

**Trageme 雀杰米**

## **Outdoor M.V.&H.V. Electric Devices**



**CHAGE E&M EQUIPMENT CO.,LTD.**

## About Us

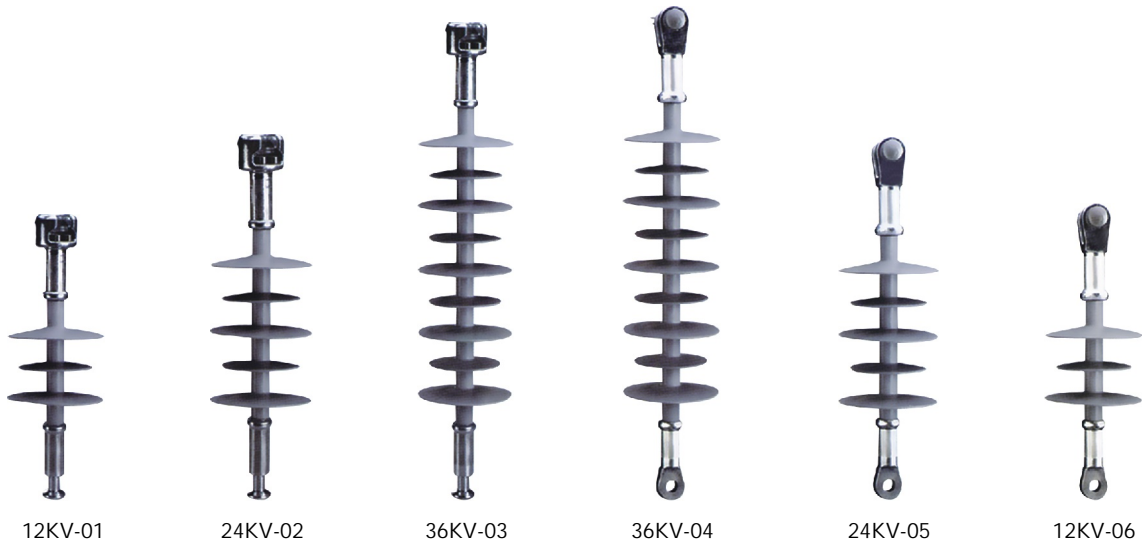
We, Chage E&M Equipment Co., Ltd., which is professional manufacturer and distributor of Medium & High Voltage, Outdoor & Indoor Electric Power Equipments in China.

And our products are sold to domestic markets widely, furthermore, are exported to many countries world wide. Meantime, we also import power equipments from world-well-known brand manufacturer, such as ABB, Socomec, Jean Muller, LG, Balse, PCE, S&C and Wohner so on. Our company lies in Lucheng District, Wenzhou, Zhejiang, and her producing factory lies in Zhejiang Yueqing Economic Development Zone.

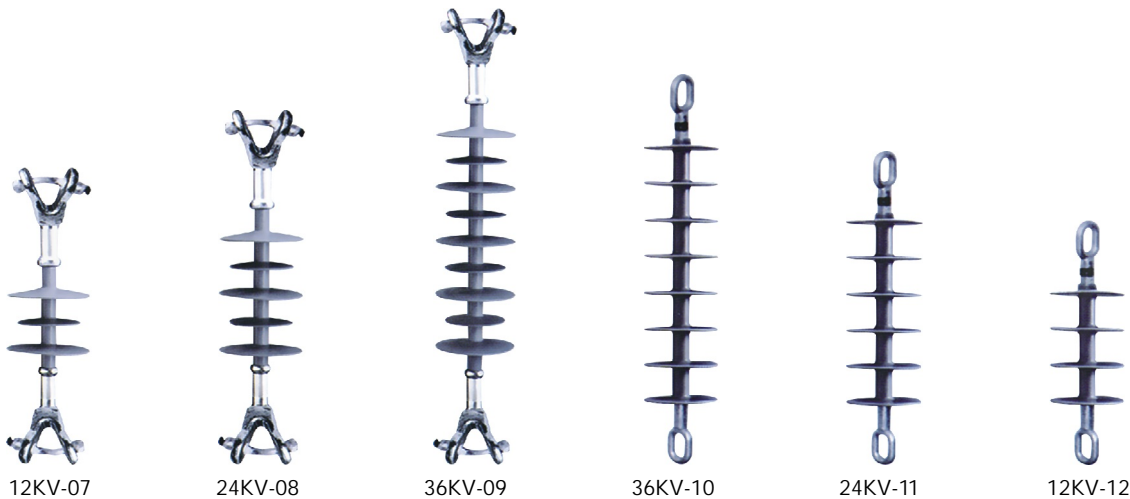
We would like supply customers with diversified and efficient electric power management solutions.

<b>Composite Insulator</b>	<b>01</b>
<b>Surge Arrester</b>	<b>06</b>
<b>Fuse Cutout</b>	<b>09</b>
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Long Rod Suspension Composite Insulator

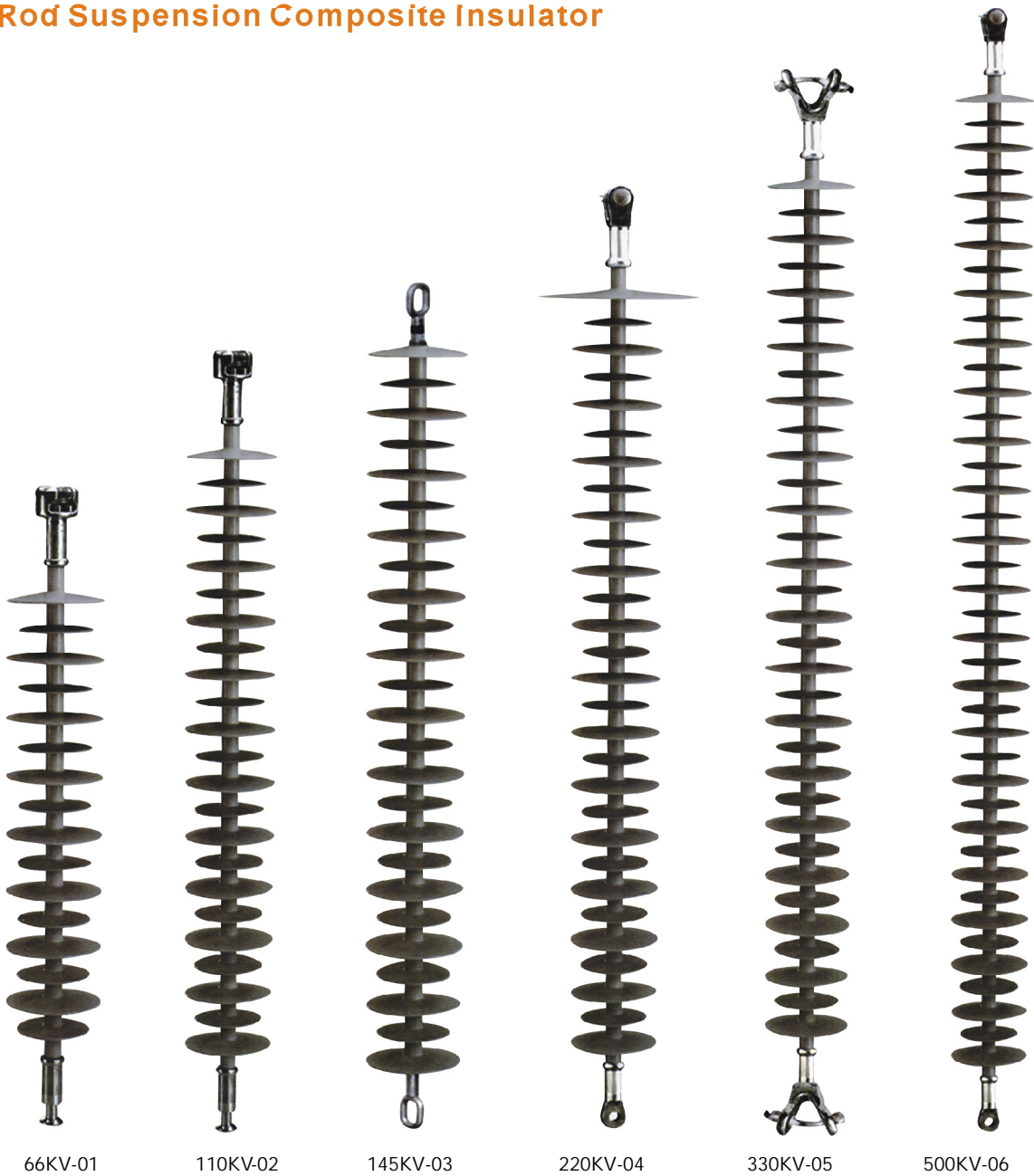


Type	Rated voltage (KV)	Specified mechanical load	Section length (mm)	Min Arc distance (mm)	Leakage distance (mm)	Lightning impulse withstand BIL(KV)	Power frequency withstand (wet) (KV)
FXBW4-12/70	12	70	350	180	400	95	45
FXBW4-24/70	24	70	550	370	850	185	95
FXBW4-24/100	24	100	570	370	850	185	95
FXBW4-35/70	36	70	650	450	1000	230	105
FXBW4-35/100	36	100	670	450	1000	230	105



Type	Rated voltage (KV)	Specified mechanical load	Section length (mm)	Min Arc distance (mm)	Leakage distance (mm)	Lightning impulse withstand BIL(KV)	Power frequency withstand (wet) (KV)
FXYW4-12/70	12	70	350	180	400	95	45
FXYW4-24/70	24	70	550	370	850	185	95
FXYW4-24/100	24	100	570	370	850	185	95
FXYW4-35/70	36	70	650	450	1000	230	105
FXYW4-35/100	36	100	670	450	1000	230	105

Long Rod Suspension Composite Insulator



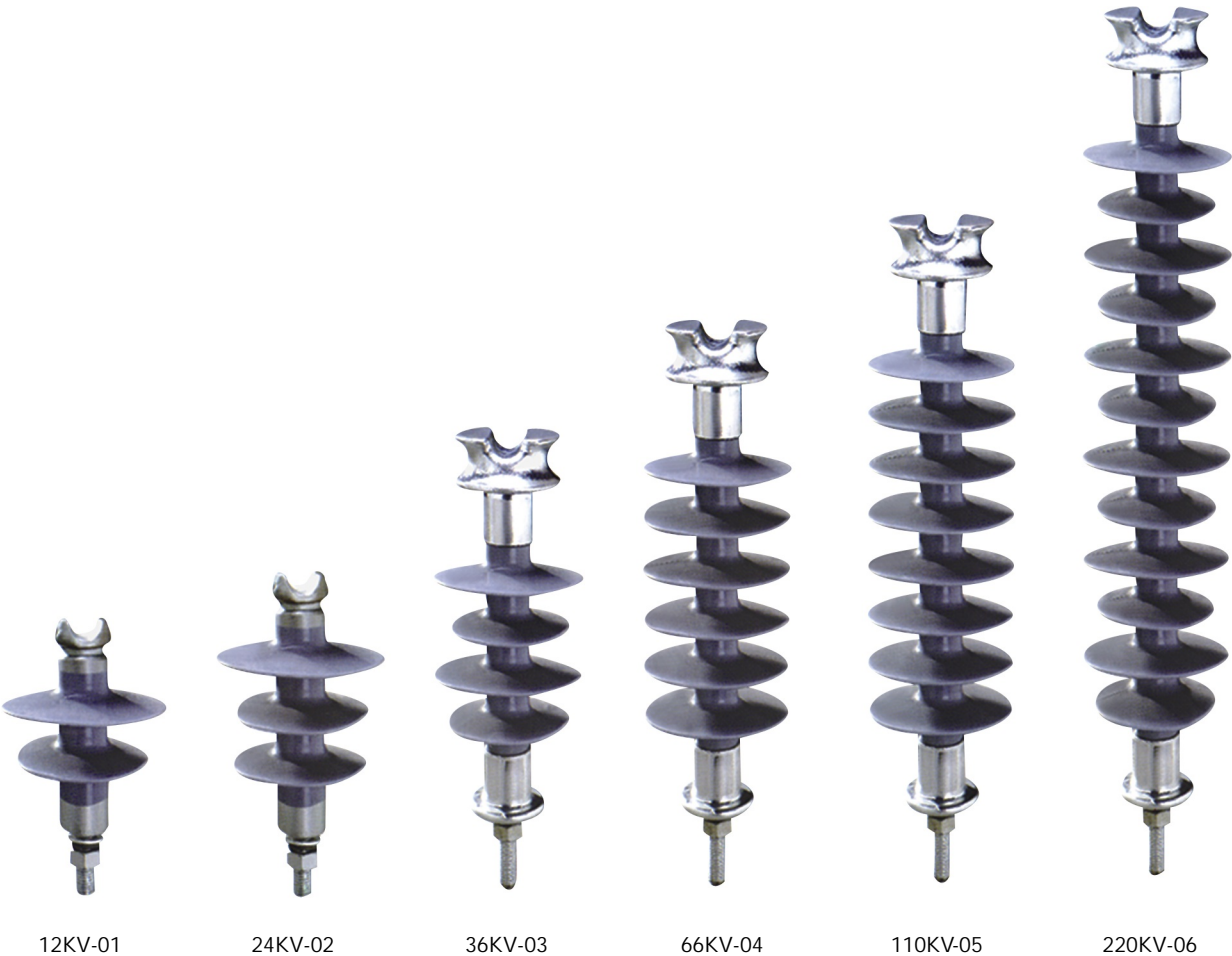
Type	Rated voltage (KV)	Specified mechanical load	Section length (mm)	Min Arc distance (mm)	Leakage distance (mm)	Lightning impulse withstand BIL(KV)	Power frequency withstand (wet) (KV)
FPBW4-66/70	66	70	900	710	1980	410	185
FPBW4-66/100	66	100	940	710	1980	410	185
FPBW4-110/100	110	100	1240	1000	3315	550	230
FPBW4-145/120	145	120	1480	1240	4123	725	355
FPBW4-220/100	220	100	2240	1900	6300	1000	395
FPBW4-220/160	220	160	2240	1900	6300	100	395
FPBW4-330/100	330	100	2990	2600	9075	1425	570
FPBW4-330/160	330	160	2990	2600	9075	1425	570
FPBW4-500/160	500	160	4080	3730	12750	2250	740

**Pin Composite Insulator**


Type	Rated voltage (KV)	Specified mechanical load	Section length (mm)	Min Arc distance (mm)	Leakage distance (mm)	Lightning impulse withstand BIL(KV)	Power frequency withstand (wet) (KV)
FZSW-12/4	12	4	215	290	100/90	75	42
FZSW-24/8	24	8	400	750	142	150	65
FZSW-36/6	36	6	450	946	148/118	185	95
FZSW-66/6	66	6	760	1886	160/130	410	185
FZSW-66/8	66	8	760	2010	220/190	410	185
FZSW-110/10	110	10	1220	3530	220/190	500	230
FZSW-220/10	220	10	2440	7060	220/190	1000	395



Pin Composite Insulator



Type	Rated voltage (KV)	Specified mechanical load	Section length (mm)	Min Arc distance (mm)	Leakage distance (mm)	Lightning impulse withstand BIL(KV)	Power frequency withstand (wet) (KV)
FZSW-12/4	12	4	215	290	100/90	75	42
FZSW-24/8	24	8	400	750	142	150	65
FZSW-36/6	36	6	450	946	148/118	185	95
FZSW-66/6	66	6	760	1886	160/130	410	185
FZSW-66/8	66	8	760	2010	220/190	410	185
FZSW-110/10	110	10	1220	3530	220/190	500	230
FZSW-220/10	220	10	2440	7060	220/190	1000	395

## Horizontal Line Post Composite Insulator



Type	Rated voltage (kV)	Rated mechanical bent failing load (kN)	Thread diameter of downside	H Structure height (mm)	h Insulation distance (mm)	Leakage distance (mm)	Lightning impulse withstand BIL (KV)	Power frequency withstand (Wet) (KV)
FPQ2W-11/3	11	3	M16/18/20	260	185	460	110	50



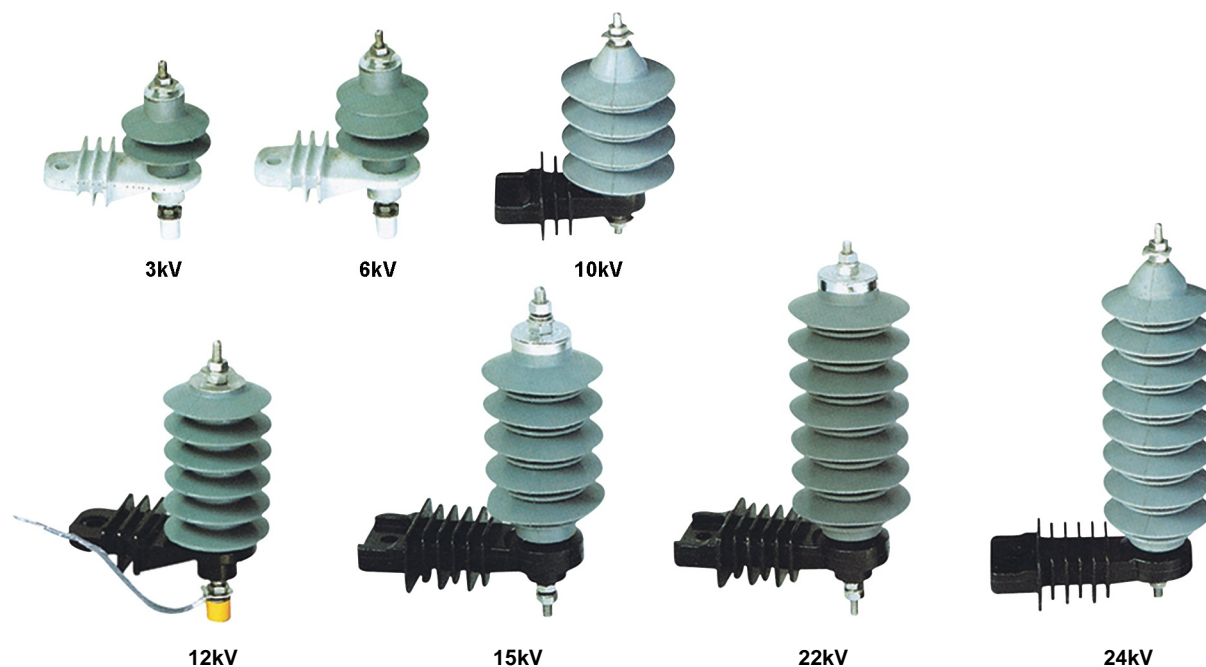
Type	Rated voltage (kV)	Rated mechanical bent failing load (kN)	Thread diameter of downside	H Structure height (mm)	h Insulation distance (mm)	Leakage distance (mm)	Lightning impulse withstand BIL (KV)	Power frequency withstand (Wet) (KV)
FPS-11/5	11	5	20	280	170	380	105	42



Type	Specified cantilever load kN	N° of sheds A n° (1)	Length L ±5 mm	Leakage distance mm	Dry arc distance mm	Power frequency withstand 50Hz		Lightning impul. withstand 1,2/50		Weight ~kg
						Dry kV	Wet kV	posit kV	negat. kV	
HLP-01	10.0	2+1	365	390	165	70	65	115	160	6.5
HLP-02	8.4	3+2	420	585	225	110	100	150	190	7.0
HLP-03	7.2	4+3	480	780	285	120	110	180	215	7.5
HLP-04	6.3	5+4	540	975	340	150	140	235	270	8.0
HLP-05	5.5	6+5	600	1170	400	170	155	270	300	8.5
HLP-06	5.0	7+6	660	1365	460	180	165	285	325	9.0
HLP-07	4.5	8+7	715	1560	520	200	185	305	355	9.5
HLP-08	4.2	9+8	775	1755	575	225	210	345	405	10.0

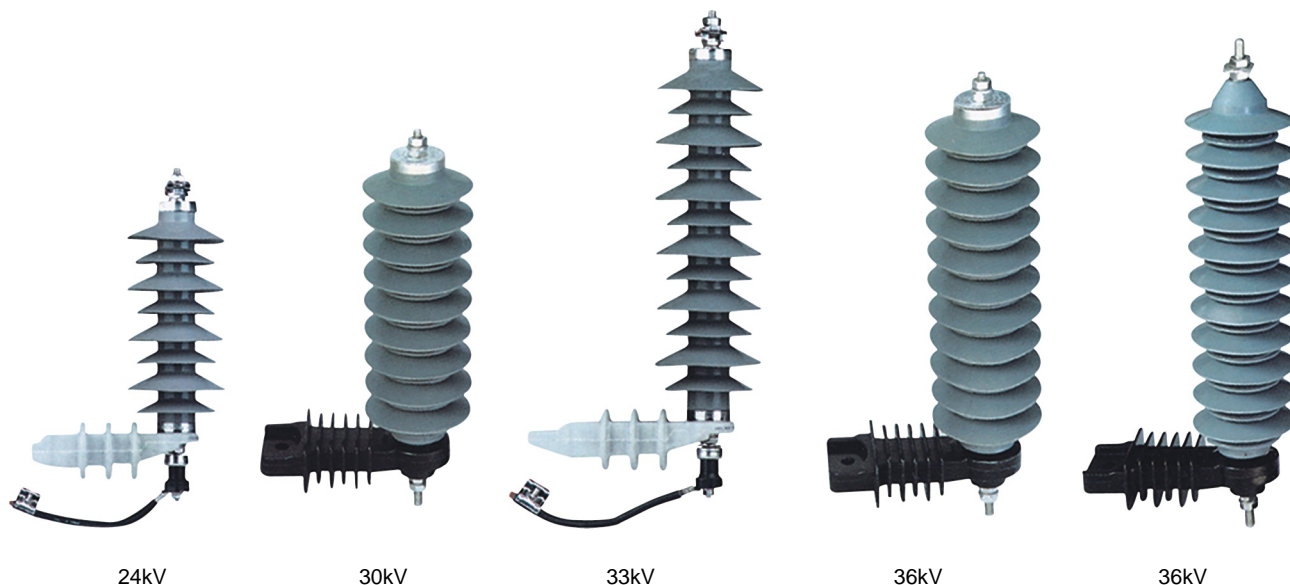


## Polymeric Housed Metal-oxide Surge Arrester Without Gaps Nominal Discharge Current 5kA(3-36kV)



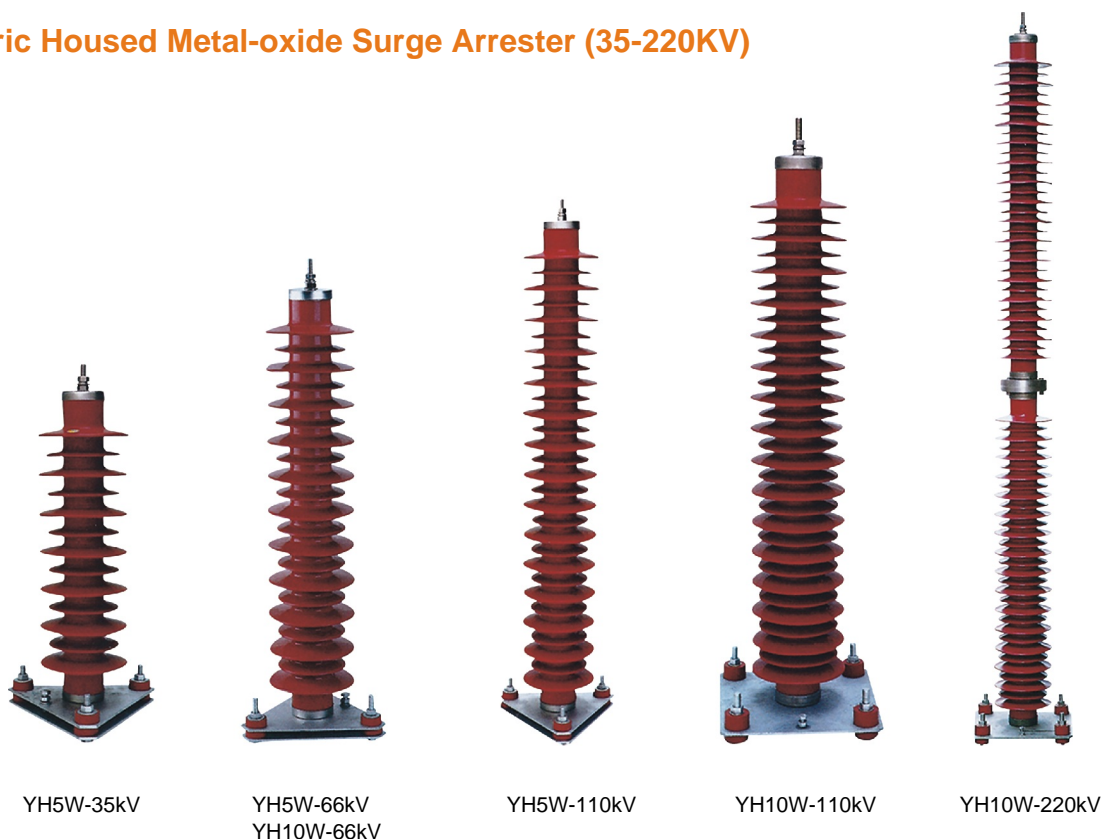
Type	MOA Rated voltage	MCOV	Current impulse Residual Voltage			2ms Rectangular current impulse withstand	4/10 $\mu$ s High current impulse withstand
			1/4 $\mu$ s Lightning current impulse	8/20 $\mu$ s Lightning current impulse	30/60 $\mu$ s Switching current impulse		
			kV(crest)	kV(crest)	kV(crest)	A(crest)	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	22.0	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

## Polymeric Housed Metal-oxide Surge Arrester Without GAPS Nominal Discharge Current 10kA(3-36kV)



Type	MOA Rated voltage	MCOV	Current impulse residual voltage			2ms Rectangular current impulse withstand	4/10 $\mu$ s High current impulse withstand
			1/4 $\mu$ s Lightning current impulse	8/20 $\mu$ s Lightning current impulse	30/60 $\mu$ s Switching current impulse		
	kV(rms)	kV(rms)	kV(crest)	kV(crest)	kV(crest)	A(crest)	kA(crest)
YH10W-3	3	2.55	11.3	9	8.9	250	100
YH10W-6	6	5.1	22.6	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	17.0	71.8	63	54.2	250	100
YH10W-24	24	19.5	82	72	62	250	100
YH10W-27	27	22.0	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	29.0	123	108	92.4	250	100

Polymeric Housed Metal-oxide Surge Arrester (35-220KV)



Type	Rated voltage of arrester kV	Nominal voltage of system (virtual value) kV	Continuous operating voltage (virtual value) kV	Reference voltage not less than D.C(U <sub>1mA</sub> ) kV	Max residual voltage(peak)			2000 μ s rectangular impulse current (peak value) A	4/10 μ s impulse current (peak value) kA	The max. leakage current of 0.75DC reference voltage μ A
					Steep current impulse kV	Lightning impulse current kV	Switching current impulse KV			
YH5WZ-42/134	42	35	23	73	154	134	114	150	65	50
YH5WZ-51/134	51	35	40.8	73	154	134	114			
YH5WZ-52.7/134	52.7	35	40.8	73	154	134	114			
YH5WZ-54/134	54	35	41	73	154	134	114			
YH5W-75/215	75	66	60	123	248	215	183	400	65	50
YH5W-90/224	90	66	72.5	130	258	224	190			
YH10W-75/250	75	66	60	127	288	250	213	600	100	50
YH10W-75/223	75	66	60	127	256	223	190			
YH10W-75/230	75	66	60	127	265	230	196			
YH10W-90/224	90	66	72.5	130	258	224	190			
YH10W-90/232	90	66	72.5	130	266	232	198			
YH10W-90/235	90	66	72.5	130	270	235	201			
YH5W-100/260	100	110	78	145	291	260	221	400	65	50
YH5W-102/266	102	110	79.6	148	297	266	226			
YH5W-108/281	108	110	84	157	315	281	239			
YH10W-100/260	100	110	78	145	291	260	221	600	100	50
YH10W-102/266	102	110	79.6	148	297	266	226			
YH10W-108/281	108	110	84	157	315	281	239	600	100	50
YH10W-200/520	200	220	156	290	582	520	442			
YH10W-204/532	204	220	159	296	594	532	452			
YH10W-216/562	216	220	168.5	314	630	562	478			


**12kV-15kV**

Type	Rated voltage (kV)	Rated current (A)	Breaking current (A)	Impulse voltage (BIL)	Power-frequency withstand voltage	Leakage distance (mm)	Weight (kG)	Dimensions (cm)
HV-1	15	100	10000	110	40	250	7.3	38.5x34.5 x10.5
	15	200	12000	110	40	250	7.3	


**15kV-27kV**

Type	Rated voltage (kV)	Rated current (A)	Breaking current (A)	Impulse voltage (BIL)	Power-frequency withstand voltage	Leakage distance (mm)	Weight (kG)	Dimensions (cm)
HV-7	15	100	10000	125	45	350	8.5	48x34.5 x10.5
	15	200	12000	125	45	350	8.5	


**24kV-27kV**

Type	Rated voltage (kV)	Rated current (A)	Breaking current (A)	Impulse voltage (BIL)	Power-frequency withstand voltage	Leakage distance (mm)	Weight (kG)	Dimensions (cm)
HV-13	24	100	8000	150	65	540	12	49x35 x14
	24	200	10000	150	65	540	12	


**27kV-33kV**

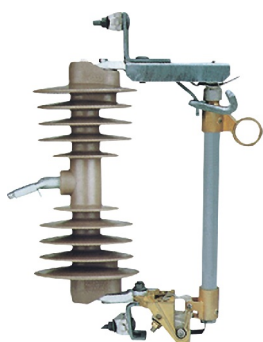
Type	Rated voltage (kV)	Rated current (A)	Breaking current (A)	Impulse voltage (BIL)	Power-frequency withstand voltage	Leakage distance (mm)	Weight (kG)	Dimensions (cm)
HV-21	30	100	6000	170	70	700	15	56x38 x14.5
	30	200	8000	170	70	700	15	


**33kV-36kV**

Type	Rated voltage (kV)	Rated current (A)	Breaking current (A)	Impulse voltage (BIL)	Power-frequency withstand voltage	Leakage distance (mm)	Weight (kG)	Dimensions (cm)
HV-22	33	100	10000	170	70	720	15.5	57x38 x14.5
	33	200	12000	170	70	720	15.5	


**12kV-15kV**

Type	Rated voltage (kV)	Rated current (A)	Breaking current (A)	Impulse voltage (BIL)	Power-frequency withstand voltage	Leakage distance (mm)
HV-26	12-15	100	10000	110	40	380
	12-15	200	12000	110	40	380


**24kV-27kV**

Type	Rated voltage (kV)	Rated current (A)	Breaking current (A)	Impulse voltage (BIL)	Power-frequency withstand voltage	Leakage distance (mm)
HV-29	24-27	100	6000	150	65	650
	24-27	200	8000	150	65	650


**27kV-33kV**

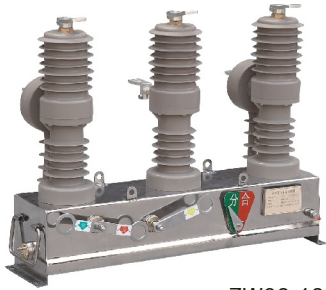
Type	Rated voltage (kV)	Rated current (A)	Breaking current (A)	Impulse voltage (BIL)	Power-frequency withstand voltage	Leakage distance (mm)
HV-32	27-33	100	6000	170	70	620
	27-33	200	8000	170	70	620


**30kV-33kV**

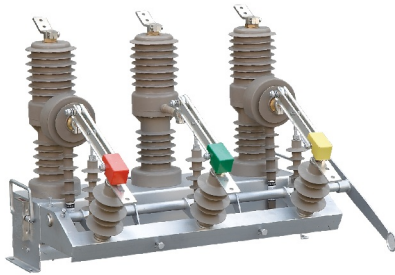
Type	Rated voltage (kV)	Rated current (A)	Breaking current (A)	Impulse voltage (BIL)	Power-frequency withstand voltage	Leakage distance (mm)
HV-33	30-33	100	6000	170	70	680
	30-33	200	8000	170	70	680


**36kV-38kV**

Type	Rated voltage (kV)	Rated current (A)	Breaking current (A)	Impulse voltage (BIL)	Power-frequency withstand voltage	Leakage distance (mm)
HV-34	36-38	100	6000	180	75	820
	36-38	200	8000	180	75	820



ZW32-12



ZW32-12G

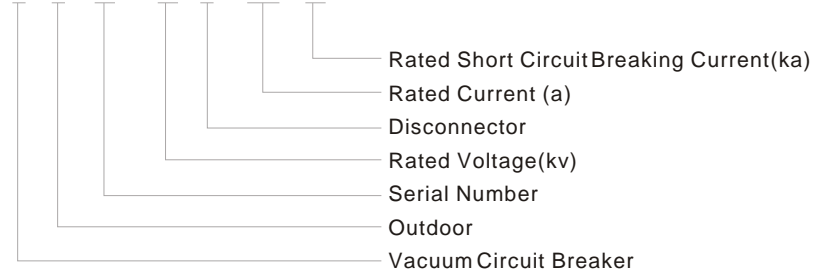
## General Description

ZW32-12(G) series column type outdoor H.V.vacuum circuit breaker is an outdoor H.V.switch equipment with tri-phase AC 50Hz, rated voltage 12KV.it is suitable for breaking,closing load current,overload current and short-circuit current of the urban or the rural electrical power distribution system.

ZW32-12G circuit breaker isolator combination electric appliance match with isolation blade has evident fracture to increase safety.

## Type And Meanings

Z W 32 - 12 G / 630 - 20



## Main Technical Parameter

Item		Unit	ZW32-12(G) /400-12.5	ZW32-12(G) /630-16	ZW32-12(G) /630-20
Rated voltage		KV	12		
Rated current		A	400	630	630
Rated short circuitbreaking current		kA	12.5	16	20
Rated short circuitmaking current (peak)			31.5	40	50
Rated peak withstand current			31.5	40	50
Rated short time withstand current			12.5	16	20
Rated short circuit duration		S	4		
Rated insulation level	1 min power frequency withstand voltage	KV	phase to phase,to ground 42;fracture 48		
	Lightning impulse withstand voltage(peak)		phase to phase,to ground 75;fracture 85		
Rated sequence of operations			O-0.3s-CO-180s-CO		
Rated short circuitcurrent breaking time		time	30		
Mechanical life			10000		
Rated operation voltage (opening,closing coil)		V	DC220,110;AC220		
Allowable attrition thickness of moving and fixed contact		mm	3		
Over-current release rated current			5		
Current transformer ratio			200/5   400/5   600/5		
Clearance between open contacts		mm	9±1		
Contact over travel			2±0.5		
Average opening speed		m/s	1.2±0.3		
Average closing speed			0.6±0.2		
Opening time		ms	30~60		
Closing time			20~40		
Closing bounce time			≤2		
Tri-phase opening and closing synchronous			≤2		
Each phase loop DC resistance		μ Ω	≤80		
Stored energy motor	Rated voltage	V	-220		
	Rated power	W	200		
	Stored energy time	S	≤8		
Weight		Kg	85,125(with G)		



## Outline And Installation Dimensions

- 1.Upper outgoing line
- 2.Vacuum interrupter
- 3.Insulation tube
- 4.Lower outgoing line
- 5.Conductive clamp
- 6.Soft-link
- 7.Insulation lever
- 8.Contact pressure spring
- 9.Opening spring
- 10.Driving plate
- 11.Mechanism output shaf
- 12.Operating mechanism
- 13.Mechanism box
- 14.Current transformer

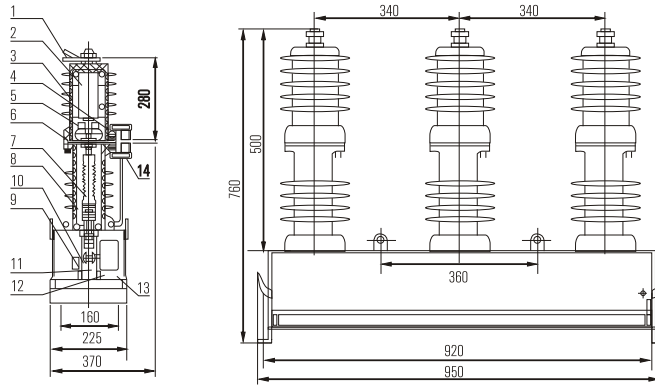


Fig.1 ZW32-12 outline dimension

- 1.Isolating operating handle
- 2.Isolating main shaft
- 3.Manual O-C handle of C.B
- 4.Energy-storage handle of C.B
- 5.O-C indication
- 6.Outer adjusting box of composite surge controller
- 7.wiring bos of C.B.
- 8.Insulation
- 9.Insulation lever
- 10.Insulation frame
- 11.Nameplate
- 12.Insulating unit
- 13.fasten copper nut
- 14.wiring plate(outgoing-line end)
- 15.current transformer
- 16.Isolating blade
- 17.wiring plate (incoming-line end)

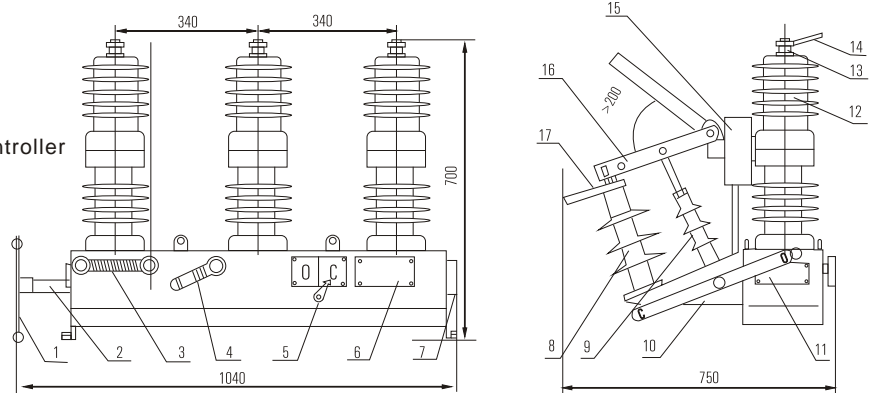


Fig.2 ZW32-12G outline dimension

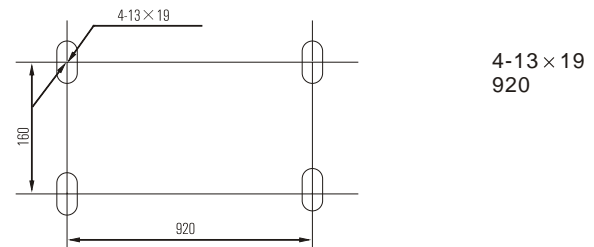
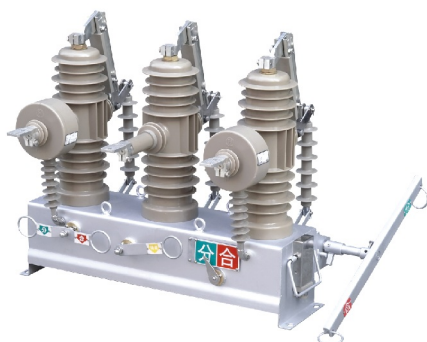


Fig.3 ZW32-12(G) installation hole dimension



## General Description

ZW43-12(G) series outdoor high voltage vacuum circuit breaker is the miniaturized product of Zw32 with tri-phase AC50Hz, rated voltage 12kV, suitable for breaking and making load current, over-load current, short-circuit current of substation system in urban and rural region.



## Type And Meanings

Z	W	43	-	12	G	/	630	20	
									Rated Short Circuit Breaking Current(kA)
									Rated Current (A)
									Disconnecter
									Rated Voltage(kV)
									Serial N O.
									Outdoor
									Vacuum Circuit Breaker

## Main Technical Parameter

Item		Unit	ZW32-12(G) /630-16	ZW32-12(G) /630-20
Rated voltage		KV	12	
Rated current		A	630	
Rated short circuitbreaking current		kA	16	20
Rated short circuitmaking current (peak)			40	50
Rated peak withstand current			40	50
Rated short time withstand current			16	20
Rated short circuitduration		S	4	
Rated insulation level	Lightning impulse withstand voltage(peak)	KV	phase to phase,to earth75;fracture 85	
	1 min powerfrequency withstand voltage		phase to phase,to earth42;fracture 48	
Rated operating sequence			O-0.3s-CO-180s-CO(electrical mechanism)	
Rated short circuitcurrent breaking time		time	30	
Mechanical life time			10000	
Rated operation voltage (opening,closing coil)		V	DC220,110;AC220	
Allowable attrition thickness of moving andfixed contact		mm	3	
Over-current release ratedcurrent			5	
Current transformer ratio			200/5 400/5 600/5	
Clearance between open contacts		mm	9±1	
Contact over travel			2± <sup>1</sup> <sub>0.5</sub>	
Average opening speed		m/s	1.2±0.2	
Average closing speed			0.6±0.2	
Opening time		ms	15~50	
Closing time			25~80	
Closing bounce time			≤2	
Tri-phase opening and closing synchronous			≤2	
Each phase loopDC resistance		μ Ω	≤80	
Stored energy motor	Rated voltage	V	DC/AC 220	
	Rated power	W	70	
	Stored energy time	S	≤8	
Weight		Kg	90	

## Outline And Installation Dimensions

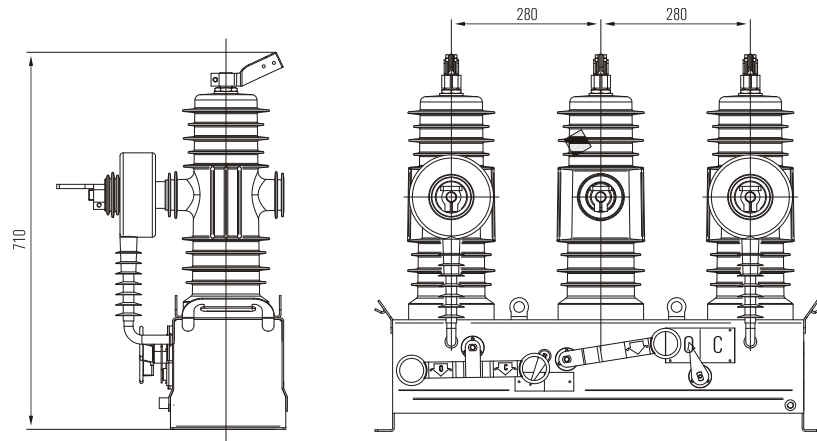


Fig.1 ZW43-12 outline dimension

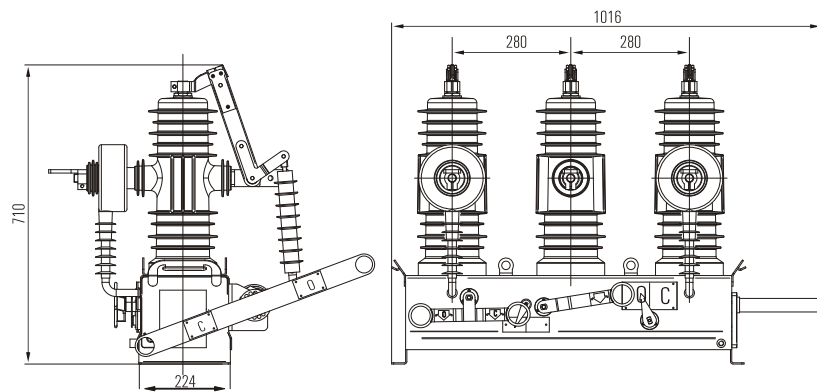


Fig.2 ZW43-12G outline dimension

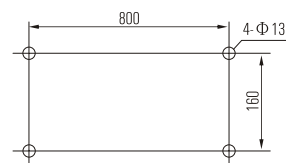


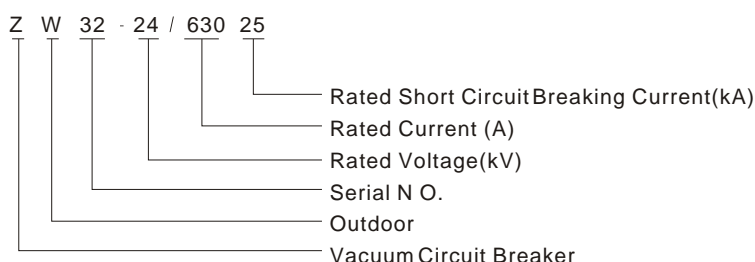
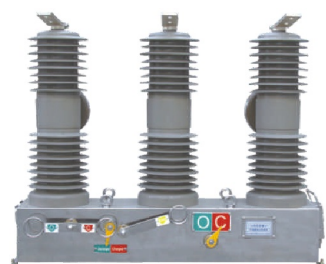
Fig.3 ZW43-12(G) installation hole dimension

## General Description

ZW32-24 type outdoor H.V. Vacuum circuit breaker is an outdoor distribution equipment with rated voltage 24KV, tri-phase AC 50Hz. It is mainly used to break and close load current, overload current and short-circuit current of power system. applicable to substations and power distribution in industrial and mining enterprise for protection and control purposes, especially for frequent operation place with reliable insulation, long-life maintenance free for rural power.

It is more suitable for installing and using to overhaul and maintain rural electric power.

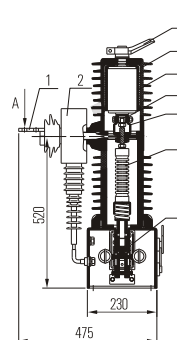
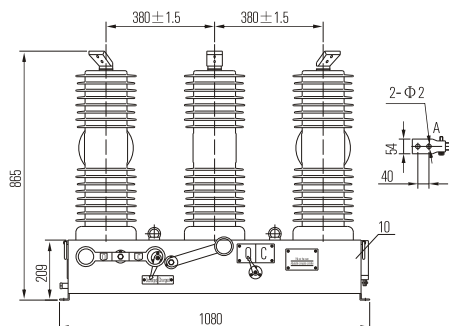
## Type And Meanings



## Main Technical Parameter

Item	Unit	Data
Rated voltage	KV	24
Rated frequency	Hz	50
Rated current	A	630
Rated short-circuit breaking current	KA	25
Rated peak value withstand current (peak)	KA	63
Rated short time withstand current	KA	25
Rated short circuit making current (peak)	KA	63
Rated operating sequence		o-0.3s-CO-180s-CO
Rated short circuit duration	S	4
Mechanical life time	time	10000
Rated current breaking times	time	10000
Rated short-circuit current breaking times	time	30
Power frequency withstand voltages (wet) (dry) inter-phase, earth, fracture	KV	65/79
Lighting impulse withstand voltage (peak) inter-phase, earth, fracture	KV	125/145
Secondary circuit 1 min p.f. Withstand voltage	V	2000
Energized time under rated voltage	s	< 10
Rated current of over current release coil	A	5
Rated voltage of o/c coil	V	DC220
		AC220

## Outline And Installation Dimensions

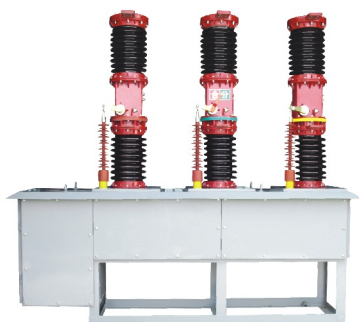


1. lower out-going line
2. current transformer
3. upper in-coming line
4. insulation support
5. vacuum interrupter
6. conductive clamp
7. soft-link
8. insulation lever
9. operation mechanism
10. case body

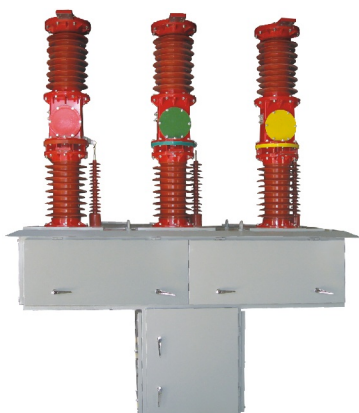
## General Description

ZW7-40.5KV series outdoor H.V. Is an electrical appliance equipment with tri-phase AC 50Hz, rated voltage 40.5kv. it is attached to install spring operation mechanism or electromagnetism operation mechanism, can far control electrically operated opening and closing, also can manually store energy, manually opening and closing. the design performance conforms to the national standard requirement GB1984 AC H.V. Circuit breaker and IEC standard requirement IEC-65 high voltage AC circuit breaker.

ZW7-40.5 vacuum circuit breaker is mainly used in outdoor 40.5KV power transformer system for control and protection, which is also suitable for normal operation and short circuit protection in the city, the township power distribution network and the industry and mining enterprise. the overall structure of this product is the porcelain insulator column type. the upper porcelain insulator is loaded with vacuum interrupter internal, while the lower porcelain insulator is the prop porcelain insulator, which is suitable for frequent operation place, and has many characteristics, such as good leak-proof quality, anti-aging, withstand high voltage, incombustible, non explosion, long service life, easy to install and maintain and so on.



ZW7 side-install type



ZW7 middle-install type

## Type And Meanings

Z W 7 - 40.5 / □ - □

Z	Rated short circuit breaking current (kA)
W	Rated current (A)
7	Rated voltage (kV)
-	Serial No.
40.5	Outdoor
/	Vacuum circuit breaker
□	
-	
□	

## Main Technical Parameter

Item			Unit	Data	
Rated voltage			KV	40.5	
Rated current			A	1600	2000
Rated short circuitbreaking current			kA	25	31.5
Rated short circuitmaking current (peak)				63	80
Rated short timewithstand (thermal stable)current				25	31.5
Rated peak value withstand (dynamic)current				63	80
Rated short-circuit duration			s	4	
Rated insulation level	Lightning impulse withstand voltage(peak)		KV	185	
	I min powerfrequency withstand voltage	Dry type		95	
		Wet type		80	
Rated operation sequence				O-0.3s-CO-180s-CO	
Breaking times of rated short-circuit breaking current			time	20	
Full breaking time(to match spring operating device)			ms	≤80	
Mechanical life			time	6000	
Rated operating voltage			V	220	
Opening distance of contact			mm	22 ± 2	
Over travel of contact			mm	5 ± 1	
Bounce time			ms	≤5	
Each phase circuit dc resistance			μ Ω	≤120	
Outline dimension(length heightwidth)			mm	2335 × 2275 × 500	
Whole weight of circuit breaker and mechanism			Kg	1100	

## Outline And Installation Dimensions

- 1.Upper outgoing line terminal
- 2.Vacuum interrupter
- 3.Handling hole coverplate
- 4.Lower outgoing line terminal
- 5.Support insulator
- 6.Mechanism box
- 7.Door
- 8.Swinging ring screw
- 9.Door hander
- 10.Operating mechanism(in box)
- 11.Observing window
- 12.Insulation pulling lever
- 13.Crutch
- 14.Supporter
- 15.Current transformer
- 16.Screw

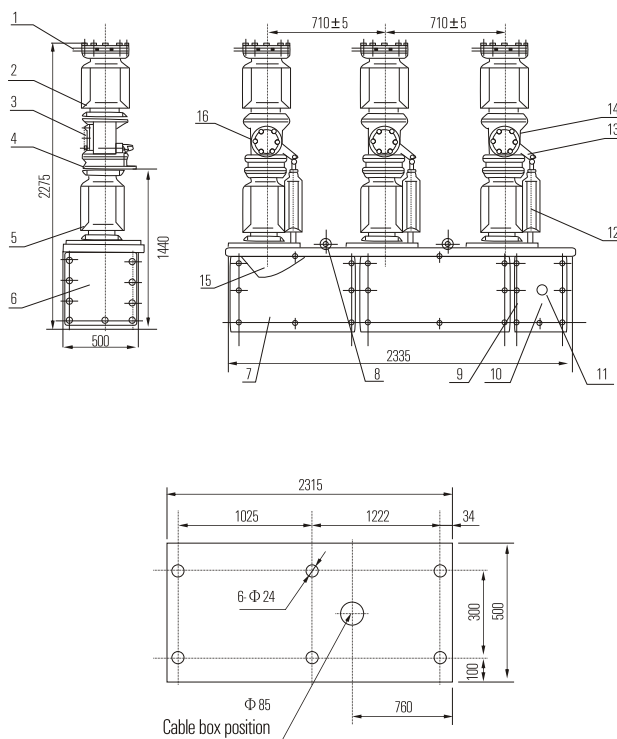


Fig.1 ZW7-40.5 type vacuum circuit breaker (side-install)

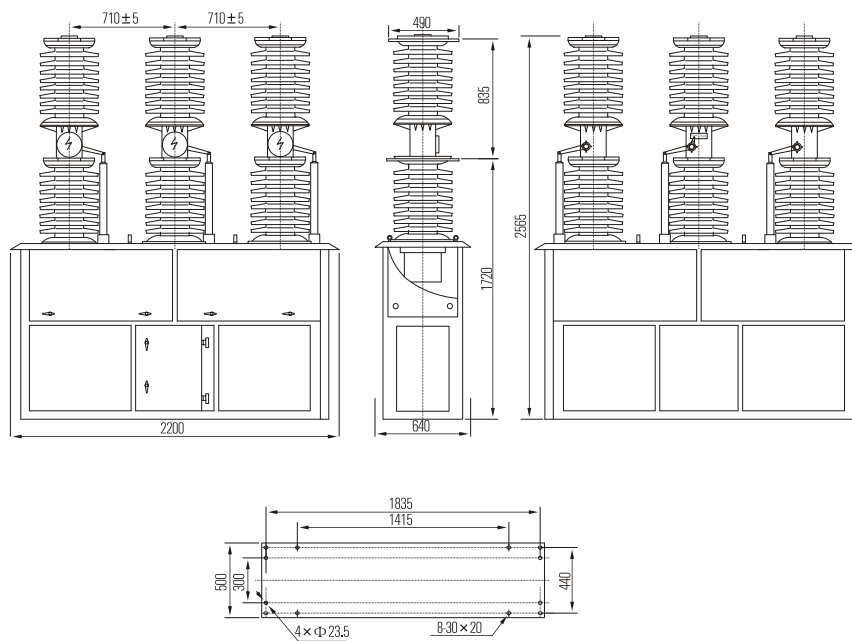


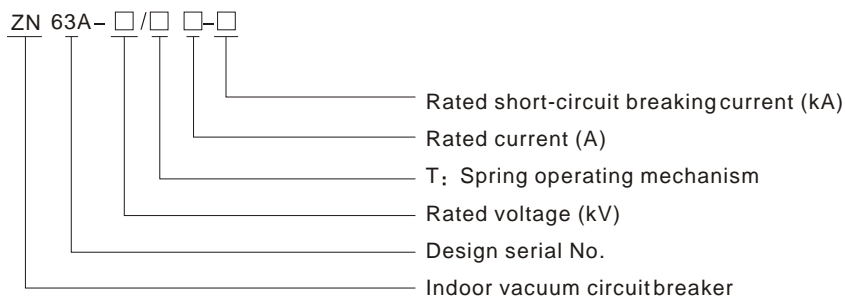
Fig.2 ZW7-40.5 type vacuum circuit breaker (middle-install)



### General Description

ZN63A(VS1)-12 indoor high vacuum circuit breaker used to indoor switch equipment of 12kv power systems a Protection and control unit for power network equipment, industrial and mining enterprise power equipment. due to the special advantages of vacuum circuit breakers, especially suitable for the frequent operation of the rated operating current, or the place where the short-circuit current. Circuit breaker operating mechanism and circuit breaker body as integration design can as a fixed unit, equipped with special propulsion mechanism, form a handcart unit. It accords with GB1984-2003 "AC high voltage circuit breaker", JB3855-1996 the 3.6~40.5kv indoor AC high voltage vacuum circuit breaker ", DL/T403-2000 the 12kv~40.5kv high voltage vacuum circuit breaker order technical conditions" standard requirements, and in accordance with the IEC56.

### Outline And Installation Dimensions



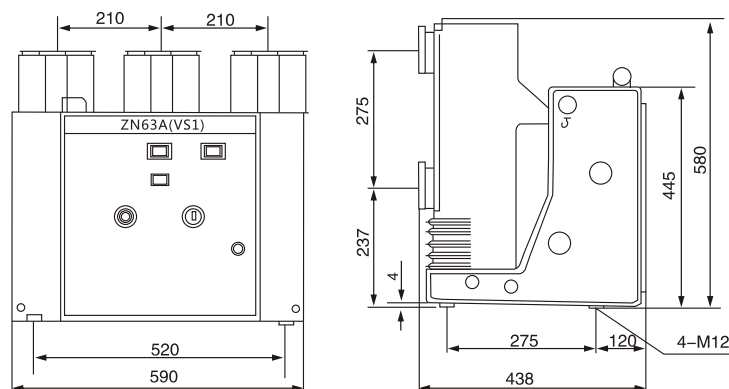
### Ambient Condition

1. The ambient air temperature :Maximum +50℃; Minmum:-25℃
2. The altitude dose not exceed 100m.
3. Relative humidity :monthly average 90%,daily average 95%;
4. water vapor pressure: daily average is not more than 2.2kpa, monthly average is not more than 1.8kpa
5. Applicable occasions should be free from inflammables, explosives, corrosives and violent vibrations

## Technical Parameters

Name	Unit	Data			
Rated Voltage	KV	12			
Power Frequency Withstand Voltage (1min)		42			
Lightning Impulse Withstand Voltage (peak)		75			
Rated Frequency	HZ	50			
Rated Current	A	630 1250	630 1250	630 1250 1600 2000 2500 3150	1250 1600 2000 2500 3150 4000
Rated Short Circuit Breaking Current	KA	20	25	25	40
Rated Short Time Withstand Current		20	25	25	40
Rated Short Duration	S	4			
Rated Peak Withstand Current	KA	50	63	63	100
Rated Short-circuit Current (peak)		50	63	63	100
Secondary Circuit 1min Power Frequency Withstand Voltage	V	2000			
Rated Operating Sequence		分-0.3S-合分-180S-合分 分-180S-合分-180S-合分(40KA)			
Rated Short-circuit Current Breaking Times	次	50(40KA为30)			
Mechanical Life		20000(40KA为10000次)			
Rated Operating Voltage	V	AC/DC220、AC/DC110			
Open Contacts	mm	11 ± 1			
Contact Overtravel	mm	3.5 ± 0.5			
Three-phase Closing or Sub-gate Different Period	ms	≤2			
Contact Closing Bounce Time		≤2 ≤3(40KA)			
Contact Bounce Pressure	N	20kA、25kA(2400 ± 200)、31.5kA(3100 ± 200)、40kA(4500 ± 300)			
Average Opening Speed	m/s	1.1 ± 0.2			
Average Closing Speed	m/s	0.6 ± 0.2			
Opening time	ms	20~50			
Contact closing time	ms	30~70			
Static And Dynamic Contact Permission Attrition Thickness	mm	3			
Each Phase Main Circuit Resistance	μ Ω	630A(≤60)、1250A(≤45) 1600A~2000A(≤40)2500A以上(≤30)			

## Outline And Installation Dimensions

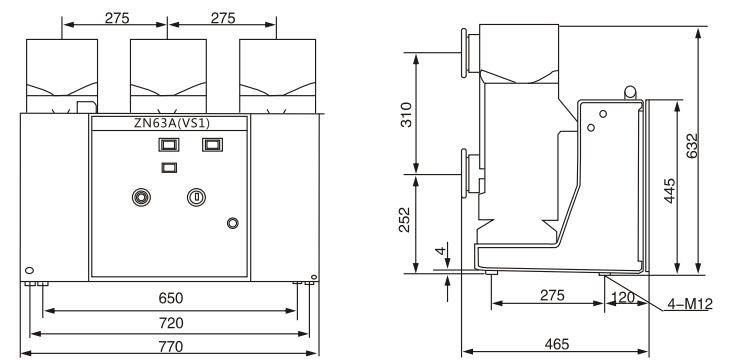


Rated current (A)	630	1250	1600
Rated short-circuit breaking current (KA)	20、25	20、25、31.5、40	25、31.5、40

Fixed ZN63A(VS1) dimensions

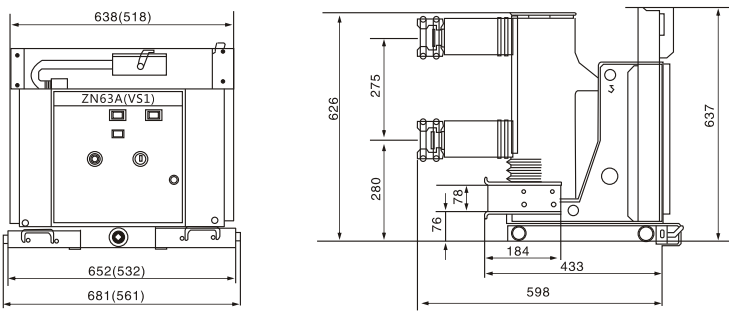


Outline And Installation Dimensions



Fixed ZN63A(VS1) dimensions

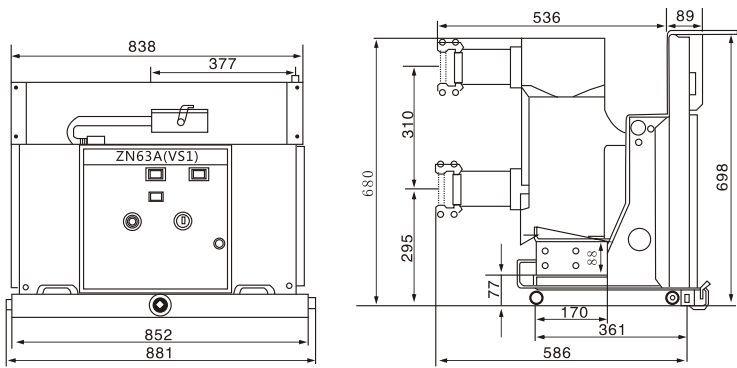
Rated current (A)	1600	2000	2500	3150
Rated short-circuit breaking current (KA)	31.5、40	31.5、40	31.5、40	31.5、40



Handcart ZN63A(VS1) Dimensions

Rated current (A)	630	1250	1600
Rated short-circuit breaking current (KA)	20、25	20、25、31.5、40	25、31.5、40
With static contact size (mm)	φ 35	φ 49	φ 55

Note: 1. The tooth size of the moving and static contacts is not less than 15mm, and the phase spacing is 210±1.5mm.  
2. the size of the brackets is 680mm wide, and the spacing between them is 160mm.



Handcart ZN63A(VS1) Dimensions

Rated current (A)	1600	2000	2500	3150
Rated short-circuit breaking current (KA)	31.5、40	31.5、40	31.5、40	31.5、40
With static contact size (mm)	φ 79	φ 79	φ 109	φ 109

Note: 1. The tooth size of the moving and static contacts is not less than 15mm, and the distance between the first phase is 275±1.5mm.

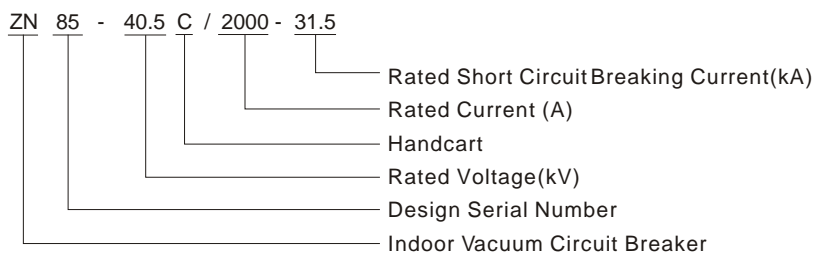


### General Description

ZN85-40.5 series indoor high-voltage vacuum circuit breaker is a kind of three-phase indoor high-voltage switchgear of rated voltage 40.5kV and AC 50Hz, equipped with a special 3AV3 spring structure. It can be configured in JYN1-40(Z) moving-off metal-enclosed switchgear, also can be configured in KYN61-40.5(Z) assembly type metal-closed switchgear to use. It is the best ideal circuit breaker of 40.5 kV device.



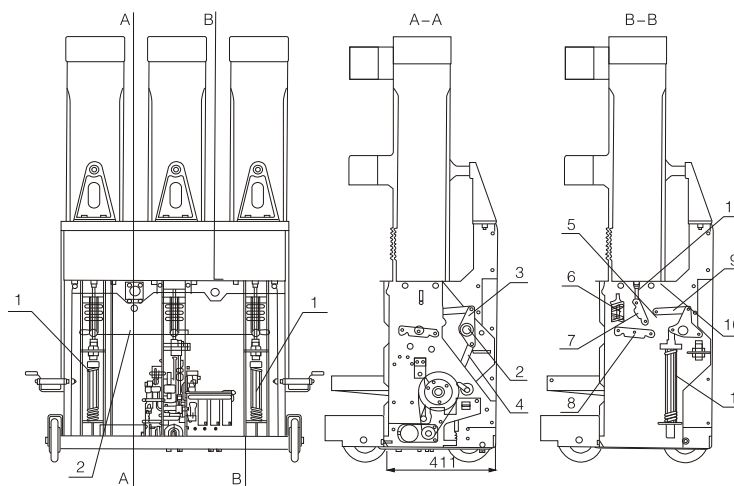
### Type And Meanings



### Main Technical Parameter

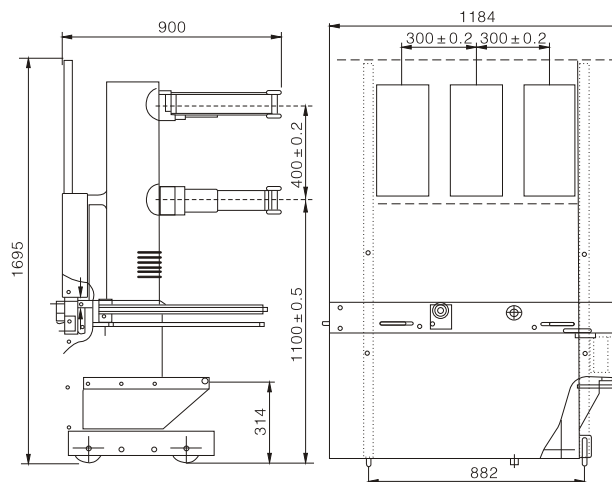
Item	Unit	Data
Altitude	M	≤ 1000
Ambient Temperature	C	within the range of -10C to +40C
Rated Voltage (as to Highest Voltage)	kV	40.5
Rated Frequency	Hz	50
Rated Current	A	1250/1600/2000
Rated Short-time Withstand Current	kA	20/25/31.5
Rated Peak Withstand Current	kA	50/63/80
Rated Short-circuit Duration	s	4
Rated Power Frequency Withstand Voltage	kV	95
Rated Lightning Impulse Withstand Voltage	kV	185
Rated Operating Sequence		O-0.3s-C O-180s-CO
Rated Breaking Current of Single Capacitor Bank	A	630
Rated Breaking Current of Back-to-back Capacitor Bank	A	400
Rated Current Breaking Times	times	20
Mechanical Life	times	10000
Operator Type		ZN85-40.5: 3AV3 Special Spring Operator; ZN23-40.5/ZN39-40.5: CD10 II Electromagnetic Operator or CT19N Spring Operator

## Outline And Installation Dimensions



Schematic Diagram Of Circuit Breaker

1. Brake Spring 2. Large Axis 3. Middle Pole Arm 4. transmission Rod  
 5. Drive Connecting Plate 6. contact Spring 7. Drive Plate 3  
 8. Drive Plate 4 9. drive Plate 1 10. Side Pole Arm. 11. rod End Bearing



ZN85-40.5 (3AV3) Vacuum Circuit Breaker Handcart

## General Description

ZW20A-12C type AC H.V. vacuum pole automatic controller is used in tri-phase electric system of AC 50Hz, rated voltage 12kV. it can breaking and closing load current, overload current and short circuit fault current, as a device to control and protect electrical network.

## Main Functions

The controller is an intelligentized device, matches sectionalizer to reach distribution automation without other control system. consist of circuit breaker (with mechanism operation), controller and control power, besides to opening or closing regular and fault current as circuit breaker, it can repeatedly auto reclosing by advanced setting times for sectionalizer to isolate fault circuits when the short circuit fault happen. The non-fault lines will resume power supply; if repeatedly auto reclosing failed, closing and interlock inside of the controller, another side of network, originally closing and interlock status will remove interlock and auto closing, non-fault lines resume power supply at once. the network automation could limit the power supply interrupted district into minimum range, it has high social benefit and economical benefit.

The product is practical and reliable, multiple functional, the controller uses microprocessor, the panel shown in digital, conveniently with person-machine talking, all the parameters could be adjusted, new function of GPRS communication system could achieve opening, closing operation and teledata communication function by mobile phone, it can transmit lines parameters and running state of the equipment.

The product adopts ZW20A-12 type outdoor AC H.V. Vacuum circuit breaker as noumenon, the noumenon switching adopts vacuum interrupter to arc extinguishing and SF6 gas to isolate, the case adopts gas sealed, isolation structure technic. No leakiness of internal filling gas, the spring mechanism operation promotes with miniaturization and performance optimization design, operation reliability is more advanced than domestic traditional spring mechanism. main circuit is sealed inside the case, it is the first choice on controlling and protecting for intelligent electrical network.

## Main Characteristics

- mian circuit and mechanism operation of circuit breaker are sealed in SF6 gas, no influenced by outside envirmint, reaches requirement of free maintaining and long life.
- it completes a set with electronic controller, to realize remote-control, remote-supervision, remote-signalling, remote-adjusting function, to achieve electrical network intelligent control requirement.
- new design of miniaturization electromotion spring mechanism, whole spare parts of the product reduced to lowest level, increase the reliability and energy saving of circuit breaker.
- fixed with anti-explosion device at the top of case, to avoid leakiness of high temperature gas and splash even if accident occur, ensuring the safe and reliability for the product.

## Main Technical Parameter

Item	Unit	Data
Rated voltage	KV	12
Rated frequency	Hz	50
Rated current	A	630, 1000
Rated short circuit breaking current	kA	16, 20, 25
Rated peak value withstand current	kA	40, 50, 63
Rated short time withstand current (4s)	kA	16, 20, 25
Rated short circuit making current (peak)	kA	40, 50, 63
Mechanical life time	time	10000
Rated current breaking times	time	10000
Breaking times of rated short circuit current	time	30
P.F. withstand voltage (1 min): inter-phase; to earth; fracture	KV	42/48
Lightning impulse withstand voltage; inter-phase; to earth; fracture	KV	75/85
Secondary circuit 1 min power frequency withstand voltage	KV	2
N.W.	Kg	140

### Mechanical Property Parameter

Item	Unit	Data
Opening distance between contacts	mm	$9^{+1}_{-0.5}$
Contact over travel	mm	$3^{+1}_{-0.5}$
Opening speed	m/s	$1.2 \pm 0.2$
Closing speed	m/s	$0.6 \pm 0.2$
Contact closing bounce time	ms	$\leq 2$
Central distance between phases	mm	$135 \pm 1.5$
Insulation distance of outer electrified air	mm	$24 \pm 0.2$
Outer creepage	cm/kV	3.8
Tri-phase opening asynchronous	ms	$\leq 2$
Each-phase conductive circuit resistance	$\mu \Omega$	$\leq 150$
Closing time	ms	$\leq 45$
Opening time	ms	$\leq 45$
Rated power of energy-stored motor	W	$> 40$
Rated voltage of energy-stored motor	V	Ac220
Rated closing operation voltage	V	AC220
Max./min.closing operation voltage	V	AC264/143
Rated opening operation voltage	V	AC220
Max./min.opening operation voltage	V	AC264/143
Max./min.motor voltage	V	AC242/187
Rated pressure of sf6 gas (psig)	Mpa	" 0 "

### Outline And Installation Dimensions

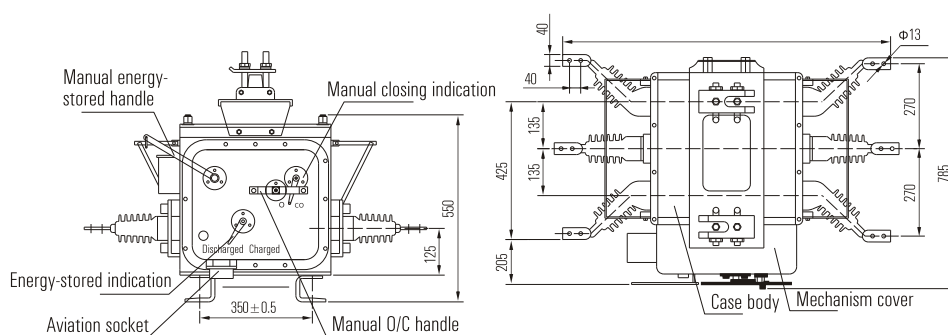


Fig.1 ZW20A-12C outlined dimension

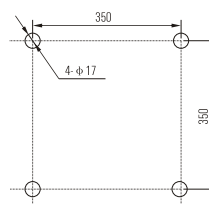


Fig.2 ZW20A-12C installation hole

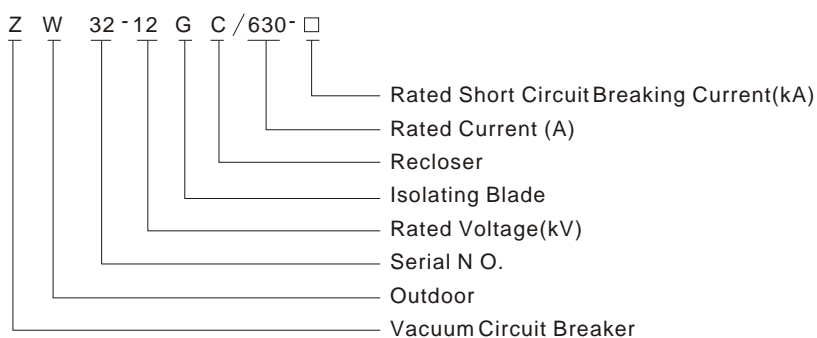


## General Description

ZW32-12C type outdoor H.V. vacuum automatic recloser is used in tri-phase distributed power system of AC 50Hz, voltage 12kV. It can automatically breaking and reclosing operation in AC lines according to preconcerted breaking and reclosing order, and then automatically restore, or lock H.V. switch equipment with control and protection function used with sectionalizer. It can realize distribution automatically without another control system. The system can rapidly subsection and isolate fault, reduce the range of power of power cut to least. It is the reasonable equipment for transforming urban and rural net, can be matched with isolating switch according to customers.

This circuit breaker should match with voltage transformer.

## Type And Meanings



## Main Technical Parameter

Item			Unit	Data		
Rated voltage			KV	12		
Rated insulation level	Lightning impulse withstand voltage(peak)			75		
	1 min power frequency withstand voltage	Dry-type		42		
		Wet-type		34		
Rated current			A	200	400	630
Rated short circuit breaking current			kA	12.5	16	20
Rated operating sequence				O-0.3s-CO-180s-CO		
Rated short circuit current breaking time			time	30		
Rated short circuit making current (peak)			kA	50		
Rated peak withstand current				50		
Rated short time withstand current				12.5    16    20		
Rated short circuit duration			s	4		
Opening Time Under Rated Operation Voltage			ms	15~50		
Closing time				25~50		
Mechanical life time			time	10000		
Rated Operation Voltage & Rated Control Voltage Of Auxiliary Circuit			V	~220	~110	~24
Energy-stored Time Under Rated Voltage			s	<10		
CT	Ratio		A	()/5		
	Capacity		VA	15		
PT	Output Voltage		V	~220	~110	~24
	Capacity		VA	600		
Over Current Adjust			A	2~10		
Delay Time			ms	40~850		
Fast-break Current			A	18		
Remote-control Distance			m	30		
Rated Input Power Of Energy-stored Motor			W	40		

## Outline And Installation Dimensions

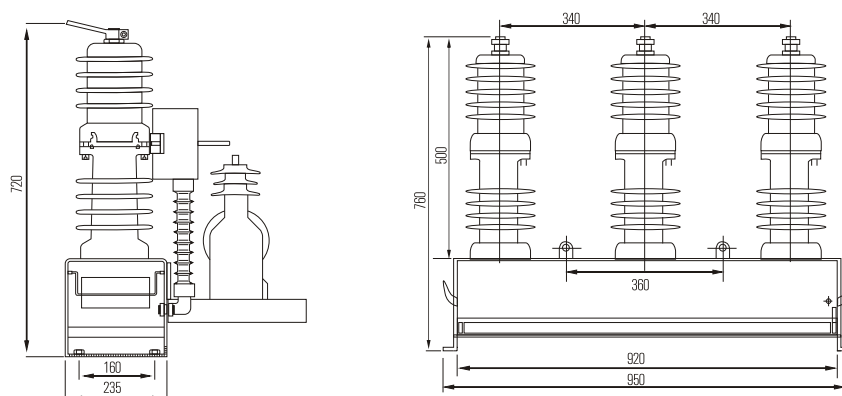


Fig.1 ZW32-12C outline dimension

1. Isolating operating handle
2. Isolating main shaft
3. Manual O-C handle of C.B
4. Energy-storage handle of C.B
5. O-C indication
6. Outer adjusting box of composite surge controller
7. Wiring bos of C.B.
8. Insulation
9. Insulation lever
10. Insulation frame
11. Nameplate
12. Insulating unit
13. Fasten copper nut
14. Wiring plate(outgoing-line end)
15. Current transformer
16. Isolating blade
17. Wiring plate (incoming-line end)

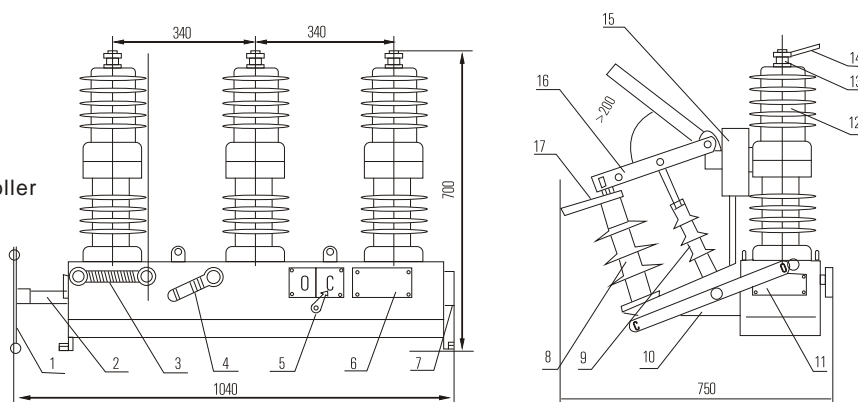


Fig.2 ZW32-12GC outline dimension

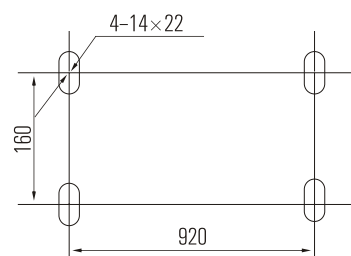


Fig.3 ZW32-12(G)C installation hole dimension

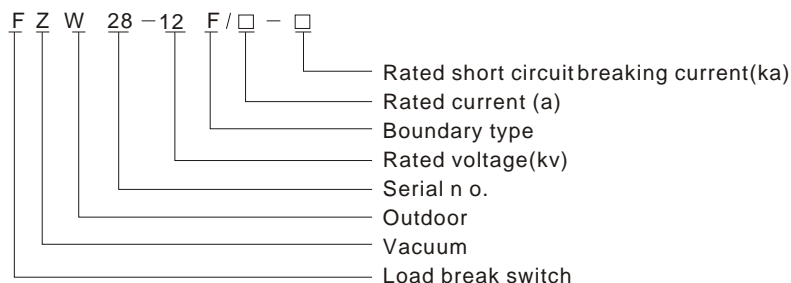


## General Description

On the 12kV feeding line, when the error happened at one tributary line of the T type link users, normally it will cause the main line or adjacent users power cut accident, the investing make known this kind of accident takes 20%-30% or higher percentage in all power distribution accident, the result is enlarged power cutting scope and cause responsibility disputation.

Mounted a user boundary load break switch (also name watchdog) at the above T-type connecting point is the ideal solution to the above accident.

## Type And Meanings



## Main Function Characteristic

Automatically cut single phase earthing fault: when users tributary line cause single phase earthing fault, the boundary switch will open automatically, other distribution line users of the substation and feeding line will be without influence; isolation interphase short circuit fault automatically.

When the tributary line cause interphase short-circuit fault, boundary switch will open at once after out-wire protection tripping. after the substation reclose, fault line is isolated passively, other distribution users in feeding line resume power supply rapidly (equal to a transient fault).

Quick localization of fault: the tributary line fault cause boundary switch protection action, only the accident user cause power cut and by itself report the fault information, the power company could dispatch worker to live investigation; if the boundary switch match with communication, the power company could dispatch worker to live investigation; if the boundary switch match with communication module, it could transmit message to electricity management center.

Monitoring users load, boundary switch could configure wired or wireless communication enclosure to monitor data and transmit to electricity management center, make the achievement of real-time data monitoring of users load in long distance.

Function of network running, it could be used in network lines; function of measurement, monitor voltage, current, frequency and quantity of electricity of lines, and transmit to management center in long distance. Function of harmonic analyzing, to supply reliable basis for pollution administration of electricity net afterwards.

## Condition Of Using Envirment

- a. Altitude:  $\leq 2000\text{m}$
- b. relative humidity:  $\leq 90\%$  ( $25^\circ\text{C}$ )
- c. Max. wind speed:  $\leq 25\text{m/s}$
- d. ambient temperature:  $-40^\circ\text{C} \sim 85^\circ\text{C}$
- e. Max. day temperature gap:  $25^\circ\text{C}$
- f. Max. ice-covering thickness:  $10\text{mm}$

## Main Technical Parameter

a. Switch body

Item	Unit	CFZW28-12F
Rated voltage	KV	12
Power frequency withstand voltage (phase to phase, to earth/fracture)	KV	42/48
Lighting impulse withstand voltage (phase to phase, to earth/fracture)	KV	75/85 (peak)
Rated current	A	630
Rated short time withstand current	KA	16
Rated thermal stability current	s	2
Rated short circuit making current (peak)	KA	40
Rated dynamic stability current (peak)	KA	40
Rated cable charged breaking time	A	20
Rated switching no-load transformer induction current	A	< 5
Mechanical life time	time	10000

b.controller

Item	CZW28-12F
Input operation voltage	AC220 ± 20%
Input operation voltage frequency	50Hz
Output voltage(opening)	DC220V,DC48V
Inter-phase short circuit protection current setting value	0.2, 0.4, 0.6, 0.8, 1.0, A5 section switching
Earthing protection zero-order current setting value	10~200mA 20 sections switching, differential 10mA
Earthing protection time setting value	0,0.2, 0.4, 0.6, 0.8, 1.0 S6 sections switching
Setting value error	± 5%
Insulation impedance(outer terminal to earth input terminal,to output terminal)	> 100MΩ/DC500V
P.F.withstand voltage(outer terminal to earth input terminal,to output terminal)	2000V/1min
Impulse withstand voltage(outer terminal to earth input terminal,to output terminal)	5000V,1.2/50μ each 3 time of plus and minus

Outline And Installation Dimensions

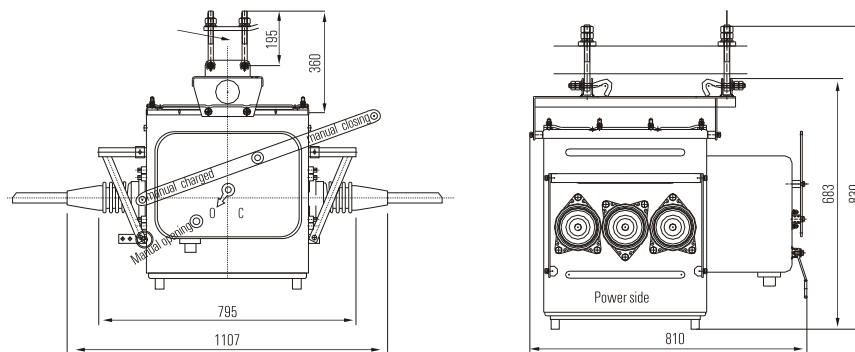
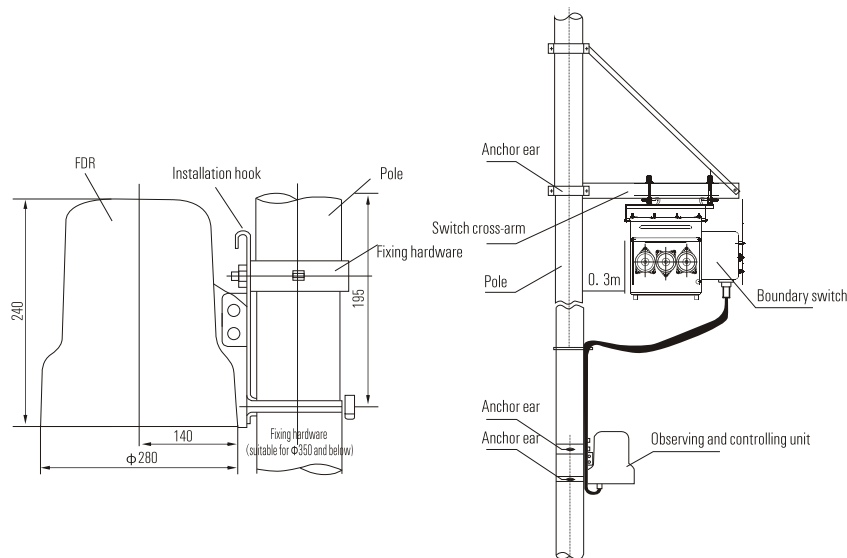


fig.1 boundary switch outline dimension(current transformer and zero-order transformer provided as per users requierments)



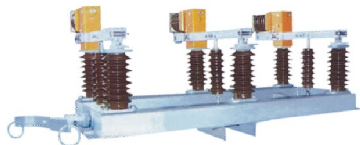
Length of control cable:7m

connecting mode of digging cable:avaition connector

fig.2 controller outline dimension

fig.3 pole-installion drawing

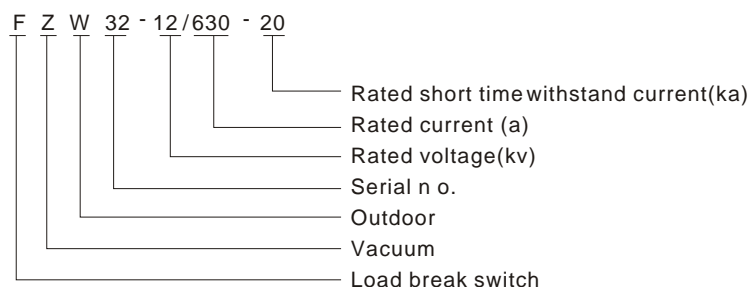
## General Description



FZW32-12/T630-20 outdoor H.V. Isolating vacuum load break switch, a new generation of H.V. Electrical equipment jointly developed by Changan group co., ltd. with techniques of xian high-voltage electrical equipment research institute and firstly manufactured by our company, has passed the strict type test long-term test. all of its technical performance indexes have been up to the standard of GB3804 and IEC. the product is designed mainly for building and upgrading urban and rural grid and is applicable for the grid with rated voltage of 12kv, 3-phase AC 50Hz.

Its base is made of stainless steel or pot galvanized carbon steel with anti-ultraviolet coating, which ensures that it can run smoothly outdoors. all of its parts are made of stainless steel to improve the durability, stability, waterproofness, and salt fog resistance of the load switch. it is entitled to compactness, light weight, handsome figure, operation-friendly, high parameters and breaking capability, safe and reliable, long service life, can be operated frequently, requires less servicing, and has evident fracture. it can be operated manually with a single pole, or electric remote control.

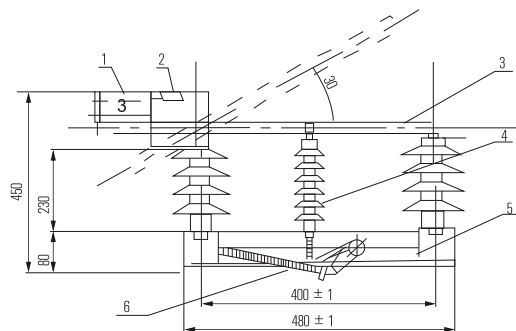
## Type And Meanings



## Main Technical Parameter

Item		Unit	Data
Rated voltage		KV	12
Rated frequency		Hz	50
Rated current		A	630
Rated power load breaking current		A	630
Rated closed-loop breaking current		A	630
5% rated power load breaking current		A	31.5
Rated cable charged breaking current		A	10
Rated no-load transformer capacity		KVA	1600
Rated breaking capacitor bank current		A	100
1 min p.f. Withstand voltage (vacuum fracture, phase to phase, to earth/isolating fracture)		KV	42/48
Lightning impulse withstand voltage (phase to phase, to earth/isolating fracture)		KV	75/85
Rated short time withstand current (thermal stably)		KA	20
Rated short circuit duration		s	4
Rated peak withstand current (dynamic stably)		KA	50
Rated short circuit making current		KA	50
Mechanical life time		time	10000
Contact allowable attrition thickness in the vacuum interrupter		mm	≤2
Manual operation torque		Nm	≤200
Vacuum interrupter assembly adjustment of load break switch	Opening distance between contacts	mm	5 ± 1
	Average opening speed	m/s	1.1 ± 0.2
	Tri-phase opening synchronous	ms	≤5
	Tri-phase closing synchronous	ms	≤2
	Air distance of electrics and phase to earth	mm	> 200
	Auxiliary circuit resistance	μ Ω	≤400

### Outline And Installation Dimensions

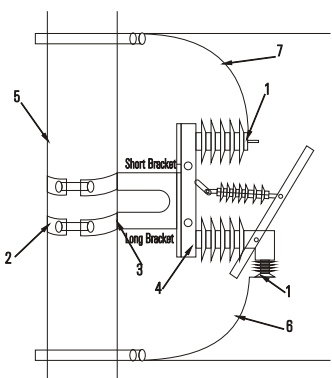


- 1. Vacuum interrupter
- 2. opening spring
- 3. isolating blade unit
- 4. insulation lever
- 5. frame
- 6. spring mechanism

### Main Technical Parameter

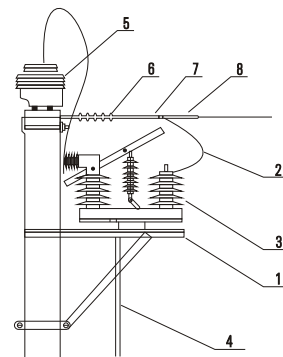
Installation mode	Horizontal width	AB phase to phase distance	BC phase to phase distance
Single-pole horizontal installation	1300	750	320
Single-pole side-installation	1230	500	500
Single-pole side-installation	1050	400	400

### Installation Mode And Supporters Drawing



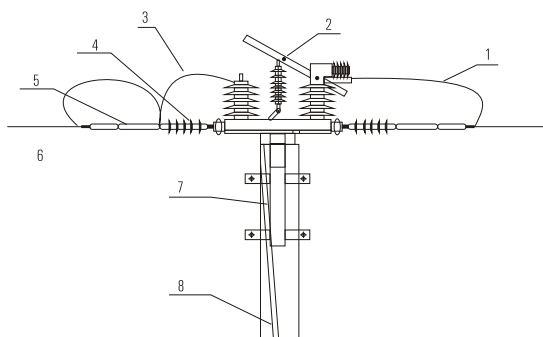
- 1. terminal
- 2. anchor ear
- 3. installation bracket(long bracket,short bracket)
- 4. load break switch
- 5. pole
- 6. power out-line
- 7. power in-line

fig.1 single-pole side-installation



- 1. switch bracket parts
- 2. connecting copper bar
- 3. load break switch
- 4. operation lever
- 5. CT (electrical operation mechanism power)
- 6. porcelain pull-rod insulator
- 7. fork lock
- 8. strain clam

fig.2 horizontal installation



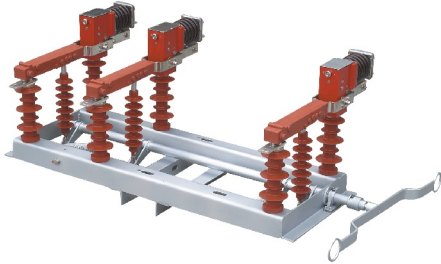
- 1. connecting wire
- 2. load break switch
- 3. connecting copper bar
- 4. porcelain pull-rod insulator
- 5. fork lock
- 6. strain clamp
- 7. switch bracket
- 8. operation lever

Fig.3 installation on the pole top

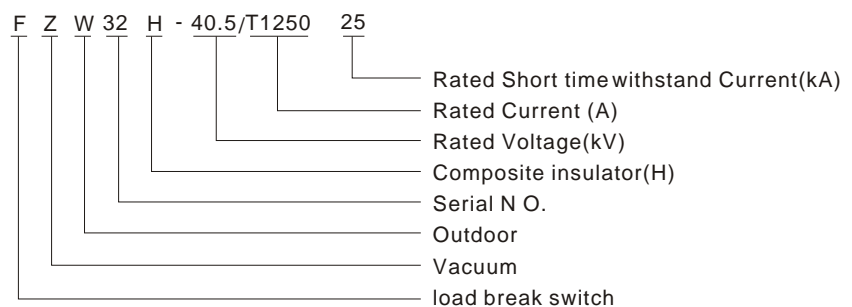
## General Description

FZW32-40.5kv/T1250A-25KA outdoor H.V. Isolating vacuum load break switch is the new generation H.V. Equipment solely developed and firstly manufactured by changan electrical co.,ltd.all of its technical performance indexes are up to the standard of GB3804 and IEC.the product is mainly designed for building and upgrading urban and rural grid and is applicable for the grid with rated voltage of 40.5kv,3-phase AC 50Hz.

Its base is made of stainless steel or pot galvanized carbon steel with anti-ultraviolet coating, which ensures that it can run smoothly outdoors.all of its parts are made of stainless steel to improve the durability, stability, waterproofness, and salt fog resistance of the load switch. It is entitled to compactness, light weight, handsome figure, operation -friendly, high parameters and breaking capability, safe and reliable, long service life, can be operated frequently, requires less servicing, and has evident fracture. it is operated in the electromotive and remote control.



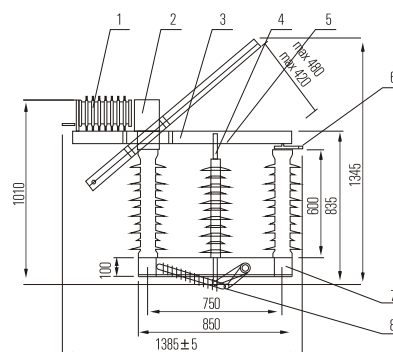
## Type And Meanings



## Main Technical Parameter

Item	Unit	Data
Rated voltage	KV	40.5
Rated frequency	Hz	50
Rated current	A	1250
Rated power load breaking current	A	1250
Rated closed loop breaking current	A	1250
5% rated power load breaking current	A	62.5
Rated cable charging breaking current	A	35
1 min power frequency withstand voltage: vacuum fracture, phase to phase, to earth /isolating fracture	KV	68/95/110
Lightning impulse withstand voltage: phase to phase, to earth /isolating fracture	KV	185/215
Rated short time withstand current (thermal stability)	KA	25
Rated short circuit duration	s	4
Rated peak withstand current (dynamic stability)	KA	63
Rated short circuit making current	KA	63
Mechanical life	time	10000
Contact allowable attrition thickness in the vacuum interrupter	mm	0.6
Manual operation torque	Nm	≤350

## Outline and installation dimensions

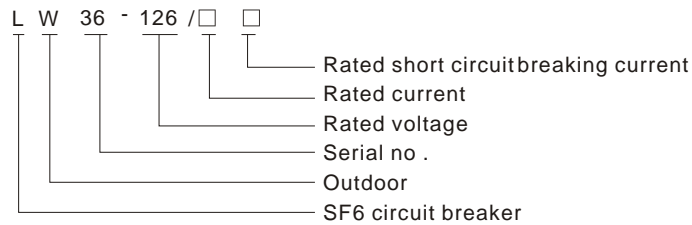


1. Vacuum interrupter
2. Aluminum bracket unit
3. isolating blade
4. insulation lever
5. striking blade
6. out-line terminal
7. under frame
8. middle spring

## General Description

This product is used to control and protect circuit in 126kv and AC 50Hz power system. It could also be used to connect circuit breaker.

## Type And Meanings



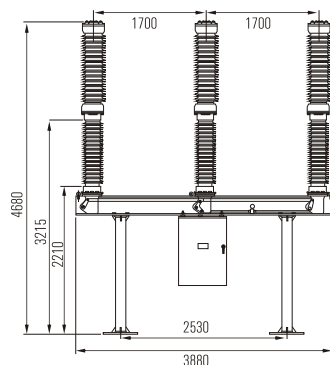
## Product Feature

- a. Excellent breaking performance of arc-extinguish chamber;
- b. Reliable spring operating mechanism;
- c. Safe and reliable operation;
- d. Less maintenance;
- e. High insulation level;
- f. Good shock resistance and anticorrosion capacity.

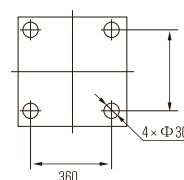
## Main Technical Parameter

Item	Unit	Data
Altitude	M	1000,2000,3000
Ambient temperature	℃	-30~+40
Rated voltage	KV	72.5 126 256
Rated current	A	2500 3150
Rated frequency	Hz	50
Rated short-circuit breaking current	KA	31.5 40
Rated short circuit making current	KA	80 100
Rated short time withstand current	KA	31.5 40
Rated peak withstand current	KA	80 100
Rated power frequency withstand voltage	KV	to earth:230 fracture:230+73*(reverse pressurization)
Rated lightning impulse withstand voltage	KV	to earth:550 fracture:550+103*(reverse pressurization)
Rated short circuit current duration	s	4
Rated out-of step breaking current	A	8 10
Line fault breaking current		90% 75% 60%
Rated cable charged making current	A	31.5
Rated operating sequence		O-0.3s-CO-180s-CO
SF6 gas pressure(20℃ gauge pressure)	Mpa	0.6
Mechanical life time	time	6000
Control circuit voltage	V	DC110 or 220
Creepage distance	mm/kV	25 31
Weight	kg	1500

## Outline And Installation Dimensions



Foundation installation hole



LW36-126 SF6 circuit breaker typical drawing

## Structure introduction

GW1-12 type outdoor high voltage disconnecting switch is used on the outdoor high voltage power distributing equipment line, and is purposed on disconnecting line and transfer line when the line is no load and with voltage. Each single pole disconnecting switch has the same structure, like pedestal insulator, front and back fixed contacts, knife switch, arc angle and etc.

GW1-12G type switch has a grounding knife switch, and it could be placed effectively with misoperations with live hanging earth wire and earthing switch, the operators don't need to hang other earth wires. The electric and mechanic performance of this model have been fully complied to GB1985 and its 1st modification and IEC129, IEC694 requirements. It is the next replacement of the current model 10KV outdoor disconnecting switch.

GW1-12 combined type outdoor high voltage disconnecting switch is a double poles vertical open type, with waterproof manual operated mechanism CS8-5D and motor operated mechanism CX-6. This model is a knife type switch with three phases shared underframe, structured with underframe, insulator and electric conduction. The underframe is formed with a frame welded by rotation shaft, bending plate and steel angle. There are six insulators fixed on the shelf. Every two insulators become to one phase. The three phase operating insulator is mounted on the rotation shaft, which is used to operate the opening and closing of the three phase switch. The electric conduction is formed with contacts, knife switch and contact seat, pressed tightly with spring. Operate the crutch and rotating the shaft when opening the knife switch, making the operating insulator moving up and separate the knife switch from the contacts. The knife switch rotates with the contact seat. With the knife switch action, the contacts also move up to the switch closing position. Operate the crutch making the shaft rotating when closing the knife switch, making the operating insulator pulling the knife switch down to rotate, and rotate together with the contacts when they meet, until to the switch closing position.

## Main Technical Parameter

Program				Unit	Parameter					
Rated Voltage				KV	10		15		20	
Maximum Operating Voltage				KV	12		17.5		24	
Rated Insulation Level	1 Min PowerFrequency Withstand Voltage(effective)		ToGround	KV	40		40		50	
			open contacts	KV	47		47		60	
	Rated Lightening Impulse Withstand Voltage(peak)		ToGround	KV	105		105		125	
			open contacts	KV	120		120		145	
Rated Frequency				Hz	50					
Rated Current				A	200		400		630	1250
4 secs thermalcurrent(effective)				KA	6.3		12.5		20	31.5
Dynamic Current(peak)				KA	16		31.5		50	80
Suitable Mechanism				CS8-1、CS8-D、CS8-5 Waterproof manual operated mechanism Cx6 motor operated mechanism						



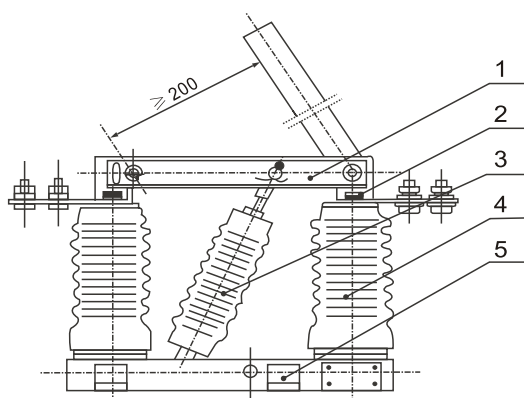
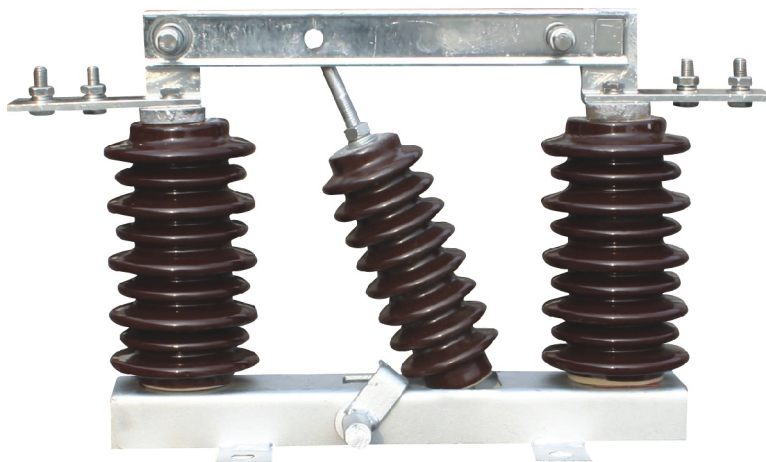


Fig.1 GW1-12G(new)

1.contact knife. 2.contact 3.operating insulator.  
4.Post insulators 5.underframe.

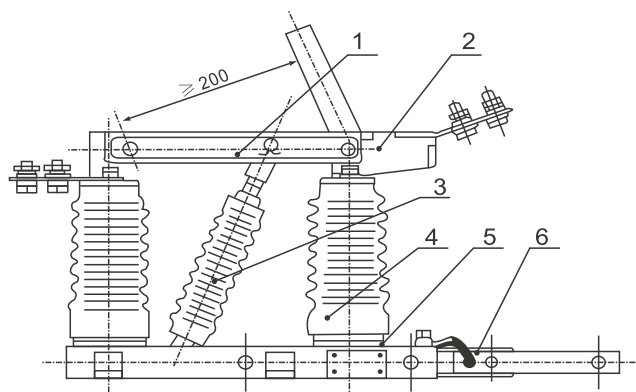


Fig.2 GW1-12G(D1)

1.contact knife. 2.contact 3.operating insulator.  
4.Post insulators 5.underframe.  
6.ground contact knife

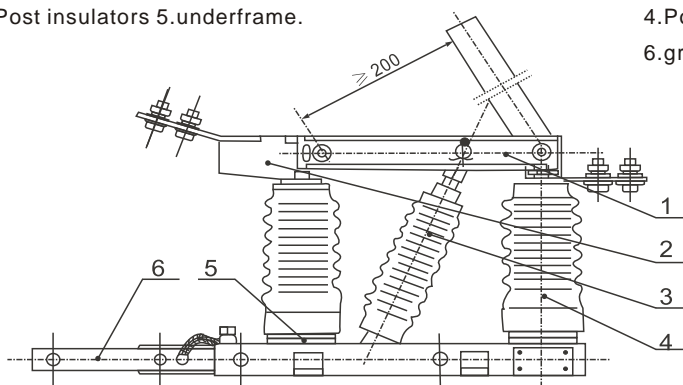


Fig.3 GW1-12G(D2)

1.contact knife. 2.contact 3.operating insulator.  
4.Post insulators 5.underframe. 6.ground contact knife

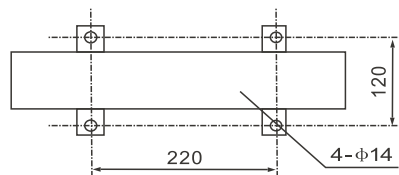


fig.4 Mounting hole size



GW4-40.5



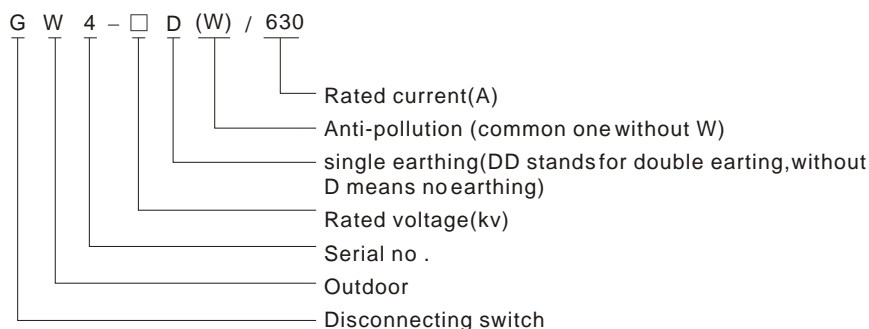
GW4-126

## General Description

This product is unipolar equipped with Cs11 type and CS8-6D type manual operation mechanism. It could also unit three ratios to an inter linkage three ratios pattern through connecting rod. CS17 could be used in disconnect switch with double earthing gears, being equipped with the mechanisms which you need.

This disconnect switch is with reasonable switch structure, smooth operation, easy installation, big clearance between open contact knives, safe and reliable insulation. It could be used unipolar or three ratio. According to demands, it could be used earth-free, one-side earthing or two-side earthing.

## Type And Meanings



## Main Technical Parameter

Item		Unit	GW 4-12	GW 4-40.5	GW 4-72.5	GW 4-126	GW 4-126G	GW 4-145
Rated voltage		KV	12	40.5	72.5	126	126	145
Rated current		A	200 400 630 1000 1250	630 1000 2000 2500	630 1250 2000 2500	630 1250 2000 2500	630 1250	630 1250 2000 2500
Rated short time withstand current(effective value)		KA	16 20 25	20 31.5 40(46)	20 31.5 40(46)	20 31.5 40(46)	20 31.5	20 31.5 40(46)
Rated peak withstand current (effective value)		KA	40 50 63	50 80 100(104)	50 80 100(104)	50 80 100(104)	50 80	50 80 100(104)
I min p.f. Withstand voltage(effective value)	Toearth	KV	42	80	140	185(230)	185	275
	Fracture		48	90	160	210(265)	210	315
Rated lightning impulse withstand voltage (peak)	Toearth	KV	75	185	325	450(550)	450	650
	Fracture		85	215	375	520(530)	550	750
Wiring side horizontal force		N	250	490(735)	735	735	735	980
Single pole weight		Kg	60	80	200	240	240	300
Note							Altitude 2000m	suitable for 110kv altitude 4000m

## Outline And Installation Dimensions

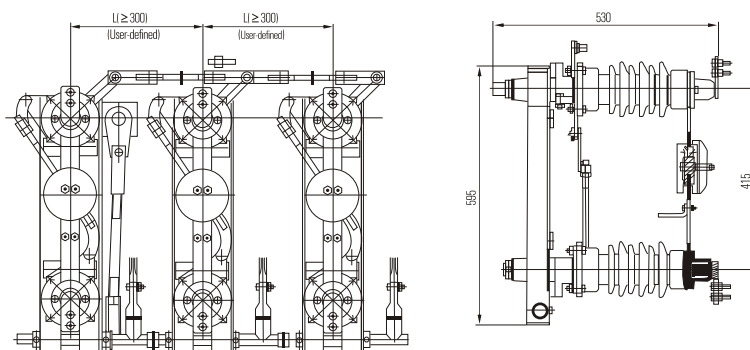


Fig.1 GW4-12D/630 tri-pole link assembly drawing

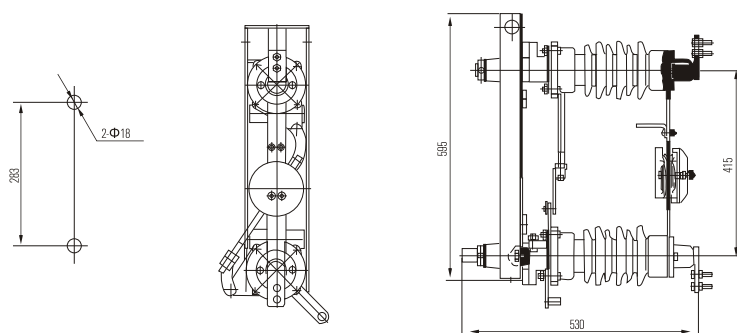


fig.2 GW4-12D/630 single pole disconnecting switch

- 1.connection plate
- 2.conductive circuit
- 3.insulation support
- 4.connection lever
- 5.underframe

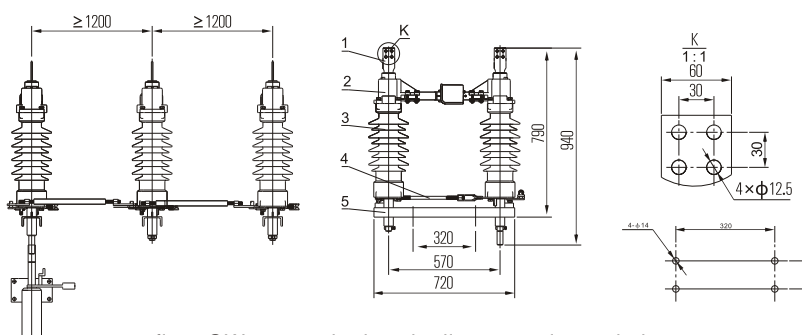
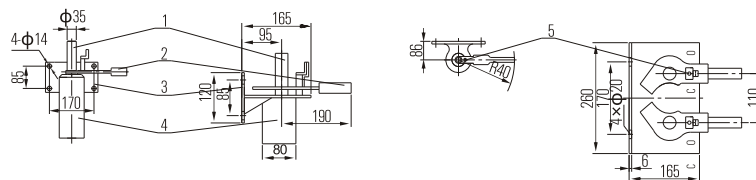


fig.3 GW4-40.5 single pole disconnecting switch

- 1.mechansim rotating shaft
- 2.handle
- 3.base
- 4.cover
- 5.location units



CS11 manual operation mechanism CS8-6D manual operation mechanism

fig.4 GW4-40.5 outdoor high voltage AC disconnecting switch manual operation mechanism

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