

TRANSFORMER

ZBW

Series combined transformer
substation



Scope of application

ZBW series combined transformer substation, commonly named as European box-type transformer, is a kind of compact power distribution device that integrates high voltage electrical devices, transformer, low voltage electrical devices together. It can be used in high-rise buildings, buildings in urban and rural areas, residential communities, high-tech development areas, small & medium size factories, mining areas, oil fields, temporary construction sites, and other premises, and can also be used for acceptance and distribution of power in power distribution system.

ZBW series combined transformer substation is characterized with features including high integrity, small size, compact structure, safe and reliable operation, convenient maintenance, portable, etc. Compared to conventional transformer requiring civil work, the combined transformer with same capacity needs only one-tenth to one-fifth of the floor area for conventional transformer so that the design work, construction work and construction expense is reduced significantly. It also can be used in ring net power distribution system and double power supply or terminal power distribution system. This new complete set of product is an ideal choice for construction and modification of transformer in urban and rural areas.

ZBW series combined transformer substation complies with standards of SD320-1992 "Technical specifications for box-type transformer" and GB/T17467-1997 "High voltage/low voltage prefabricated substations" .

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Operating conditions

Attitude above sea level: no more than 1,000 m

Ambient temperature: highest temperature +40°C, lowest temperature -25°C, average temperature in 24 hours no more than +35°C

Outdoor wind speed no more than 35m/s

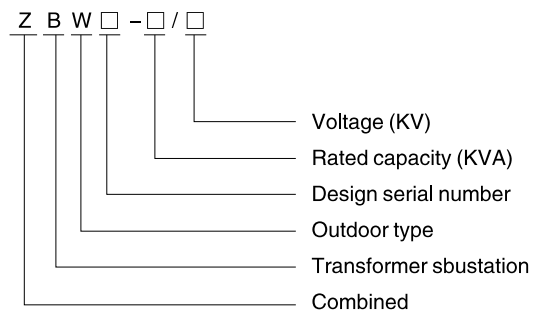
Air relative humidity no more than 90% (+25°C)

Shock resistance: horizontal acceleration no more than 0.4m/s², vertical acceleration no more than 0.2m/s²

Installation conditions: no risk of fire and explosion, free of serious contamination, chemical corrosion and severe vibration and shock

For special operating conditions, please inform the Company in ordering and solve it through negotiation.

Description and model of product



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Main technical parameters

No	Item	unit	HV electrics	Transformer	LV electrics
1	rated voltage	kV	7.2、12	6/0.4、10/0.4	0.4
2	rated capacity	kVA		目型：200~1250	
3	rated current	kVA	200~630		100~3000
4	rated breaking current	A	loaded switch 400~630A		15~63
		kA	combined electrics depends on the fuse		
5	rated short time withstand current	kA	20(2S)	200~400kVA	15(1S)
			12.5(4S)	400kVA	30(1S)
6	rated peak with stand current	kA	31.5、50	200~400kVA	30
				400kVA	63
7	rated closing current	kA	31.5、50		when ≤300V, 2K
8	industry frequency withstand voltage	kV	phase to earth and between phases	油变：35/5min oil transformer	when 300, 600V, 2.5K
			isolated fracture	干变：28/5 min dry type transformer	
9	lighting impulse	kV	phase to earth and between phases	75	
			isolated fracture		
10	noise level	dB		oil transformer < 55	
				dry type transformer < 65	
11	protection level		IP33	IP23	IP33
12	outline dimension		select different size according to the chosen capacity and type		

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Structural features of product

This product consists of high voltage power distribution device, transformer and low voltage power distribution device. It is divided into three function compartments, high voltage compartment, transformer compartment and low voltage compartment. Both high voltage and low voltage compartments are provided with all functions, the primary power supply system on high voltage side can be configured in various power supply methods, such as ring net power supply, terminal power supply, power supply with double supply. High voltage metering instrument can also be installed on high voltage side to satisfy the requirements for high voltage measurement. For transformer compartment, S9, S11 series low loss oil immersed transformer, and SC(B)9, SCR9, SC(B)10, SCR10 series dry transformer are available, and the transformer compartment is equipped with self-start forced air cooling system and lighting system. The low voltage compartment can be equipped with panel or cabinet type structure based on customer's requirements, and has various functions including distribution for drive power, power distribution for lighting, compensation of reactive power, metering of electricity energy, and measurement of electricity consumption to meet various demands of customers and provide customers with convenient management and high quality in terms of power supply.

High voltage compartment is designed with compact structure and interlock function of "Five preventions" to completely protect from mis-operation. Upon customer's request, the transformer can be equipped with guide rail for convenient access through the gates on both sides of the transformer. All compartments are provided with auto lighting system, furthermore, both high voltage and low voltage compartments are made of reliable and easy to operate elements so that the product can be operated safely and stably, maintained conveniently.

The product has good cooling and ventilation effect due to application of both natural ventilation and forced ventilation. Both transformer compartment and low voltage compartment are equipped with ventilation ducts, the exhaust fan is provided with temperature regulating device and can start or stop automatically according to the preset temperature to ensure the transformer to be operated under full load.

The box structure is designed with special steel sheet or aluminum alloy sheet to prevent entry of rain water and dirt. The box is treated with anti-corrosion measures and is suitable for outdoor use for long time. The box is provided with features including resistance to corrosion, water proof, dust proof, long useful life and good external appearance.

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Plane layout and external dimensions

ZBW series box-type transformer substation, based on its configuration, can be classified as follows

"B" type configuration (see figure 1-1 and figure 1-2)

"Delta" configuration (see figure 1-3 and figure 1-4)



图1-1



图1-2

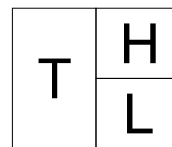


图1-3

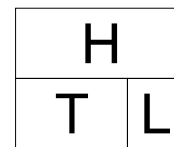


图1-4

Configuration diagram of ZBW series box-type transformer substation is shown in the figure.
H – high voltage compartment, T–transformer compartment, L–low voltage compartment

2、 For external dimensions see figure 2, 3 and table 2

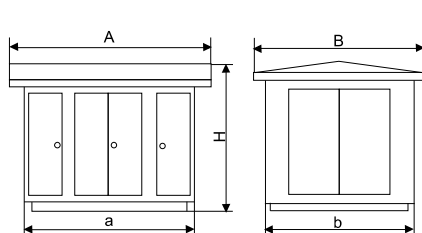


Figure 2: External drawing of ZBW series box-type transformer substation ("B" type configuration)

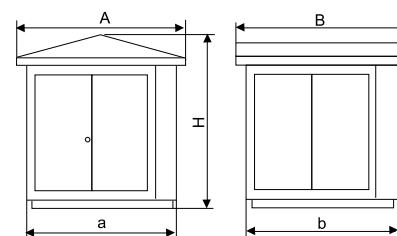


Figure 3: External drawing of ZBW series box-type transformer substation ("Delta" configuration)

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		categories	A	a	B	b	H	Best suitable occasion
three phases	B type	100–630kVA	4140		2590	2290	2320	industry mine, oil field, building construction
		800–1250kVA	5184		2500	2290	2626	residential subdistricts
	Delta type	50–400kVA	2500		2400	2200	2320	
single phase	B type	≤50kVA	2500		1260	1060	2215	street lamp power supply
		80–100kVA	2500		1840	1640	2215	

Note: The above mentioned external dimensions are for reference only, and the order should be performed based on real size.

Notes to order

The following information shall be provided for order:

Type of box–type transformer substation

Model and capacity of transformer

Connecting diagram of high and low voltage circuits

Models and parameters of electrical elements with special
requirements Color of housing

Description, quantity and other requirements for spare parts and elements