

# YBW YBM (ZBW)

Series of Prefabricated Substations



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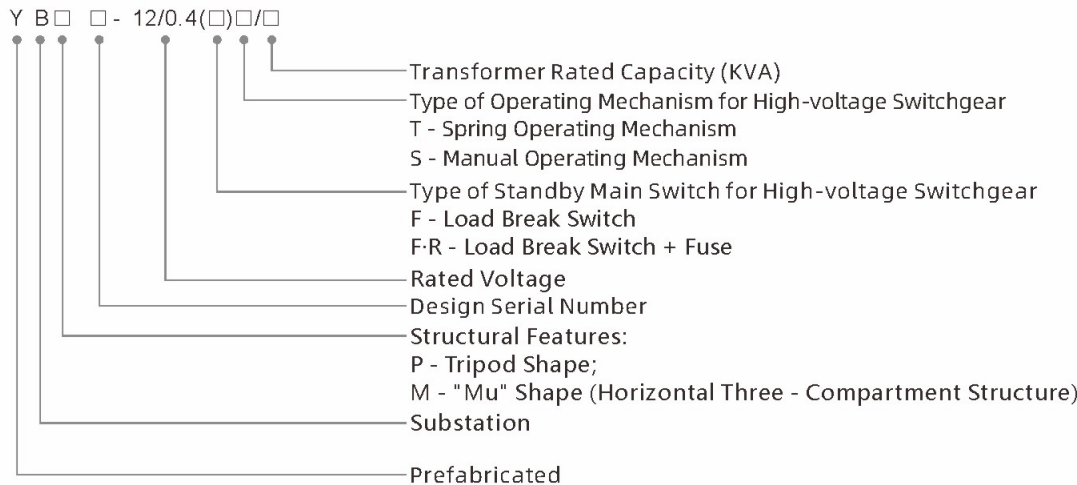
1. Overview

The YBW and YBM (ZBW) series prefabricated substations are compact packaged power distribution devices that integrate high-voltage electrical equipment, transformers, low-voltage electrical equipment, etc. They are used in urban high-rise buildings, urban and rural constructions, luxury villas, plazas and parks, residential communities, high-tech development zones, small and medium-sized factories, mines, oilfields, and temporary construction power consumption sites, etc., to receive and distribute electrical energy in the power distribution system.

The YBW and YBM (ZBW) series prefabricated substations feature strong performance, small volume, compact structure, safe and reliable operation, convenient maintenance, and mobility. Compared with conventional civil construction substations, the floor area of a prefabricated substation with the same capacity is usually only 1/10 to 1/5 of that of a conventional substation, which greatly reduces the design and construction workload and construction costs. In the power distribution system, it can be used in ring network power distribution systems, as well as dual-power or radial terminal power distribution systems. It is a new type of packaged equipment for the construction and transformation of urban and rural substations.

This product complies with the standards of GB/T 17467 High-voltage/Low-voltage Prefabricated Substations and SD 320 Technical Conditions for Packaged Substations.

2. Model Designation



3. Normal Service Environment Conditions

- 1.Altitude: 1000m and below.
- 2.Ambient temperature: -25℃ to +40℃, with an average temperature within a 24-hour period not exceeding +35℃.
- 3.Wind speed: No more than 35m/s.
- 4.Relative air humidity: No greater than 0.4m/S², vertical acceleration no greater than 0.2m/S.
- 5.Seismic horizontal acceleration: No more than 90% (+25℃).
- 6.The site of use should be free from conductive dust and corrosive, flammable, or explosive hazardous materials harmful to metals and insulators.
- 7.The installation site should have no severe vibration, and the vertical slope should not exceed 3 degrees.

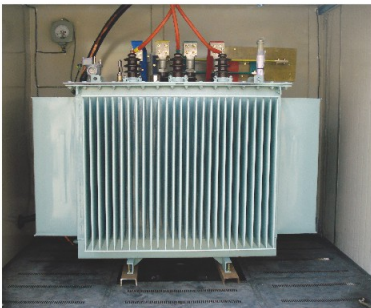
Note: For special service conditions, please negotiate with our company when placing an order.



High-voltage Chamber



Low-voltage Chamber



Transformer Chamber

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4. Technical Parameters

Table 1

NO.	Project	Unit	High-voltage Apparatus	Transformer	Low-voltage Apparatus
1	Rated Voltage Ue	KV	7.2/12	6/0.4 10/0.4	6/0.4 10/0.4
2	Rated Capacity Se	KVA		Eye-shaped : 200~1250 Triangular-shaped : 50~800	Maximum2 × 1250
3	Rated Current Le	A	200~630		100~3000
4	Rated Breaking Current	A KA	Load Switch 400~630A The switchgear assembly depends on the fuse.		15~63
5	Rated Short-time Withstand Current (seconds)	KA	20×(2) 12.5×(4)	200~400KVA 400KVA	15 × 1 30 × 1
6	Rated Peak Withstand Current	KA	31.5 50	200~400KVA 400KVA	30 63
7	Rated Making Current	KA	31.5 50		
8	Power Frequency Withstand Voltage for 1min	KV	Between Phase and Earth, and Between Phases30/42 Isolating Break 34/48	Oil-immersed : 35/5min Dry-type:28/5min	When ≤ 300V, 2KV. When it is 300 - 600V, it is 2.5kV.
9	Lightning Impulse	KV	Between Phase and Earth, and Between Phases 60/75 Isolating Break 75/85	75 75	
10	Noise Level	dB		Oil-immersed: < 55 Dry-type: < 65	
11	Protection Level			IP23D	
12	Outline Dimension		According to the scheme and the selected high-low voltage switchgear and transformer, different outline dimensions are selected.		

5. Structural Features

This product is composed of high-voltage power distribution devices, transformers, and low-voltage power distribution devices, divided into three functional compartments: the high-voltage chamber, transformer chamber, and low-voltage chamber. The high and low-voltage chambers are fully functional. The primary power supply system on the high-voltage side can be arranged in various power supply modes such as ring network power supply, terminal power supply, and dual-power supply. It can also be equipped with high-voltage metering components to meet high-voltage metering requirements. The transformer chamber can select S9, S11, and other low-loss oil-immersed transformers and dry-type transformers. The transformer chamber is equipped with an automatic forced air cooling system and lighting system. According to the power supply scheme required by users, the low-voltage chamber has multiple functions such as power distribution, lighting distribution, reactive power compensation, electric energy metering, and power measurement to meet different user requirements and facilitate user power supply management and improve power supply quality.

The high and low-voltage chambers are reasonably and compactly arranged for convenient operation and maintenance. The high-voltage switchgear has an anti-misoperation interlocking function. According to user requirements, the transformer can be easily moved in and out of the transformer chamber door from the track, and the transformer can be equipped with a labyrinth ventilation device on the track as required. Each chamber is equipped with an automatic lighting device. In addition, the components selected for the high and low-voltage switchgear have reliable performance, simple operation, and convenient maintenance.

The top cover of the substation has a double-layer heat insulation structure to reduce the effect of sunlight radiation. There are ventilation holes under the eaves around it, forming a convection effect with each functional chamber for ventilation and heat dissipation. The base is a steel structure with sufficient strength and rigidity.

It adopts two ventilation methods, natural ventilation and forced ventilation, to ensure good ventilation and cooling performance. The transformer chamber is equipped with a temperature controller that can automatically control the transformer temperature to ensure the transformer operates at full load.

According to different use environments and conditions, different structural forms and materials can be selected to meet different use requirements and ensure the normal operation of the substation. The substation shell can be made of non-metallic building materials, ordinary steel plates, stainless steel plates, aluminum alloy plates, color steel composite plates, etc. After partial or full surface treatment, it is suitable for long-term outdoor use, ensuring anti-corrosion, waterproof, and dustproof performance, long service life, and beautiful appearance.

The basic structural forms are roughly divided into:

Scenic box-type substations made of non-metallic building materials or other materials;

General box-type substations made of ordinary steel plates;

High-corrosion-resistant box-type substations made of stainless steel or aluminum alloy plates;

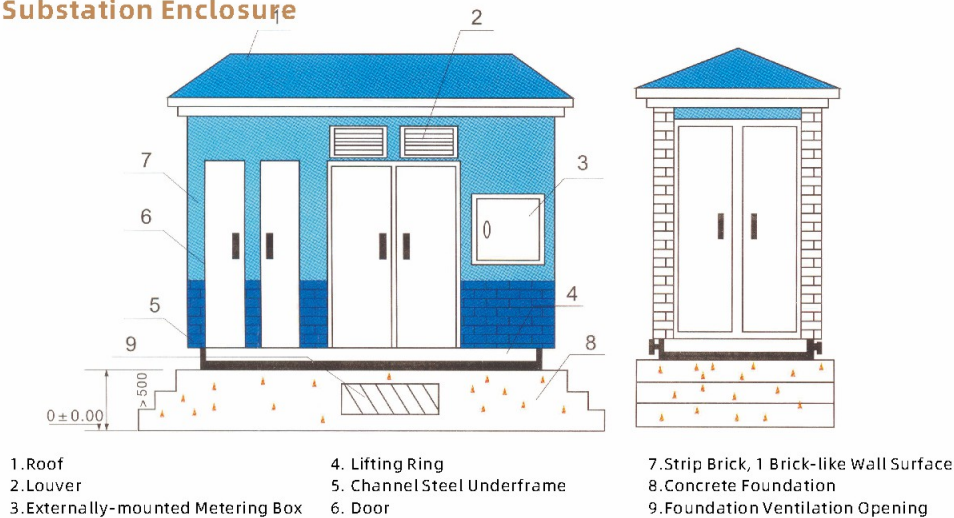
Thermal insulation box-type substations made of color steel composite plates;

Other structural forms of box-type substations.

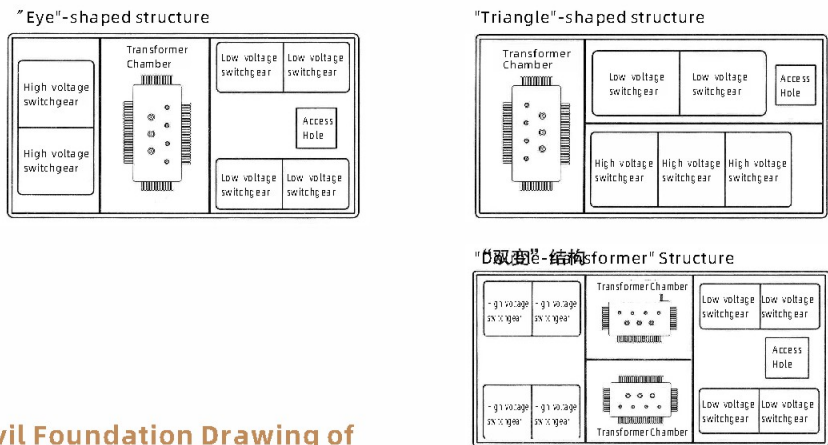
The inlet and outlet modes are generally cable inlet and outlet. If there are special requirements, other inlet and outlet modes can be used.

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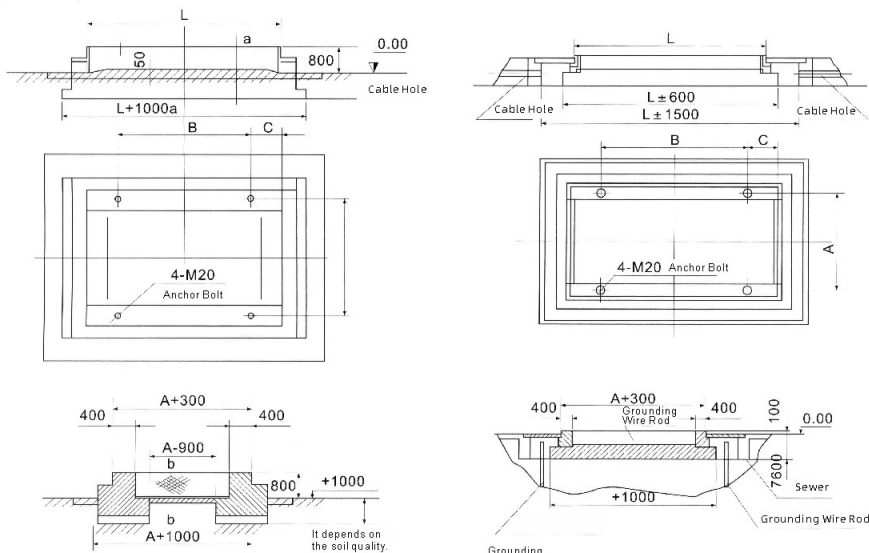
6. Schematic Diagram of Common Non-metallic Box-type Substation Enclosure



7. Structural Type



8. Civil Foundation Drawing of "Ground-mounted" Non-metallic Box-type Substation



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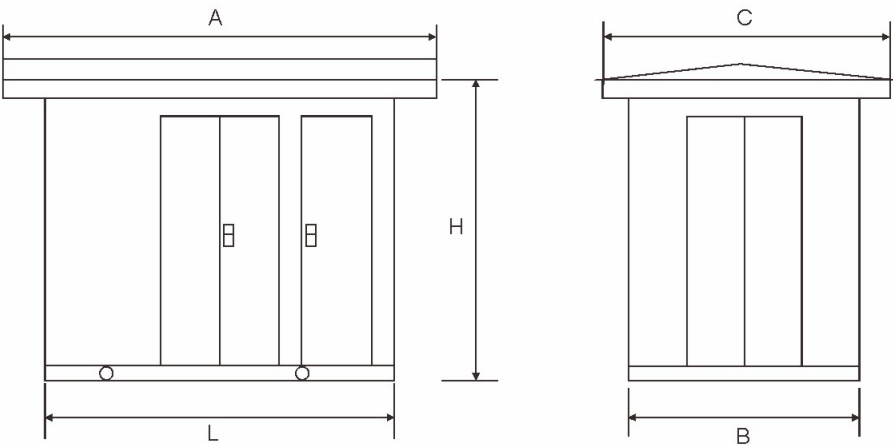


Figure 2 Outline Drawing of YBM and YBP (ZBW) Series Prefabricated Substations (in "Mu" -shaped Arrangement)

9. Outline Dimensions

(mm) Table 2

Model	Transformer Capacity (KVA)	T	L	B	H	A	C
YBW	100~250	According to the transformer	3000	2000	2520	3320	2320
	315~630		4000	2600	2560	4320	2920
	800~1000		4600	2600	2560	4920	2920
	1250		5000	3000	2980	5320	3320
YBM	100~250	Determined according to the low-voltage outgoing lines.		2000	2520	Determined according to the low-voltage outgoing lines.	2320
	315~630			2600	2560		2920
	800~1000			2600	2560		2920
	1250			3000	2980		3320