	42.5	150	40	
HY5WS-17/50DL-TR									
HY5WS-17/50DL-TB									

Note: Parameters of the arrester are the same as those of common ones. The above-mentioned are distribution type, which can be replaced with other types, including capacitive ones.



Metal-oxide Surge Arrester

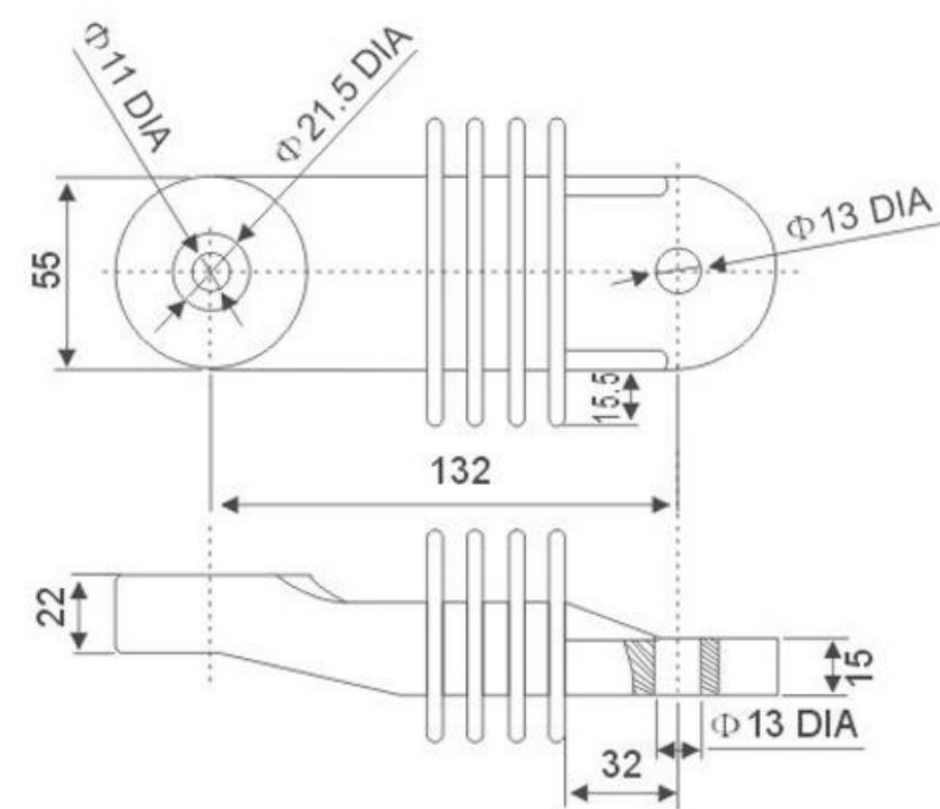
Surge Arrester Accessory

Main Accessory

Insulating Bracket



Disconnecter



Terminal shield



L Mounting Bracket



Earthing Lead Wire

Metal-oxide Surge Arrester

Surge Arrester Accessory

Discharging Counter

Discharging counter is connected under the arrester in series for recording the arrester's operation times; JS8 is applied for 6KV-220KV arresters: The environment condition should be the same with that of the connected arrester. height is no larger than 4000 meters and temperature is $-40^{\circ}\text{C} \sim +40^{\circ}\text{C}$. It is not applicable in the serious metal or insulating fitting-corrosion gas, or places with bad pollution and strong vibration. Discharging counter consists of valve block silicon bridge type rectifier, capacitor and electromagnetic counter, etc. It fetches the voltage on the valve block (nonlinear resistance) with the energy flowing through arrester (impulse current and power frequency current), charges the capacitor in single direction via silicon bridge type rectifier, electro- discharges to the electromagnetic counter coil with D.C. to drive the counter once and records the operation times.

Arrester Monitor

Arrester monitor is a kind of device connected under the arresters in series to monitor the leak current and record the operation times of the arresters. The service conditions are the same with that of the connected arresters. It has the features of electromagnetic counting, current indicator displaying and vibration resistance.

Monitor mainly consists of valve blocks, rectifier, capacitor, resistance sensor, trigger circuit, protector, counting circuit, electromagnetic counter magnetoelectric ohm meter, current measurement and switch circuit, frame elements and housing, etc. The leaked current in the arrester in normal use will be displayed by the magnetoelectric ohm meter. The indication is divided into two grades: 0-5mA and 0-2mA. It switches automatically in the two grades with light indication. The arrester operates and the electro-magnetic counter accumulates and counts. When the display is full, it'll reset in infinite series.



JCO-2/800



JCQ-3



JCO-C1



JS-8

Type	Item	Nominal discharge current	Residual voltage(kV)	2ms Long duration current impulse withstand	High current impulse of 4/10 μs	Current range(mA)	Error of Measured Current (less than)	Counting method
	JCQ-3	10	2.5	700	100	0-3	5%	Digital
	JCQ-10	10	2.5	800	100	0-5	5%	Digital
	JCQ-3B	10	2.5	1400	100	0-3	5%	Pointer
	JCQ-3H	20	2.5	2100	100	0-5	5%	Pointer
	JSY-6	10	2.5	700	100	—	—	Pointer
	JSY-8	10	2.5	700	100	—	—	Pointer