

ZBW Series Combination Compact Substation

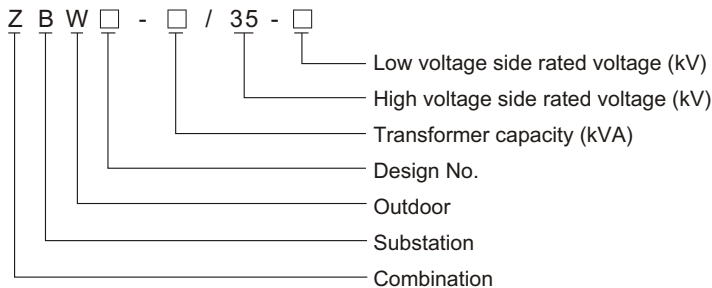
Summary

The ZBW series combination compact substation is a outdoor three-phase complete power distribution rated frequency is 50/60Hz, and the voltage at the HV side is 35kV, LV side is 0.4kV. It can be used in the cities, villages and towns, path, factories, oil field, mine, dock, as well as constructive work places, for the accepting, converting and distributing. It has the features of strong complete set, small volume, convenience installation, simple maintenance, low cost, high automatic performance and safety running.

The combination substation can meet the technical requirement of IEC62271-202 & GB/T17467-1998: high voltage / low voltage prefabricated substation, GB 1985-2004 high DC disconnecting switch and earthing switch, GB/T3309-1989 the mechanism test of high voltage device in air temperature, GB3906-1991 3~35kV DC metal sealing switch device, GB/T11022-1999 high switch device and control device, as well as GB/T16927.1-1997 the part one of the high voltage measurement technology General measurement requirement.



Model



Ambient condition

1. Altitude: ≤1000m;
2. Ambient temperature: -25°C~+40°C;
3. Wind speed: ≤34m/s (Wind pressure: ≤700Pa);
4. Ice thickness: ≤20mm;
5. Relative humidity: daily average ≤95%, monthly average ≤90%;
6. Without fiercely shake and impulse;
7. Occasions without flammable, explosive, serious pollution and chemical corrosion.

Product feature

1. The covering adopts the special glass-fabric cement (sheet steel plate), which has the features of anti-corrosion, long service life, and the insulating material inside it can prevent the solar radiation.
2. Inside the substation there are automatic cool-down device and dew resistant device.
3. It can match to the integrated automatic device.
4. It can match to any communication device.
5. Composition of substation

This combined substation is combined primary and secondary electric devices into a removable, fully sealing, anti humidity and dew substation. It can be installed and debugged in the factory, which can make the installation more convenience. The rated voltage of the high voltage side is 40.5kV, and the low voltage is 12(0.4)kV, and the rated capacity of the transformer is 400~20000kVA. There are some types of substations: 35kV main substation, 35kV switch box, 10kV switch box and so on. The cable connects the substations, as well as 10kV incoming and outgoing wiring. The substation has the parts of high switch room, low voltage room, relay protection room, capacity compensation and transformer room. And the high voltage capacity compensation and oil transformer above 4000kVA always adopts the outdoor installation.

6. Introduce of automatic device

- 6.1 This substation is an intelligent design that the protection system adopts the substation microcomputer integrated automatic device. And it can realize the separate functions of remote measurement, remote communication, remote control and remote adjustment, which can protect the relay, distance alarm, and set distance parameter, i.e. humidity, temperature.
- 6.2 In addition, it can install the picture distance monitor device, which can deliver real time TV information by the video camera to the distance control room.
- 6.3 Transformer measurement control protection unit: complete the main transformer differential, differential current fast break, compound voltage over current, over load, as well as some protection function: measurement of main transformer's temperature, current, voltage, active power and reactive power. Control of circuit breaker under the load circuit.
- 6.4 Line measurement control protection unit: three-section current voltage, three-phase one time reclose, post acceleration, low frequency load decrease, and measurement of current, voltage, active power and reactive power.
- 6.5 Capacitor measurement control unit: Protect the over current, over voltage, low voltage, imbalance current, imbalance voltage. Measure the data of current, voltage, active power of capacitor and operating on the circuit breaker.
- 6.6 Communication management unit: Managing the communication of the measurement control site and control system.

Technical specification

Main technical specification of transformer

Model	Rated voltage	Rated capacity (kVA)	Rated voltage ratio (kV/kV)
SZ7	35	400-20000	35/11, 35/6.3, 35/0.4
SZ9	35	400-20000	35/11, 35/6.3, 35/0.4

Technical specification of 35kV switchgear with ZN85-40.5(ZN23-40.5) vacuum circuit breaker

No.	Item	Unit	Parameter
1	Rated voltage	kV	35
2	Max. working voltage	kV	40.5
3	Rated current	A	1250, 1600, 2000
4	Rated short circuit breaking current	kA	25, 31.5
5	Rated short circuit making current	kA	63, 80

Technical specification of 12kV switchgear with vacuum circuit breaker

No.	Name	Unit	VS1-12(ZN28-10)		
1	Rated voltage	kV	11		
2	Max. working voltage	kV	12		
3	Rated frequency	Hz	50		
4	Rated current	A	630,1250	1250~3150	2500~3150
5	Rated short circuit breaking current (virtual value)	kA	25	31.5	40
6	Rated short circuit making current (virtual value)	kA	63	80	100

Technical specification of HXGN11-12 (F) with FRN21-12 vacuum circuit breaker

No.	Item	Unit	Data
1	Rated voltage	kV	11
2	Highest work voltage	kV	12
3	Rated frequency	HZ	50
4	Rated current	A	630
5	Rated short circuit withstand current	kA/s	20/3

Technical specification of XGN15-12(L) ring main unit with FLRN48-12 SF6 load break switch

No.	Name	Unit	Data
1	Rated voltage	kV	11
2	Highest work voltage	kV	12
3	Rated frequency	Hz	50
4	Rated current	A	630
5	Rated short circuit withstand current (virtual value)	kA/s	20/4

Technical specification of high voltage insulate switch

No.	Model	Rated voltage (kV)	Rated current (A)
1	GN27-35	35	400/630/1000
2	GN19-35	35	400/630/1000
3	GN19-12(C)	11	630/1000/1250/1600

Technical specification of transformer

Model	Rated voltage	Voltage ratio (kV/kV)	Capacity (kVA)
SC9	35	35/0.4	30, 50, 80
SC9	11	11/0.4	30, 50, 80

Technical specification of voltage transformer

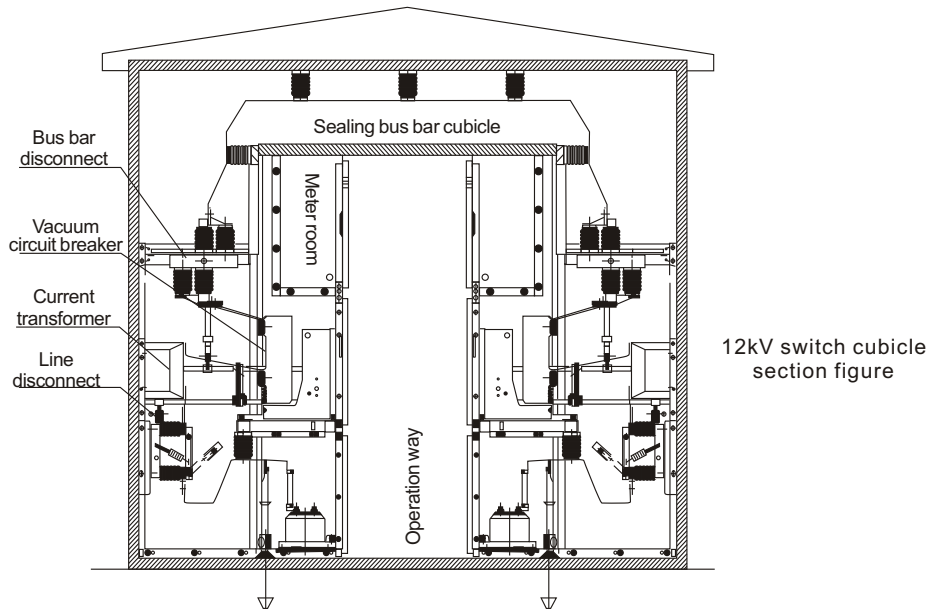
Model	Rated voltage ratio (kV/kV)	Rated capacity (kV)				Limited capacity (VA)
		0.2	0.5	1	6P	
JDZ9-35	35/0.1	60	120			800
JDZX9-35	$\frac{6}{\sqrt{3}} / \frac{0.1}{\sqrt{3}} / \frac{0.1}{\sqrt{3}} kV$	40	80		100	600
JDZ10-12B	11/0.1	25	50	90		300
JDZX10-10B			50	90	50	400

Technical specification of current transformer

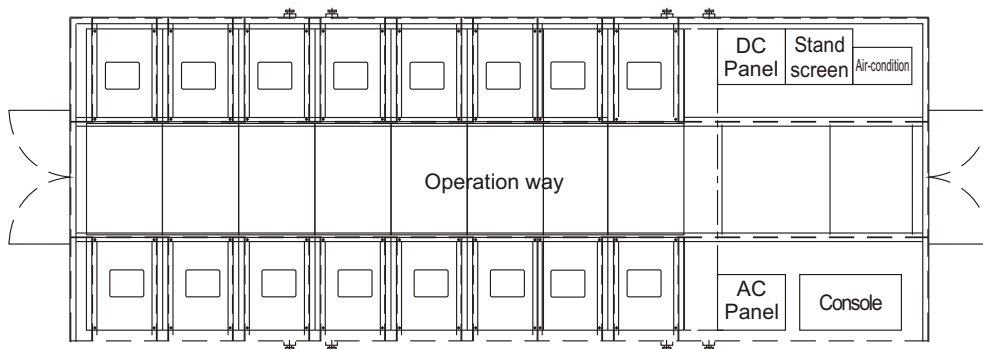
Model	Rated primary current (A)	Rated secondary current (A)	Accuracy combination	Secondary load (VA)			
				0.2	0.5	10P10	10P20
LCZ-35(Q)	20~1000	5	0.2/0.5 0.2/10P10 0.5/10P20 10P10/10P20	10	50	50	25
LZZB9-35	30~500	5	0.2/0.5/10P20 0.2/10P10/10P20 0.5/10P10/10P20 10P20/10P20	15	30	50	20
	600~2000			30	50	50	30
LZZBJ9-12	10~2500	5	0.2/10P10 0.5/10P10 10P10/10P20	10	10	20	10
LZZBJ12-12	10~200		0.2/0.5/10P10 0.2/10P10/10P10 0.5/10P10/10P10 0.5/10P10/10P20	10	15	15	10
	300~600			15	20	25	15
	800~3150			20	30	30	20

Technical specification of lightning arrester

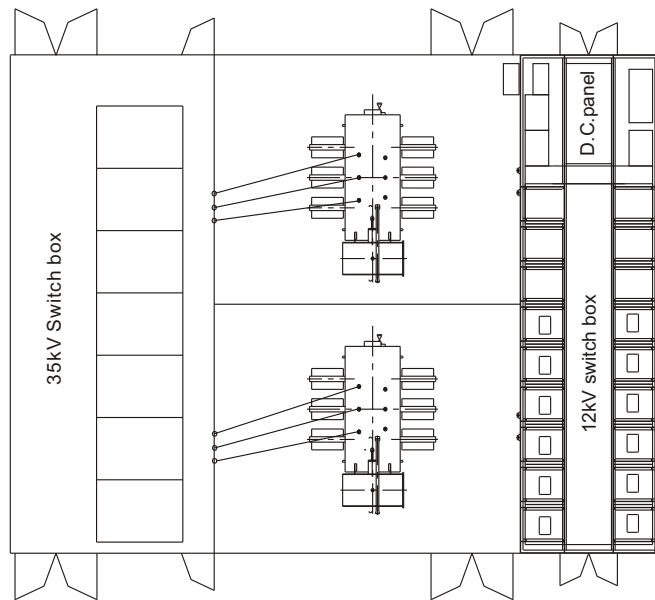
Model	Rated voltage	Residual peak (kV)
HY5WZ-17/45	17	45
HY5WS-17/50	17	50
HY5WZ-51/134	51	134



12kV switch cubicle section figure



12kV switch cubicle layout drawing



35kV Combined substation layout