

ZBW

型箱式变电站  
Tank Type Substation



产品概述

ZBW 型箱式变电站（简称箱变）是一种把高压开关设备、配电变压器、低压开关设备、电能计量设备和无功补偿装置等按一定的接线方案组合在一个或几个箱体中的紧凑型成套配电装置。它适用于额定电压 10/0.4kV 三相交流系统中，作为接受和分配电能之用。适用于工厂、矿山、油田、港口、机场、城市公共建筑、居民小区、高速公路、地下设施等场所。  
箱变在技术上具有：成套性强、体积小、造型美观、运行安全可靠、维护方便、可选择性大等优点。在经济上具有占地面积小、移动方便、深入负荷中心、建设周期短、减少浪费等优点。

环境条件

1. 海拔高度：≤ 1000m；
2. 环境温度：-50℃ ~ +40℃；
3. 相对湿度：日平均 ≤ 95%，月平均 ≤ 95%；
4. 防震水平：水平加速度 ≤ 0.3g；垂直加速度 ≤ 0.15g；
5. 安装地点：安装在通风良好，无腐蚀性气体腐蚀金属的场所，地面倾角 ≤ 30。

Product Summary

ZBW tank type substation is a compact tank distribution unit including HV switchgear, distribution transformer, LV switchgear, electric energy metrological device and reactive power compensator, all devices in the tank unit wired by correct logic electrical schemes, sometimes the devices placed in more than one tanks. It applied to the transmission and distribution of electric energy in AC three phase electric systems with rated 10/0.4kV voltage. It is applied to factories, mines, crude oil fields, ports, airports, urban public buildings, small residential areas, highways and underground facilities.  
This tank type substation featured technically by strong whole apparatus character, compact volume, good appearance, safe and reliable operating, easy maintenance, flexible selection and so on. It economically featured by small occupied land area, convenient movement, deeply involved in load center, short construction period, and waste reduction and other advantages.

Environmental Conditions

1. Altitude: No more than 1000m.
2. Ambient Temperature: No more than +40℃, No less than -50℃.
3. Relative Humidity: Average humidity no more than 95% within one day, Average humidity no more than 90% within one month.
4. Earthquake Level: Horizontal Acceleration ≤ 0.3g; Vertical Acceleration ≤ 0.15g.
5. Installation Location: Well-ventilation, chemical corrosion and violent vibration for product installed place. Vertical slope of less than 3 degrees.

产品特点

1. 箱体有两种构成方式，一种为骨架焊接式（“目”字形布置），即先用型钢焊接骨架，再拉铆或焊接面板。另一种为骨架装配式（“品”字形布置），钢板经折弯成形后进行表面处理，最后用螺栓连接装配而成。品字形布置的特点是扩大了低压出线单元，可放置 6 面低压柜，有 8-12 回路出线。根据用户的需要，箱变也可设置操作走廊及值班室。平面布置见图三。
2. 有良好的隔热通风措施。箱体四周均为上下可同期的双层结构，箱顶夹层中还设有隔热材料，有效地降低了因日照引起的室内温度升高。高压室底部、顶部均装有自动换气扇，侧面或门的上半部分设有百叶窗，可保证变压器在高温季节内能满载安全运行。
3. 运行安全可靠。箱变高压侧选用 XGN45-12 或 HXGN-12 型高压环网柜。也可选用其它类型的金属铠装式开关柜，五防联锁完备。各门框采用良好的防水结构。
4. 操作维护方便。各室均有自动照明装置；变压器室设有轨道及小车，便于变压器安装、维护、更换；高、低压室均为前面接线盒前面维护。
5. 外形美观、经久耐用。箱体外壳采用高性能船舶用富锌环氧底漆和环氧防腐砂浆，防腐性能好，表面色彩可随环境而任意配置；各电器安装均为镀锌处理，门锁采用专门的防堵防锈的通用锁。

Product Features

1. There are two tank structures, one is Chinese character “目” shape arrangement which its basic framework welded by shaped steels, its front plates are riveted and weld on framework to form a integral overall structure. Another is Chinese character “品” shape arrangement without frame which basic structure have formed by bending steel plates, after bending the bended plates shall be processed on their surface, finally becomes a integral structure through bolt jointing. The structure can expand LV outgoing unit, LV panels can be installed sum up to 6 nos., outgoing circuits up to 8-12 sets, corridor for operating and watching house also can be arranged according to users' needs. Plane layout referred to Drawing 3.
2. It has good performance for heat insulation and ventilation. Double layer structure realized for facilitating air flowing round the tank, heat insulation materials are installed between two layers on the top of tank, it effectively decreases temperature rise of tank interior due to sunlight. There are automatic exhaust fans in both bottom and top of the transformer chamber, shutters are located in tank's flanks or upper half part of door, it assures transformer's safe running when full load runs in torrid seasons.
3. This device is running safety and reliability. XGN45-12, HXGN-12 RMU or other high voltage ring network cubicle are selected in HV side of the tank transformer substation. It owns completely five preventions interlock function. Good water-proof structure is adopted for all door frames.
4. It has convenient operation and maintenance. There are automatic lighting devices in all compartments, and also installed rail and trolley in transformer chamber to facilitate transformer's installation, maintenance and replacement. Both wiring and maintenance could be done in front of HV and LV Compartments.
5. Good appearance, durable using. Enclosure structure for tank body coated by high-performance Zinc enrichment epoxy enamel and filled by rot-proof epoxy sand paste, the arrangement leads to good rot-proof performance, surface color can be done along with surrounding requirement, installing beam for all electric devices all coated by Zinc, door lock as common one with special blocking-proof and rusting proof function.

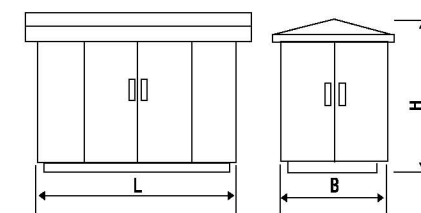
技术参数

Technical Parameters

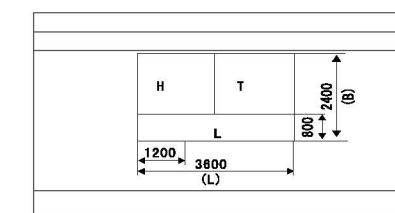
序号 SN	项目 Items	单位 Unit	高压侧 HV-side	变压器侧 Transformer Side	低压侧 LV-side
1	额定容量 Rated Capacity	KVA		50-1250	
2	额定电压 Rated Voltage	KV	10	10/0.4	0.4
3	额定电流 Rated Current	A	400-630	72.2/1820	2000
4	额定短路开断电流 Rated Short Circuit Breaking Current	KA	≥20		≥30
5	额定关合电流 Rated Making Current	KA	50		
6	热稳定电流 Thermal Stable Current	KA/S	≥20/4		≥30/1
7	1min 工频耐压 1min Power Frequency Withstand Voltage	KV	对地: 42 断口: 48 Earth: 42 Fracture: 48	干式: 28 油浸: 35 Dry: 28 Oil: 35	2.0/2.5
8	雷电冲击耐压 Lightning Impact Withstand Voltage	KV	对地: 42 断口: 48 Earth: 42 Fracture: 48		
9	防护等级 Protect Degree		IP65		
10	噪音水平 Noise Level	DB	65 (干式变压器) 65 (Dry Type Transformer) 55 (油浸式变压器) 55 (Oil Type Transformer)		

开关柜结构尺寸示意图

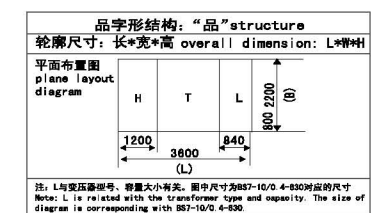
Structure Dimension and Sketch



图一箱式变电站外形图  
Diagram-1 Tank Transformer Substation Overall Diagram



图二箱式变电站平面布置图  
Diagram-2 Tank Transformer Substation Plane Layout Diagram



品字形结构：“品”structure  
轮廓尺寸：长\*宽\*高 overall dimension: L\*B\*H  
平面布置图 plane layout diagram  
注：L与变压器型号、容量大小有关。图中尺寸为807-10/0.4-850时对应的尺寸  
Note: L is related with the transformer type and capacity. The size of diagram is corresponding with 807-10/0.4-850