



组合式变压器(美式箱变)
COMBINED PAD MOUNTED SUBSTATION (AMERICAN TYPE)

产品概述

Product Overview

组合式变压器,又名美式箱变,美式箱变是将变压器器身、高压负荷开关、熔断器等元件一同放在变压器油箱内,因浸在油中,元件体积大为缩小,结构更为紧凑,外形美观、体积小、安装方便、灵活,全绝缘、全密封结构、安全可靠、操作方便、免维护。广泛应用于住宅小区、商业中心、厂矿企业、机场、车站、学校等场所,同时适用于城市电网改造。

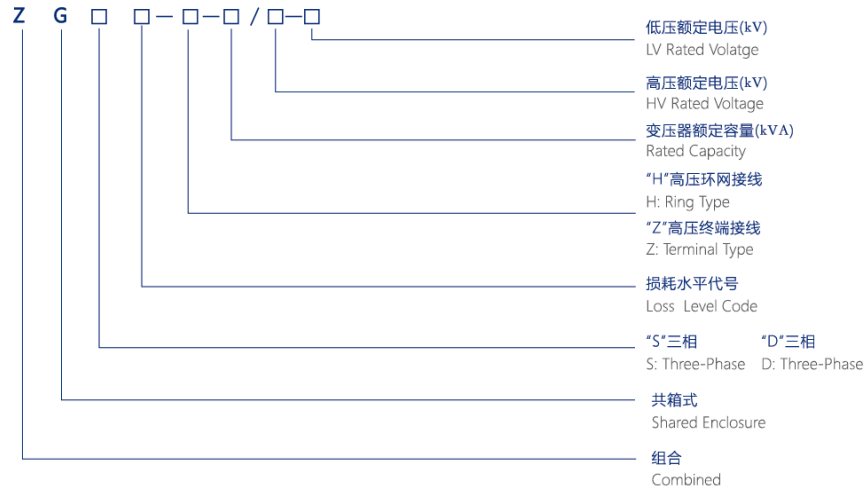
Pad Mounted Transformer includes active part of transformer, HV load switches, fuses and other protection devices all immersed in insulating liquid that can reduce the size. It has advantages of compact structure, beautiful appearance, small size, easy installation, flexible, fully insulated, fully sealed structure, reliable, easy to operate and free maintenance. It is widely used in the urban power network, residential area, high-rise building, industrial park, airport, station, school and so on, especially for urban grid transformation.

产品特点

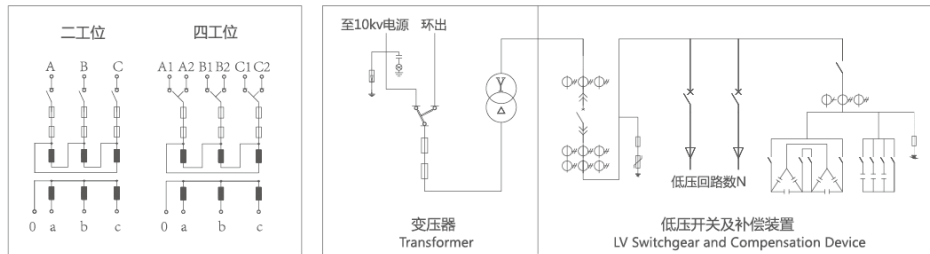
Product Features

- 1、结构紧凑、体积小、安装方便、灵活。
 - 2、全绝缘、全密封结构、安全可靠、免维护,可靠保护人身安全。
 - 3、高压侧采用双熔断器保护,其中插入式熔断器熔丝为双敏熔丝(温度、电流)、后备熔断器为限流熔断器,降低了运行成本。
 - 4、高压进线采用电缆插接件结构,全绝缘、安全可靠、操作方便。
 - 5、既可用于环网,又可用于终端,转换十分方便,提高了供电的可靠性。
 - 6、变压器为三相三柱或三相五柱等结构,铁芯采用阶梯接缝工艺或卷铁芯工艺,噪声低、损耗低、抗短路和过载能力强。
 - 7、采用真空干燥和真空注油的特殊工艺,我公司将在110kV产品的此工艺延伸到10kV产品,为提高产品质量提供有力保障。
 - 8、箱体可根据运行环境的要求采用防腐设计和特殊喷漆处理,具有“三防”功能,即防凝露、防盐雾、防霉菌的功能,并能满足高温、高湿环境下的防腐要求。
- 1、 Compact, small size, easy installation, flexible, convenient.
 - 2、 Full insulation, fully sealed structure, safe and reliable, maintenance free, guarantee the personal safety.
 - 3、 H.V side adopts double fuse protection, in which the plug type fuse is the unika fuse (temperature, current), the backup fuse is the current limit fuse, reducing the operating costs.
 - 4、 HV incoming line adopts cable connector structure, all insulated, safe and reliable, easy to operate;
 - 5、 The transformer can be used in Ring Main Unit and terminal system with quite convenient transformation, improving the reliability of power supply.
 - 6、 The structures for transformer are three-phase three-limb or three-phase five-limb. The core uses step-lap technology which lowers the noise and loss, and improves the short circuit withstand ability and overload ability.
 - 7、 To improve product quality, our company use special technology of vacuum drying and vacuum oil filling which used in 110kV transformer, and be extended to 10kV transformers. It offers a strong guarantee for quality improvement.
 - 8、 The enclosure adopts antiseptic design and special spray painting as per the service condition. The enclosure is equipped with "three-anti" functions, that is anti-condensation, anti-salt fog and anti-mildew which can meet the anti-corrosive requirement in high temperature and high humidity condition.

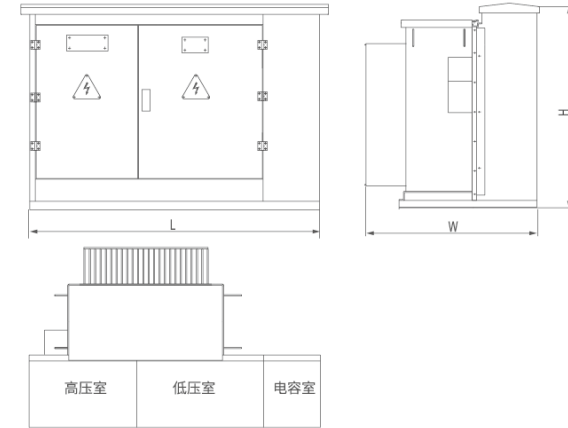
型号说明 Model Coding



高压部分方案 Proposal of H.V Parts



外形图 Outline Drawing



主要技术参数 Technical Parameters

型号 Model	容量 Capacity (kVA)	高压接线 方式 H.V. connection ways	电压组合 Voltage		空载损耗 No load loss (kW)	负载损耗 Load loss (kW)	空载电流 No load current (%)	短路阻抗 Short- circuit impedance (%)	变压器重量 Transformer Weight (kg)	外形尺寸 Dimensions L×W×H (mm)	低压常规配置 L.V. general configuration
			高压 (kV) H.V	低压 (kV) L.V							
ZGS11-□-50/□-0.4	50	"H"高压环网接线 "Z"高压终端接线 "H" H.V ring network connection "Z" H.V. terminal connection	10	0.4	0.130	0.910/0.870	1.3	4.0	730	2600×1300×1800	低压三路出线+ 电容补偿25-30% LV three lines outgoing+ 25-30% capacitance compensation
ZGS13-□-50/□-0.4			10.5		0.100	0.910/0.870	1.3	4.0	730	2600×1300×1800	
ZGSH15-□-50/□-0.4				0.043	0.910/0.870	1.2	4.0	980	2600×1310×1800		
ZGS11-□-50/□-0.4			20	0.130	1.01/0.960	2.0	5.5	730	2600×1300×1800		
ZGS13-□-50/□-0.4			20(10)	0.105	1.01/0.960	2.0	5.5	730	2600×1300×1800		
ZGSH15-□-50/□-0.4				0.055	1.01/0.960	1.2	5.5	980	2600×1310×1800		
ZGS11-□-80/□-0.4	80	"H" H.V ring network connection "Z" H.V. terminal connection	10	0.4	0.180	1.31/1.25	1.2	4.0	810	2600×1315×1800	
ZGS13-□-80/□-0.4			10.5		0.130	1.31/1.25	1.2	4.0	810	2600×1315×1800	
ZGSH15-□-80/□-0.4				0.060	1.31/1.25	1.0	4.0	1100	2600×1325×1800		
ZGS11-□-80/□-0.4			20	0.180	1.44/1.37	1.8	5.5	810	2600×1315×1800		
ZGS13-□-80/□-0.4			20(10)	0.145	1.44/1.37	1.8	5.5	810	2600×1315×1800		
ZGSH15-□-80/□-0.4				0.075	1.44/1.37	1.0	5.5	1100	2600×1325×1800		
ZGS11-□-100/□-0.4	100	"H" H.V ring network connection "Z" H.V. terminal connection	10	0.4	0.200	1.58/1.50	1.1	4.0	870	2600×1365×1800	
ZGS13-□-100/□-0.4			10.5		0.150	1.58/1.50	1.1	4.0	870	2600×1365×1800	
ZGSH15-□-100/□-0.4				0.075	1.58/1.50	0.90	4.0	1215	2600×1375×1800		
ZGS11-□-100/□-0.4			20	0.200	1.73/1.65	1.6	5.5	870	2600×1365×1800		
ZGS13-□-100/□-0.4			20(10)	0.160	1.73/1.65	1.6	5.5	870	2600×1365×1800		
ZGSH15-□-100/□-0.4				0.090	1.73/1.65	0.90	5.5	1215	2600×1375×1800		

型号 Model	容量 Capacity (kV-A)	高压接线 方式 H.V. connection ways	电压组合 Voltage		空载损耗 No load loss (kW)	负载损耗 Load loss (kW)	空载电流 No load current (%)	短路阻抗 Short- circuit impedance (%)	变压器重量 Transformer Weight (kg)	外形尺寸 Dimensions L×W×H (mm)	低压常规配置 L.V. general configuration	
			高压 (kV) H.V.	低压 (kV) L.V.								
ZGS11-□-125/□-0.4 ZGS13-□-125/□-0.4 ZGSBH15-□-125/□-0.4	125	"H"高压环 网接线 "Z"高压终 端接线 "H" H.V. ring network connection "Z" H.V. terminal connection	10 10.5	0.4	0.240	1.89/1.80	1.1	4.0	925	2600×1400×1800		
0.170					1.89/1.80	1.1	4.0	925	2600×1400×1800			
0.085					1.89/1.80	0.80	4.0	1290	2600×1375×1800			
ZGS11-□-125/□-0.4 ZGS13-□-125/□-0.4 ZGSBH15-□-125/□-0.4	160		20 20(10)	0.4	0.240	2.08/1.98	1.5	5.5	925	2600×1400×1800		
0.195					2.08/1.98	1.5	5.5	925	2600×1400×1800			
0.100					2.08/1.98	0.80	5.5	1290	2600×1375×1800			
ZGS11-□-160/□-0.4 ZGS13-□-160/□-0.4 ZGSBH15-□-160/□-0.4	200		10 10.5	0.4	0.280	2.31/2.20	1.0	4.0	995	2600×1440×1800		
0.200					2.31/2.20	1.0	4.0	995	2600×1440×1800			
0.100					2.31/2.20	0.60	4.0	1340	2600×1395×1800			
ZGS11-□-160/□-0.4 ZGS13-□-160/□-0.4 ZGSBH15-□-160/□-0.4	250		20 20(10)	0.4	0.290	2.54/2.42	1.4	5.5	995	2600×1440×1800		
0.235					2.54/2.42	1.4	5.5	995	2600×1440×1800			
0.120					2.54/2.42	0.60	5.5	1340	2600×1395×1800			
ZGS11-□-200/□-0.4 ZGS13-□-200/□-0.4 ZGSBH15-□-200/□-0.4	250		10 10.5	0.4	0.340	2.73/2.60	1.0	4.0	1075	2600×1445×1800		
0.240					2.73/2.60	1.0	4.0	1075	2600×1445×1800			
0.120					2.73/2.60	0.60	4.0	1525	2600×1525×1800			
ZGS11-□-200/□-0.4 ZGS13-□-200/□-0.4 ZGSBH15-□-200/□-0.4	315		20 20(10)	0.4	0.340	3.00/2.86	1.3	5.5	1075	2600×1445×1800		低压四路出线+ 电容补偿25-30% LV four lines outgoing+ 25-30% capacitance compensation
0.275					3.00/2.86	1.3	5.5	1075	2600×1445×1800			
0.145					3.00/2.86	0.6	5.5	1525	2600×1525×1800			
ZGS11-□-250/□-0.4 ZGS13-□-250/□-0.4 ZGSBH15-□-250/□-0.4	400		10 10.5	0.4	0.400	3.20/3.05	0.90	4.0	1260	2600×1495×1800		
0.290					3.20/3.05	0.90	4.0	1260	2600×1495×1800			
0.140					3.20/3.05	0.60	4.0	1765	2600×1550×1800			
ZGS11-□-250/□-0.4 ZGS13-□-250/□-0.4 ZGSBH15-□-250/□-0.4	400		20 20(10)	0.4	0.400	3.52/3.35	1.2	5.5	1260	2600×1495×1800		
0.320					3.52/3.35	1.2	5.5	1260	2600×1495×1800			
0.165					3.52/3.35	0.60	5.5	1765	2600×1550×1800			
ZGS11-□-315/□-0.4 ZGS13-□-315/□-0.4 ZGSBH15-□-315/□-0.4	500		10 10.5	0.4	0.480	3.83/3.65	0.90	4.0	1430	2600×1520×1800		
0.340					3.83/3.65	0.90	4.0	1430	2600×1520×1800			
0.170					3.83/3.65	0.50	4.0	1980	2600×1665×1800			
ZGS11-□-315/□-0.4 ZGS13-□-315/□-0.4 ZGSBH15-□-315/□-0.4	500		20 20(10)	0.4	0.480	4.21/4.01	1.1	5.5	1430	2600×1520×1800		
0.385					4.21/4.01	1.1	5.5	1430	2600×1520×1800			
0.200					4.21/4.01	0.50	5.5	1980	2600×1665×1800			
ZGS11-□-400/□-0.4 ZGS13-□-400/□-0.4 ZGSBH15-□-400/□-0.4	630	10 10.5	0.4	0.570	4.52/4.30	0.80	4.0	1625	2600×1600×1800	低压五路出线+ 电容补偿25-30% LV five lines outgoing+ 25-30% capacitance compensation		
0.410				4.52/4.30	0.80	4.0	1625	2600×1600×1800				
0.200				4.52/4.30	0.50	4.0	2240	2600×1665×1800				
ZGS11-□-400/□-0.4 ZGS13-□-400/□-0.4 ZGSBH15-□-400/□-0.4	500	20 20(10)	0.4	0.570	4.97/4.73	1.0	5.5	1625	2600×1600×1800			
0.455				4.97/4.73	1.0	5.5	1625	2600×1600×1800				
0.240				4.97/4.73	0.50	5.5	2240	2600×1665×1800				
ZGS11-□-500/□-0.4 ZGS13-□-500/□-0.4 ZGSBH15-□-500/□-0.4	630	10 10.5	0.4	0.680	5.41/5.15	0.80	4.0	1805	2600×1575×1800			
0.480				5.41/5.15	0.80	4.0	1805	2600×1575×1800				
0.240				5.41/5.15	0.50	4.0	2425	2600×1705×1800				
ZGS11-□-500/□-0.4 ZGS13-□-500/□-0.4 ZGSBH15-□-500/□-0.4	630	20 20(10)	0.4	0.680	5.94/5.66	1.0	5.5	1805	2600×1575×1800			
0.545				5.94/5.66	1.0	5.5	1805	2600×1575×1800				
0.290				5.94/5.66	0.50	5.5	2425	2600×1705×1800				
ZGS11-□-630/□-0.4 ZGS13-□-630/□-0.4 ZGSBH15-□-630/□-0.4	630	10 10.5	0.4	0.810	6.20	0.60	4.5	2125	2600×1595×1800	低压六路出线+ 电容补偿25-30% LV six lines outgoing+ 25-30% capacitance compensation		
0.570				6.20	0.60	4.5	2125	2600×1595×1800				
0.320				6.20	0.30	4.5	3000	2600×1780×1800				

型号 Model	容量 Capacity (kV-A)	高压接线 方式 H.V. connection ways	电压组合 Voltage		空载损耗 No load loss (kW)	负载损耗 Load loss (kW)	空载电流 No load current (%)	短路阻抗 Short- circuit impedance (%)	变压器重量 Transformer Weight (kg)	外形尺寸 Dimensions L×W×H (mm)	低压常规配置 L.V. general configuration	
			高压 (kV) H.V.	低压 (kV) L.V.								
ZGS11-□-630/□-0.4 ZGS13-□-630/□-0.4 ZGSBH15-□-630/□-0.4	630	"H"高压环 网接线 "Z"高压终 端接线 "H" H.V. ring network connection "Z" H.V. terminal connection	20 20(10)	0.4	0.810	6.82	0.90	6.0	2125	2600×1595×1800	低压六路出线+ 电容补偿25-30% LV six lines outgoing+ 25-30% capacitance compensation	
0.650					6.82	0.90	6.0	2125	2600×1595×1800			
0.370					6.82	0.30	6.0	3000	2600×1780×1800			
ZGS11-□-800/□-0.4 ZGS13-□-800/□-0.4 ZGSBH15-□-800/□-0.4	800		10 10.5	0.4	0.980	7.50	0.60	4.5	2560	2600×1660×1800		
0.700					7.50	0.60	4.5	2560	2600×1660×1800			
0.380					7.50	0.30	4.5	3015	2600×1680×1800			
ZGS11-□-800/□-0.4 ZGS13-□-800/□-0.4 ZGSBH15-□-800/□-0.4	1000		20 20(10)	0.4	0.980	8.25	0.80	6.0	2560	2600×1660×1800		
0.785					8.25	0.80	6.0	2560	2600×1660×1800			
0.450					8.25	0.30	6.0	3015	2600×1680×1800			
ZGS11-□-1000/□-0.4 ZGS13-□-1000/□-0.4 ZGSBH15-□-1000/□-0.4	1000		10 10.5	0.4	1.15	10.3	0.60	4.5	3210	2600×1735×1900		
0.830					10.3	0.60	4.5	3210	2600×1735×1900			
0.450					10.3	0.30	4.5	3210	2600×1780×1800			
ZGS11-□-1000/□-0.4 ZGS13-□-1000/□-0.4 ZGSBH15-□-1000/□-0.4	1250		20 20(10)	0.4	1.15	11.3	0.70	6.0	3210	2600×1735×1900		
0.920					11.3	0.70	6.0	3210	2600×1735×1900			
0.530					11.3	0.30	6.0	3210	2600×1780×1800			
ZGS11-□-1250/□-0.4 ZGS13-□-1250/□-0.4 ZGSBH15-□-1250/□-0.4	1250		10 10.5	0.4	1.36	12.0	0.50	4.5	3615	2600×2010×1900		
0.970					12.0	0.50	4.5	3615	2600×2010×1900			
0.530					12.0	0.20	4.5	4070	2600×1780×1800			
ZGS11-□-1250/□-0.4 ZGS13-□-1250/□-0.4 ZGSBH15-□-1250/□-0.4	1600		20 20(10)	0.4	1.38	13.2	0.70	6.0	3615	2600×2010×1900		
1.10					13.2	0.70	6.0	3615	2600×2010×1900			
0.620					13.2	0.20	6.0	4070	2600×1780×1800			
ZGS11-□-1600/□-0.4 ZGS13-□-1600/□-0.4 ZGSBH15-□-1600/□-0.4	1600		10 10.5	0.4	1.64	14.5	0.50	4.5	3950	3000×2075×1900		低压八路出线+ 电容补偿25-30% LV eight lines outgoing+ 25-30% capacitance compensation
1.17					14.5	0.50	4.5	3950	3000×2075×1900			
0.630					14.5	0.20	4.5	4250	3000×1845×1900			
ZGS11-□-1600/□-0.4 ZGS13-□-1600/□-0.4 ZGSBH15-□-1600/□-0.4	1600		20 20(10)	0.4	1.66	15.95	0.60	6.0	3950	3000×2075×1900		
1.33					15.95	0.60	6.0	3950	3000×2075×1900			
0.750					15.95	0.20	6.0	4250	3000×1845×1900			

选型说明:

- 1、设备外壳部分: 根据用户需要可采用金属外壳、不锈钢外壳。
- 2、设备高压部分: 根据用户需要可采用环网型和终端型。
- 3、设备变压器部分: 根据用户需要可采用11型油浸式变压器、13型油浸式变压器、非晶合金变压器。
- 4、设备低压回路: 表中低压回路为常规配置, 用户可根据实际需要配置, 确定方案。
- 5、设备电容补偿: 可采用智能型和常规电容器, 容量可根据用户的需求而定。
- 6、设备外形布置: 外形布置可根据方案的不同, 进行合理的、优化的布置方案, 通常分为“目”字型和“品”字型两大类。

Notes:

- 1、Metal enclosure and stainless steel enclosure could be customized.
- 2、Ring Main Unit or terminal type can be selected as per customer's requirements.
- 3、11 series oil-immersed transformer, 13 series oil-immersed transformer and amorphous alloy transformer can be selected as transformer parts according to the customer's requirements.
- 4、L.V circuit in above list is the general configuration, it can be changed as per customer's requirements.
- 5、Equipment capacitance compensation can be divided into intelligent capacitance and common capacitor. It's capacity can be changed as per customer's requirements.
- 6、Equipment arrangement usually divided into coupled "F" type and "O"+ reversed "E" type. Special plan can be optimized as per customer's requirement.