

YB□-12

美式预装式箱式变电站

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概述 General

本产品是吸收国外最新先进技术，结合国内实际情况研制开发的，整台产品具有体积小、安装维护简便、低噪音、低损耗、防盗、过负荷能力强、全保护等特点。适用于新建小区、绿化带、公园、车站宾馆、工地、机场等场所。

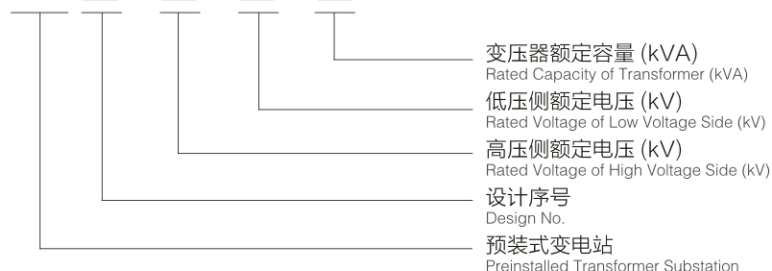
YB □ -12 系列美式预装式箱式变电站，适用于 10kV 环网供电，双电源供电或终端供电系统中，作为变电、计量、补偿控制和保护装置。本产品符合下列标准：GB/T17467-2010《高压低压预装式变电站》DL/T537-93《6-35KV 箱式变电站订货技术条件》

This product develops from adopting the latest foreign advanced technology, and combining domestic actual situation. The product has small size, convenient installation and maintenance, low noise, low loss, burglary prevention, strong overload ability, and full protection etc. It is applicable in new-built communities, green belts, parks, station hotel, construction sites and airports etc.

YB / - 12 series American type preinstalled transformer substation is applicable to 10 kV ring network power supply, power supply system of dual power supply or terminal power supply system as power transforming, measuring, compensation controlling and protecting devices. This product meets the following standards: GB/T17467-2010 "High and Low Voltage Preinstalled Transformer Substation" and DL/T537-93 "6 to 35 kV Box Type Transformer Substation Ordering Technology Specifications"

型号含义 Type Designation

YB □ - □ / □ - □



结构特点 Structure Features

- ◆ 全绝缘、全密封、免少维护、可靠保证人身安全。
Completed isolation, omnisealed, less maintenance, and reliable security;
- ◆ 结构紧凑、体积仅为同容量欧变的 1/3-1/5, 高度低。
Compact structure, low height, small size (1/3-1/5 of the European type transformer substation with same capacity);
- ◆ 可采用分箱式结构，避免变压器油箱内油的污染。
Detached box type can be adopted to avoid the pollution from the oil in transformer.
- ◆ 高压侧采用双熔丝全范围保护，大大降低成本。
Double fuses protects the high voltage side to lower the cost of the whole set.
- ◆ 即可用环网，也可用于终端，电缆头可在 200A 负荷电流时紧急插拔。
Either ring network or terminal can be used. Cable heads can be plug in and out urgently under the 200A load current.
- ◆ 箱体采用蜂窝式双层复合板，隔热又散热的功能。
Cabinet uses cellular double composite panels for insulating and cooling.
- ◆ 低压侧加装电子缺相保护器，当系统内出现不正常电压时，可快速分断主进开关。
Electronic protector of lack phase at the low voltage side can quickly break the main switch when there is any unnormal voltage happens.
- ◆ 高压侧油浸式负荷开关或 SF6 负荷开关，可电动升级，为实现配网自动化打下基础。
Oil type load switch or SF6 load switch at the high voltage side can be electrically upgraded for the basic automation of distribution network.
- ◆ 采用油浸式 S9 或性能更优的 S11 系列变压器。
Oil type S9 or S11 (with better performance) is adopted as the transformer.

正常使用条件 Working Conditions

- ◆ 海拔高度不超过 1000m。
Altitude: ≤ 1000m
- ◆ 环境温度：-35℃ ~ +40℃。
Ambient temperature: -35~+40℃
- ◆ 相对湿度：日平均值不大于 95%，月平均值不大于 90%。
Humidity: daily average ≤ 95%, monthly average ≤ 90%
- ◆ 安装场所：无火灾、爆炸危险、化学腐蚀性气体及通风良好的场所，地面倾角不大于 3°。
Installation Place: It is applicable in the place without fire, possible explosion corrosive and chemical corrosive gas and with good ventilation and the inclination to the floor can not be over 3° .

预装式变电站技术参数表 Specifications of Transformer Substation

名称 Item	单位 Unit	技术参数 Data
额定电压 Rated Voltage	kV	10/0.4(高压 / 低压) 10/0.4(high voltage/low voltage)
最高工作电压 Maximum Working Voltage	kV	12(高压侧) 12(high voltage side)
额定频率 Rated Frequency	Hz	50
额定容量 Rated Capacity	kVA	50~1600
1 分钟工频耐压 1min Power Frequency Withstand Voltage	kV	35
雷电冲击电压 Lightning Impulse Voltage	kV	75
冷却方式 Cooling Type		油浸自冷 Oil type with self cooling
高压后备熔断器开断电流 Breaking Current of High Voltage Backup Fuse	kA	50
插入式熔断器开断电流 Breaking Current of Plug-in Fuse	kA	2.5
环境温度 Temperature	℃	-35~+40
线圈允许温升 Coil Allowable Temperature Rise	℃	65
无载调压 No-load Tap Changer		± 5% 或 ± 2x2.5%
噪声等级 Noise Degree	dβ	50
防护等级 Protection Degree		IP43

变压器技术参数表 Specifications of Transformer

选用新型 S9 系列变压器器身，损耗低，过载能力好，抗短路能力强，所有紧固件均经过防松处理，免吊芯；也可选用性能更优良的 S10 系列及 S11 系列变压器

S9 series transformer has low loss, good overload ability, strong anti-circuit performance, tightened fastener, and no suspended core. And also S10 series and S11 series with better performance can be chosen.

容量 kVA Capacity kVA	电压 kV Voltage kV		联接组标号 Connecting Group Number	空载电流 % No-load Current %			空载损耗 kW No-load Loss kW			阻抗电压 % Impedance Voltage %	负载损耗 W Load Loss W		
	高压 High Voltage	低压 Low Voltage		S9	S10	S11	S9	S10	S11		S9	S10	S11
50	10 ± 5% 或 ± 2x2.5%	0.4	Dyn11 或 YynO	2.0	1.9	0.75	0.17	0.15	0.12	4.0	0.87	0.83	0.87
63				1.9	1.8	0.7	0.2	0.18	0.14		1.04	0.99	1.04
80				1.9	1.7	0.7	0.25	0.22	0.175		1.25	1.2	1.25
100				1.8	1.55	0.65	0.29	0.26	0.2		1.5	1.42	1.5
125				1.7	1.45	0.65	0.34	0.3	0.235		1.8	1.72	1.8
160				1.6	1.3	0.6	0.4	0.36	0.27		2.2	2.12	2.2
200	10 ± 5% 或 ± 2x2.5%	0.4	Dyn11 或 YynO	1.5	1.2	0.55	0.48	0.43	0.33	4.0	2.6	2.5	2.6
250				1.4	1.1	0.5	0.56	0.5	0.39		3.05	2.9	3.05
315				1.4	1.0	0.45	0.67	0.29	0.465		3.65	3.45	3.65
400				1.3	1.0	0.4	0.8	0.71	0.56		4.3	4.15	4.3
500				1.2	1.0	0.4	0.96	0.85	0.67		5.15	4.82	5.15
630				1.1	0.8	0.4	1.2	1.6	0.81		6.2	5.86	6.2
800				1.0	0.7	0.35	1.4	1.23	0.98	4.5	7.5	7.2	7.5
1000				1.0	0.6	0.3	1.7	1.5	1.15		10.3	9.8	10.3
1250				0.9	0.6	0.27	1.95	1.72	1.36		12.0	12.2	12.0

负荷开关技术参数表 Specifications of Load Switch

负荷开关为油浸式、三相联动开关、弹簧操作机构；可带负荷分合闸操作，其分合速度与操作力大小无关，型式有二工位、四工位 T 型、四工位 V 型等可供选择。

Load switch is oil type with three phase connecting and spring operating mechanism. It can do breaking operation with load. The speed of breaking and closing has nothing to do with the operating force. Two positions, four positions with T shape four positions with V shape etc. are for choosing.

名称 Item	单位 Unit	四工位环网负荷开关 Four Positions Ring Network Load Switch	二工位负荷开关 Two Positions Load Switch
额定电流 Rated Current	A	630	315
额定短路关合电流 Rated Short-circuit Closing Current	kA	31.5	31.5
额定短时耐受电流 Rated Short-time Withstand Current	kA	12.5	12.5
额定短时耐受时间 Rated Short-time Withstand Time	s	2	2
机械寿命 Mechanical Life	次	2000	2000
雷电冲击耐受 电压峰值全波 Lightning Impulse Withstand Voltage Peak Value Full Wave	相间对地 Phase to Earth	kV	75
	隔离断口 Isolating Fracture		85
1min 工频耐受电压 1min Power Frequency Withstand Voltage	相间对地 Phase to Earth	kV	42
	隔离断口 Isolating Fracture	kV	48
额定峰值耐受电流 Rated Peak Value Withstand Current	kA	31.5	31.5

熔断器技术参数(本公司油浸式熔断器选用配置推荐表)

美式箱变高压侧由后备保护熔断器和插入式熔断器串联提供全范围保护，原理简单，经济可靠；后备保护熔断器为油浸式高压限流熔断器，开断容量大，仅在变压器内部故障时动作，插入式熔断器内装双敏熔丝，可提供电流与温度双重保护，双敏熔丝熔断后，可在现场方便地更换熔芯。

The high voltage side of the American type box type transformer substation provides full range protection through series connection of backup protection fuse and plug-in fuse. So it is very easy, economical and reliable. Backup protection fuse is oil type high voltage current limiting fuse with large breaking capacity. It only operates when there is any fault inside the transformer. Plug-in fuse with double sense fuses inside can provide double protection both for current and temperature. If the double sense fuses break, it can be easily replaced at the site.

三相变压器容量 (kVA) Capacity of Three Phases Transformer (kVA)	变压器初级电压 (10kV) Primary Voltage of Transformer (10kV)	
	XRNT 额定电流 (A) XRNT Rated Current (A)	PRNT1 过载保护额定电流 (A) PRNT1 Rated Current of Overload Protection (A)
30	10	6
50	16	8
80	16	10
100	20	15
125	25	15
160	31.5	25
200	40	25
250	50	40
315	63	40
400	63	40
500	80	50
630	100	50、65
800	125	65
1250	160	100
1600	200	140

箱变结构 Structure of Transformer Substation

该产品箱体结构由高压间隔、低压间隔、油箱间隔三部份组成。高压间隔内包括高压电缆附件、负荷开关、无载调压分接开关、插入式熔断器、压力释放阀、油位计、油温计、放油阀。低压间隔内包括低压套管、低压计量表计、断路器、电容补偿。油箱间隔内包括变压器绕组和铁芯、散热器、高压负荷开关及熔断器均在油箱内，根据方案需要箱变结构可设计成品字型或目字型见下图。

The cabinet is composed of high voltage compartment, low voltage compartment and oil tank compartment. High voltage compartment includes high voltage cable accessories, load switch, no-load tap changer voltage switch, plug-in fuse, pressure release valve, oil level indicator, oil temperature indicator, and oil drain valve. Low voltage compartment includes low voltage bushing, low voltage meter, circuit breaker and capacity compensation. Oil tank compartment includes transformer winding and iron core, radiator, high voltage load switch and fuse. The structure of the transformer substation can be designed into 品 shape or 目 shape according to the needs. (See picture below)

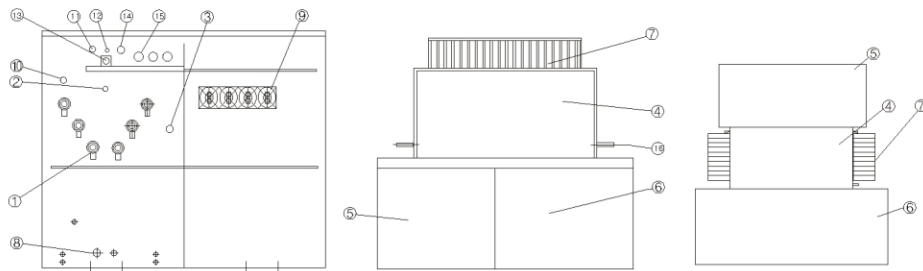


图 1: 预装式变电站结构图

Picture 1: Structure of Preinstalled Transformer Substation

- | | | | |
|--|-----------------------------------|-------------------------------------|-------------------------------|
| 1、高压绝缘套管
High Voltage Isolation Bushing | 5、高压室
High Voltage Compartment | 9、低压套管
Low Voltage Bushing | 13、油位计
Oil Level Indicator |
| 2、负荷开关
Load Switch | 6、低压室
Low Voltage Compartment | 10、油温计
Oil Temperature Indicator | 14、注油孔
Oil Filler Hole |
| 3、分接开关
Tap-changer Switch | 7、散热器
Radiator | 11、压力表
Pressure Meter | 15、插入式熔断器
Plug-in Fuse |
| 4、变压器
Transformer | 8、放油阀
Oil Drain Valve | 12、压力释放阀
Pressure Release Valve | 16、吊钩
Lifting Hook |

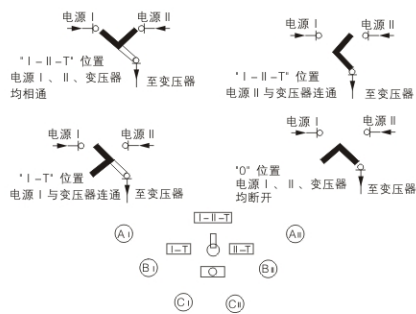


图 2: 四工位“V”型负荷开关工作原理图

Picture 2: Working Principle Sketches of Four Positions "V" Shape Load Switch

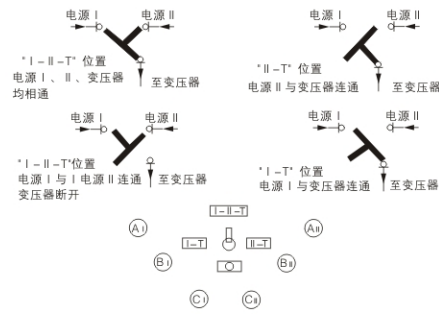


图 3: 四工位“T”型负荷开关工作原理图

Picture 3: Working Principle Sketches of Four Positions "T" Shape Load Switch

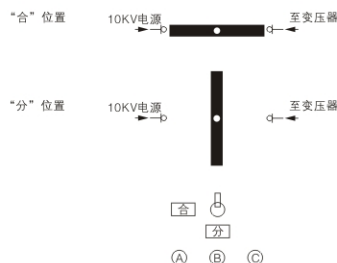


图 4: 二工位负荷开关工作原理图

Picture 4: Working Principle Sketches of Two Positions Load Switch

操作说明 Operating Instruction

◆ 负荷开关的操作:

美式箱变所用的油浸式负荷开关根据其实现的功能不同有二工位、四工位 T 型、四工位 V 型三种, 可供选择其中一种, 三种的操作分别如下:

◆ 四工位 V 型负荷开关参见图 2, 动力片结构是“V”型结构, 见图中黑色部分, 图中“I、II”为环网供电进出线, “T”为经后备熔断器、插入熔断器接变压器高压进线。环网负荷开关带负荷对网路进行切换。负荷开关的四个工作状态:

- a、“I-II-T”位置时, “I”和“II”两网连通, 变压器有电; (变电站起环网作用)
- b、“I-T”位置时, “I”网与变压器连通; (变电站起终端)
- c、“II-T”位置时, “II”网与变压器连通; (变电站起终端)
- d、“O”位置时, “I、II”网与变压器均断开; (全部不带电)

◆ 用专用操作手柄插入负荷开关转轴, 顺时针或逆时针方向旋转约 130°, 负荷开关每操作一次, 动力片即转动一档。开关操作举例: 由电源“I”供电改为电源“II”供电。

将专用操作手柄插入开关轴内;

顺时针转动开关一次, 此时开关“V”型刀片处于“I-II-T”位置;

顺时针方向再转动一次, 此时“V”型刀片处在“II-T”之间为电源“II”供电; 操作完成。

◆ 操作方法二:

将专用操作手柄插入开关轴内;

逆时针转动开关一次, 此时开关“V”型刀片处于“O”位置;

逆时针方向再转动一次, 此时“V”型刀片处在“II-T”之间为电源“II”供电; 操作完成。

◆ 采用以上两种方法均可以完成从电源“I”转换到电源“II”供电, 但第二种方法更安全、合理。电源“I”切断后不会被再送电, 同时若电源“II”出现故障也不会造成合到故障上。而采用方法一, 则会出现双电源供电, 当电源“I”转换到电源“II”时, 若电源相位不同等原因造成故障。

◆ 四工位环网型负荷开关(T型)

四工位“T”型负荷开关工作原理见图 3, 原理操作同 V 型。

◆ 二工位终端负荷开关

其结构图见图 4, 图中“I”与高压进线端子相连。用户在操作时, 将专用操作手柄插入负荷开关转轴中, 逆时针方向转动“90°”, 负荷开关转到“分”闸位置, 终端负荷开关只用终端供电方式中切断变压器支路, 或在更换插入式熔断器熔芯时工作, 因此终端负荷开关仅分、合两位置, 且由于体积较小, 操作力也轻小, 使用操作均很方便。为减少油箱内的油污染, 建议用户在操作负荷开关前先断开低压总开关或出线开关以切除低压侧负荷。

◆ 电缆头

12kV 预装式变电站的高压进出线采用电缆进出线, 由环氧浇注的绝缘套管将高压电源引到油箱外, 为便于厂家进行试验及用户验收试验, 绝缘套管本身具有承受工频耐压和雷电冲击耐压的能力。

选用与电缆截面相匹配的肘型或 T 型电缆头, 将其内外表面及绝缘套管表面用无水乙醇清洗干净, 涂少许 7501 型的真空硅脂在套管表面, 并按照电缆工区的专用安装规范, 将其安装好。电缆头的安装见随机说明书。

◆ 插入式熔断器的更换

插入式熔断器是可外部更换熔芯的元件, 更换时, 首先将上油箱压力释放阀的按钮拉一下, 使油箱内外压力平衡。为确保操作人员及设备的安全, 插入式熔断器不带负荷时插拔, 故先将低压开关断电, 以切除低压侧全部负荷, 再用操作手柄将负荷开关切换到电源和变压器断开位置, 然后用操作手柄将熔断器座上的手柄旋松, 再旋转约 90 度, 以消除密封垫和外壁间的粘附作用, 并向斜上方拉出熔断器的熔体 70-80mm, 停留几秒钟, 待熔体上的油流掉一些后, 再拔出熔体, 以免油滴在油箱外的其它元件上; 用干净的棉布将熔体表面擦干净, 再更换熔芯。更换时, 一定注意熔芯上标明的参数, 不同参数不可代用。更换步骤见图 5。将更换好熔芯后熔体, 用力插入到熔断器支座上, 将熔体上的手柄旋至锁住位置时, 确保垫圈紧靠在熔断器支座上, 手柄扣在凸台上, 以保证变电站全密封, 不进潮气。然后将高压负荷开关、低压开关再重新合闸, 此时即可恢复供电。

因为变电站是三相系统, 无论是后备保护熔断器或插入式熔断器, 当一相熔体熔断后, 一般三相熔体均要更换, 除非能确定仅有一相熔体通过了故障电流。

操作说明 Operating Instruction

◆ Operation of Load Switch:

American box type uses oil type load switch. There are three types according to different functions: two positions, four positions with T shape and four positions with V shape. The users can choose any one of them and their operations are as follows:

- ◆ Four positions V shape load switch sees picture 2. The structure of the power piece is "V" shape, seeing the black part in the picture. "I, II" in the picture is for the inlet and outlet cable of ring network power supply. "T" is the inlet high voltage cable for backup fuse and plug-in fuse to connect into transformer. Ring network load switch changes the network with load. Four working states of load switch are as follows:
 - When in the position of "I-II-T", "I" and "II" are linked, so the transformer is with charge. (The function of transformer substation: ring network);
 - When in the position of "I-T", "I" is linked to transformer. (The function of transformer: terminal);
 - When in the position of "II-T", "II" is linked to transformer. (The function of transformer: terminal);
 - When in the position of "O", "I", "II" and transformer are all disconnected. (None of them is with charge.)

- ◆ Insert the exclusive operating handle into load switch shaft and turn about 130° clockwise or anti-clockwise. Each operation time of the load switch turns the power piece into next grade.
For example: change the power supply mode from power "I" into power "II".

◆ Operation Mode 1:

Insert the operation handle into switch shaft;
Rotate the switch clockwise for one time, the switch with "V" shape blade is in the position of "I - II - T";
Rotate the switch clockwise again, the "V" shape blade is between "II-T" and supply power through power "II". The operation is done.

◆ Operation Mode 2:

Insert the operation handle into switch shaft;
Rotate the switch anti-clockwise for one time, the switch with "V" shape blade is in the position of "O";
Rotate the switch anti-clockwise again, the "V" shape blade is between "II-T" and supply power through power "II". The operation is done.

- ◆ The two modes above both can achieve the power supply from power "I" into power "II". But the second mode is more safety and reasonable. Because when power "I" broke, it can not supply power any more. Meanwhile, if there is any fault of power "II", the fault will not expand into the whole cabinet. However, the first mode will arouse double power supply faults. When change from power "I" into power "II", if the phases of power are not same and so forth reasons, the faults will arouse.

◆ Four Positions Ring Network Load Switch (T Shape)

Working principle of four positions "T" shape load switch sees picture 3. Operating principle is same to V shape.

◆ Two Positions Load Switch

The structure of it sees picture 4. "I" links to high voltage inlet cable terminal. When the users operate it, insert the operating handle into the switch shaft, rotate 90° anti-clockwise to breaking position of the load switch, so the terminal load switch can only use terminal power supply to cut the branches of transformer, or can only work when replace the plug-in fuse. To reduce the oil pollution of the oil tank, we advise the users to break the main low voltage switch or break the outlet cable switch to cut the load of the low voltage side before operating the load switch.

◆ Cable Head

The inlet and outlet wire of the high voltage in 12kV preinstalled type transformer substation uses cable for inlet and outlet wire, which is introduced the high voltage power outside the oil tank by isolation bushing with epoxy pouring. The isolation bushing can afford power frequency withstand voltage and lightning impulse withstand voltage for convenient test of the manufacturers and acceptance test of users. Choose elbow type or T type cable head which matches to the cable section and wash the surface of the cable head and isolation bushing by absolute ethyl alcohol and paint a little bit of 7501 type vacuum silicone grease at the surface of the bushing and install it according to the installation regulations of cable working zone. The installation of the cable head sees the installation specifications attached.

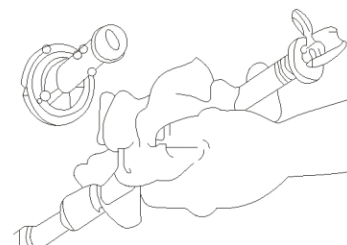
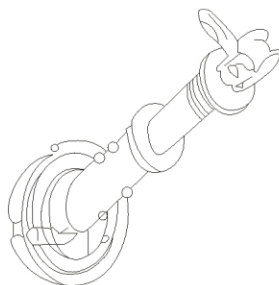
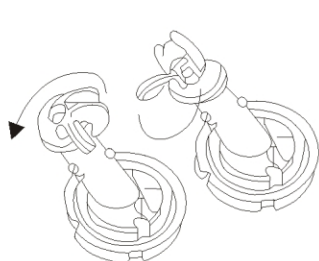
◆ Replacement of Plug-in Fuse

Plug-in fuse is such a component that its fuse core can be replaced externally. First, push the button of the pressure release valve of the oil tank to balance the pressure in and out of oil tank. To make sure the safety of the staff and the equipment, the plug-in fuse plugs in and out without load, so the low voltage switch needs to cut the power off first to cut all the load of low voltage side, then use the operation handle to switch the load switch into the breaking position of power and transformer, and then use the operation handle to loose the handle in fuse base, and rotate about 90 degrees in order to eliminate the adhesion effect between sealed gasket and shell, and pull out the melt of fuse to ramp above 70-80mm, then stay for a few seconds to wait for the oil to flow then the fuse can be pulled out so as to avoid oil drops on other components outside the oil tank. Clean the fuse with a clean cotton cloth, and then change the fuse core. During replacement, must pay attention to the parameters shown on the fuse core. Fuses with different parameters cannot be substituted. The steps of replacing sees picture 5. After replacing the fuse core and melt, forcefully insert them into the fuse base and rotate the handle in melt into locked position to guarantee the gasket touches the fuse base. And handle is on the convex plate to guarantee the transformer is sealed without damp. Then reclose the high voltage load switch and low voltage switch, now the cabinet can supply power again.

Because of the transformer is a three-phase system, so no matter any one of the fuse melt in backup protection fuse or plug-in fuse breaks, all the three fuse melts need to change together, unless the fuse melt passed fault current is certain.

插入式熔断器更换步骤 Steps of Replacing Plug-in Fuse

- ◆ 低压总开关分闸。
Break the main low voltage switch.
- ◆ 高压负荷开关分闸。
Break high voltage load switch.
- ◆ 拉压力释放阀圆环使其释压。
Release pressure by pull the pressure release valve ring.
- ◆ 钩住操作孔向上旋转 90 度。
Rotate 90degrees of hooking operation hole.
- ◆ 向上 100mm, 停一下, 然后全部拉出用干净的棉布擦干。
Pull it out above 100mm, stop for a while, then pull all of it and clean it with clean cotton cloth.
- ◆ 按下图更换熔芯。
Change the fuse core according to the picture below.
- ◆ 快速将更换的熔芯插入原孔, 并扣住。
Quickly insert the replaced fuse core back to the fuse base and buckle it.



把手

套封圈

熔断器握柄



熔丝座



端螺栓

运输、安装及维护 Transportation, Installation and Maintenance

◆运输 Transportation

出厂的变电站应按油箱中油位计指示注满 25#(或 45#) 变压器油。运输和装卸时, 不准倒置和翻转, 不得撞击零件, 不准强烈震动。

变电站在吊装移位时应特别注意, 起吊钩应钩在油箱的吊钩上, 要缓缓起吊, 以免钢丝绳将变电站表面油漆损伤, 甚至引起整台变电站重心偏移、倾斜、跌落。

Transportation Substation should be filled with 25# (or 45#) transformer oil to the full indication of the oil level indicator. During the transportation and load and unload, it can not be upside down or overturned, and without impact and violet vibration.

Transportation Substation should be paid more attention when it is lifted. The lifting hook should be hooked to the lifting hooks of the oil tank with slow movement to prevent the steel wire rope to scratch the painting of the transformer substation or even worse to cause the whole substation center-of gravity shift, tilt and fall.

◆安装 Installation

变电站在现场安装时, 应注意柜体表面油漆的保护, 不允许气压表、油位计、温度计、插入式熔断器的手柄和绝缘套管元件有碰撞、裂痕等, 螺钉无松动。

将变电站外部、柜门内、绝缘套管表面的尘埃、污物清除干净。

检查变电站的铭牌数据、产品合格证是否与订货单相符, 并根据装箱单检查文件、备件是否遗漏。

变电站电缆进出线土建图见图 6。

When install the transformer substation at the site, the painting, pressure meter, oil level indicator, temperature meter, handle and isolating bushing of the plug-in fuse should be protected from crash and scratch, and screws are tightened.

Clean the dust and other dirty things at the surface of the substation and bushing, and inside the cabinet door.

Check the name plate and manufacture certificate of the transformer substation conforms to the purchasing order. And check the documents and pare parts according to the packing list.

Inlet and outlet cable construction layout drawing of the transformer substation sees picture 6.

◆维护 Maintenance

出厂的产品已经过严格的装配调整、在安装时不需要重新拆卸, 以免影响性能, 维护仅限于下列情况:

每年进行一次变压器油抽样分析。

发现油位降低应及时补充, 油的牌号与箱体中的油相同。

熔断器熔断后应查明原因, 更换熔芯时应注意其规格型号应与原规格型号相同。

The product has been strictly preinstalled and adjusted in the factory, so there is no need to reinstall to affect its performance. Only can be maintained for following situations:

Analyse transformer oil sampling analysis annually.

Fill the oil tank with the same type oil in name plate when the oil is lower.

Find out the reason of fuse blow. The replaced model should be same to the former one.

验收、投运前的实验 Acceptance Test

◆开箱后, 检查文件和附件是否齐全。

Open the box to check whether the documents and the accessories are complete.

◆油位计指示的油位是否符合产品规定; 分接开关是否处于正确档位。

Oil level indicator indicates the oil level need to accord to the regulation of the product; tap changer should be in the right position.

◆对负荷开关进行顺时针、逆时针操作, 各进行四次, 应无“拒分、拒合”等不正常现象。

Operate the load switch clockwise and anti-clockwise each for four times. There should not be “reject to break and close” such unusual conditions.

◆高低压侧直流电阻的测量。

Measure the resistance of the high voltage side and low voltage side.

◆变压器变比的测量。

Measure the transformer ratio.

◆绝缘电阻的测量及工频耐压试验 (按出厂时的百分之八十)。

Measure the isolating resistance and do the power frequency withstand test (80% of the original product before delivery)

出厂资料 Attached Documents

制造厂供货时应提供下列文件及附件

Manufacturer should provide the following documents and accessories before delivery

◆发货清单

Shipping list

◆产品合格证及出厂试验报告

Manufacture certificate and test report

◆使用说明书

Instruction

◆有关电气图纸

Electric installation drawing

◆主要元件说明书

Specifications of main components

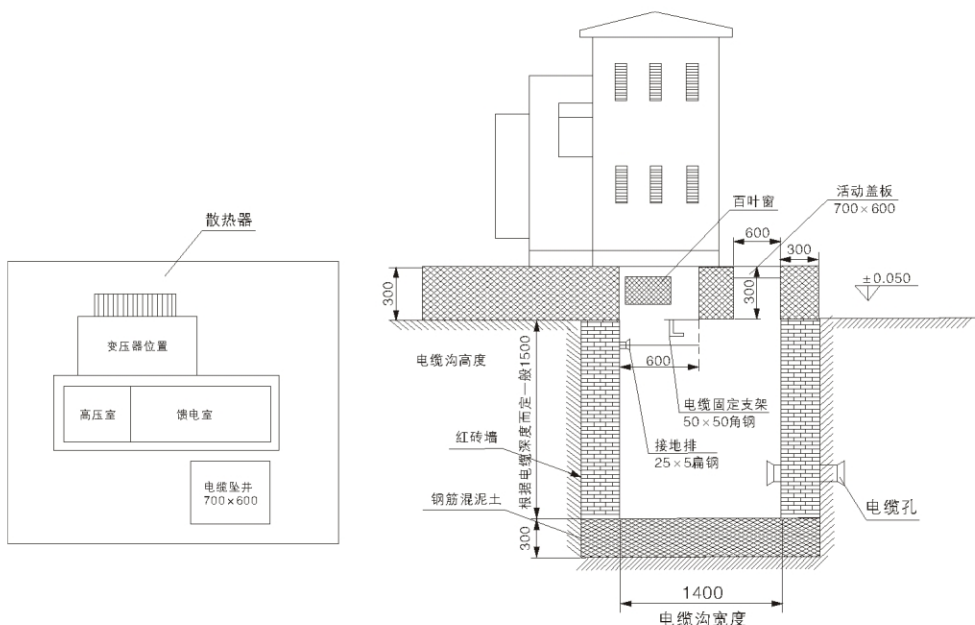
◆柜门钥匙, 操作手柄及合同单规定的备品备件。

Key of the door, operation handle and other spare parts that regulated in contract

订货须知 Ordering Information

- ◆ 订货时须向我公司提供以下资料：
The following information is needed when ordering:
- ◆ 产品型号、数量。
Model and quantity of transformer substation;
- ◆ 变压器型号、容量。
Model and capacity of transformer;
- ◆ 变压器油 (25#, 45#, 高燃点油)。
Transformer oil type (25#, 45#, or high burning point oil);
- ◆ 高低压侧一次接线方案及主要元件参数。
Primary wiring scheme of high voltage side and parameter of the main components;
- ◆ 高压进线电缆截面。
High voltage inlet cable section;
- ◆ 所需的备件。
Spare parts that needed.

变电站电缆进出线土建图(YB□-12)技术要求:



- ◆ 有关尺寸参见组合变实际尺寸：
The dimensions refer to actual size of compound transformer substation:
- ◆ 混凝土台基应表面平整，组合变电站采用压板固定的方式固定在台基上。
Compound transformer substation uses clamp to be fixed on the concrete stylobate whose surface should be smooth.
- ◆ 接地排和电缆固定支架的型式可根据实际情况而定。
The types of grounding busbar and holder for supporting cable can be chosen according to the real situation.
- ◆ 电缆固定架和接地排应预埋。
Cable support holder and grounding busbar should be embedded.
- ◆ 进出线电缆孔的位置根据具体情况而定。
The hole position of inlet and outlet cable can be designed according to the real situation.
- ◆ 组合变安装后开关正面必须有不小于 1.5m 的空隙，以利操作。
There must be over 1.5m gap in front of the compound transformer substation for convenient operation.
- ◆ 接地网可用 12 镀锌圆钢或 40x4 镀锌扁钢制作，接地电阻应符合电力部门要求。
The grounding network can be composed of 12 zinc-plated round steel or 40X4 Galvanized flat steel. Grounding resistance conforms to the requirement of the power department.