

东方电子股份有限公司烟台变压器分公司

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变压器产品手册

Transformer Product Manual

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公司简介 Company profile

东方电子股份有限公司烟台变压器分公司系东方电子股份有限公司(股票代码:000682,A股简称:东方电子)权属企业,是一家致力于节能型系列变压器的研发、设计、制造、销售与服务的高新技术企业。公司坐落于美丽的海滨城市-山东烟台,厂房及办公面积达1.8万平方米。

公司以“珍爱环境、节约资源”为企业愿景,始终秉承东方电子“精确创新,持续进步”的管理理念,精确识别客户需求,努力为客户提供合格而稳定的产品质量、适宜的价格、快速的交期以及优质的服务。

公司现有产品包括立体卷铁心油变、平面叠铁心油变、非晶合金油变、天然酯油变、智能物联配电变压器、非晶合金/硅钢环氧树脂干变、智能型箱式变电站等十多个品种几百个型号,所有产品均通过国家质量监督检验中心的例行、型式试验。其中,公司重点研发生产的节能型立体卷铁心变压器先后取得多项国家实用新型专利、中国节能产品认证,并通过山东省地方科技成果鉴定,多次被列入山东省技术创新项目、山东省能效“领跑者”名单、《国家工业节能技术装备推荐目录》等;公司研发生产的三相干式变压器获荷兰 KEMA 国际认证资质。

经过多年积累,目前产品销售市场已覆盖国网、南网、地方电力、新能源电厂、厂矿企业等国内主要 10-35kV 变压器用户,并远销到东南亚、中东和非洲。

As a subsidiary of Dongfang Electronics Corporation (stock code: 000682, A-share; DFE for short) Dongfang Electronics Corporation Yantai Transformer Branch is a high-tech enterprise devoted to the R&D, design, manufacturing, sales and services of energy-saving transformers. The Company is located in the beautiful coastal city of Yantai, Shandong Province, with the plant and office area of 18,000 square meters.

Based on the vision of "Treasuring Environment, Saving Resources", the Company, by adhering to DFE's management philosophy of "Precise Innovation, Continuous Progress", accurately identifies customer needs and strives to provide customers with qualified and stable product quality, suitable prices, timely delivery and excellent services.

The Company's existing products include 3D wound core oil-immersed transformers, planar stacked core oil-immersed transformers, amorphous alloy oil-immersed transformers, natural ester oil-immersed transformers, intelligent IoT distribution transformers, amorphous alloy/silicon steel epoxy resin dry transformers, intelligent packaged substations and other hundreds of models of more than ten types. All products have passed the routine tests and type tests of the China Products Quality Inspection Supervision

Center. Among them, the energy-saving 3D wound core transformer, a key R&D and production program of the Company, has successively obtained a number of national utility model patents and the certification for energy conservation products of China, and passed the identification of scientific and technological achievements in Shandong Province. It has been listed in the technological innovation projects of Shandong Province, the Energy Efficiency Top Runners of Shandong Province, the National Recommended Catalogue of Industrial Energy-saving Technical Equipment and etc. more than once. The three-phase dry-type transformer developed and produced by the Company has been certified by KEMA of Netherlands.

After years of accumulation, the current product sales market covers the main domestic users of 10-35kV transformers, such as State Grid, China Southern Power Grid, local power plants, new energy power plants, factories and mines. The products have been exported to Southeast Asia, the Middle East and Africa.





资质荣誉 Qualifications and awards



企业文化 Enterprise culture

企业愿景：珍爱环境 节约资源

公司使命：为客户创造价值

企业精神：创新 激情 协作 诚信

文化特质：平和、感恩、快乐工作、快乐生活

Enterprise vision: Treasuring environment, saving Resources

Enterprise mission: Create value for customers

Enterprise spirit: Innovation, Passion, Collaboration, Integrity.

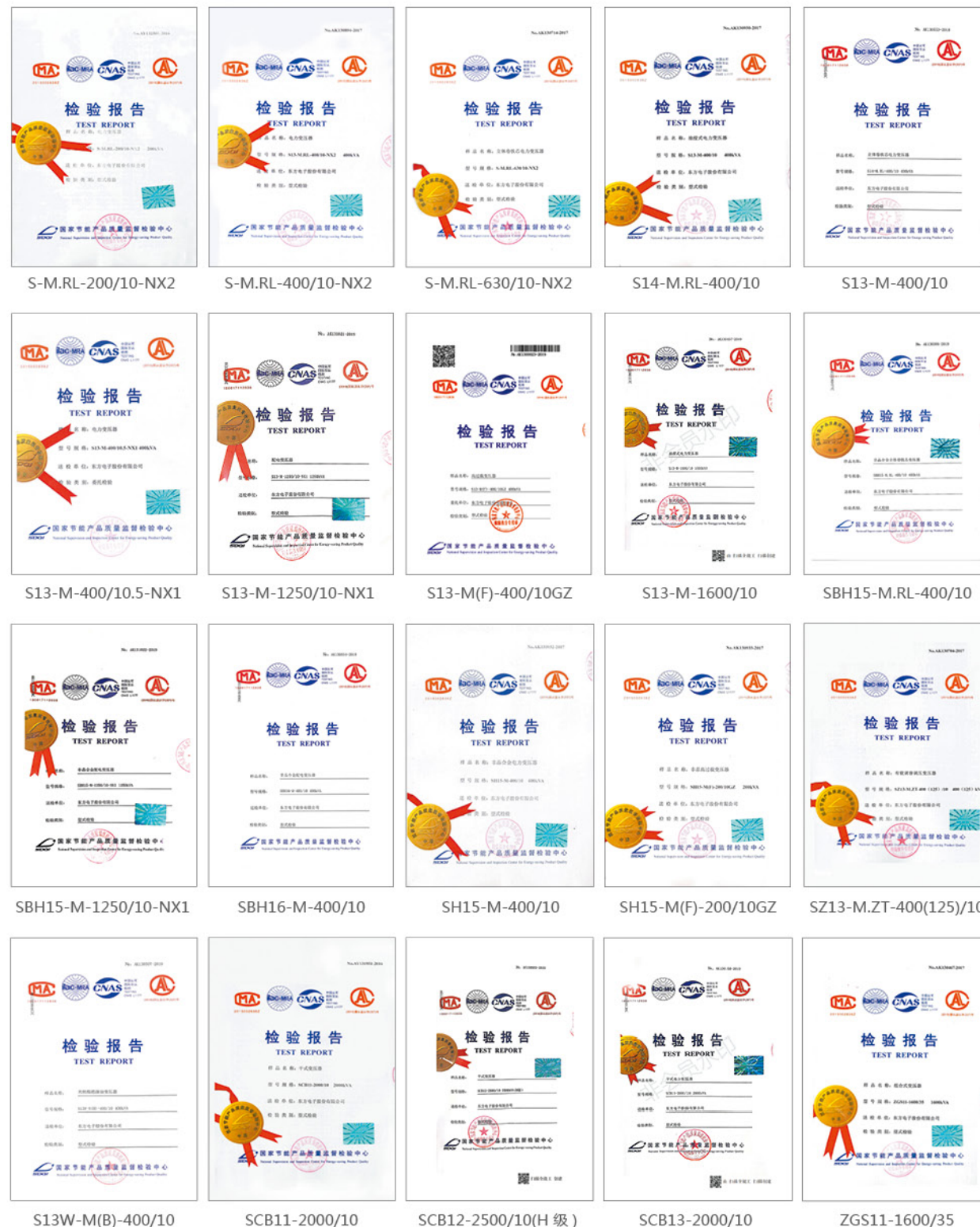
Cultural characteristics: Peace, gratitude, happiness in work and life

出线室

补偿室

有电危险

检验报告 Transformer Inspection report



基础设施 Infrastructure

公司拥有专业精湛的生产制造工艺，拉动式生产流程，严酷湿敏防护等级，全生命周期的过程质量管理，规模化的整体生产能力。目前，公司年生产各种规格型号变压器能力达 10000 多台。

The Company has professional and exquisite manufacturing technology, pull-type production process, strict humidity sensitivity protection, process quality management throughout the life cycle, and large-scale overall production capacity. At present, the Company has an annual output of more than 10,000 transformers of various types and specifications.



生产设备 Production equipment



纵剪机
Slitting machine



绕线机
Coil winding machine



退火炉
Annealing furnace



干燥罐
Drying tank



浇注罐
Casting tank



箔绕机
Coil winding machine

检测设备 Test equipment



综合测试台
Integrated test stand



局部放电及噪音屏蔽试验室
Partial discharge and noise shielding laboratory



400kV/30kJ 冲击电压发生器成套试验设备
Complete 400kV/30kJ impulse voltage generator



气相色谱仪
Gas chromatograph



多通道局部放电检测仪
Multi-channel partial discharge detector



微量水分测定仪
Trace Moisture Analyzer

公司拥有国内先进的生产流水线和制造工艺，严格按照国家标准和国家电网标准组织生产，从原材料到成品出入库实行全过程监控。

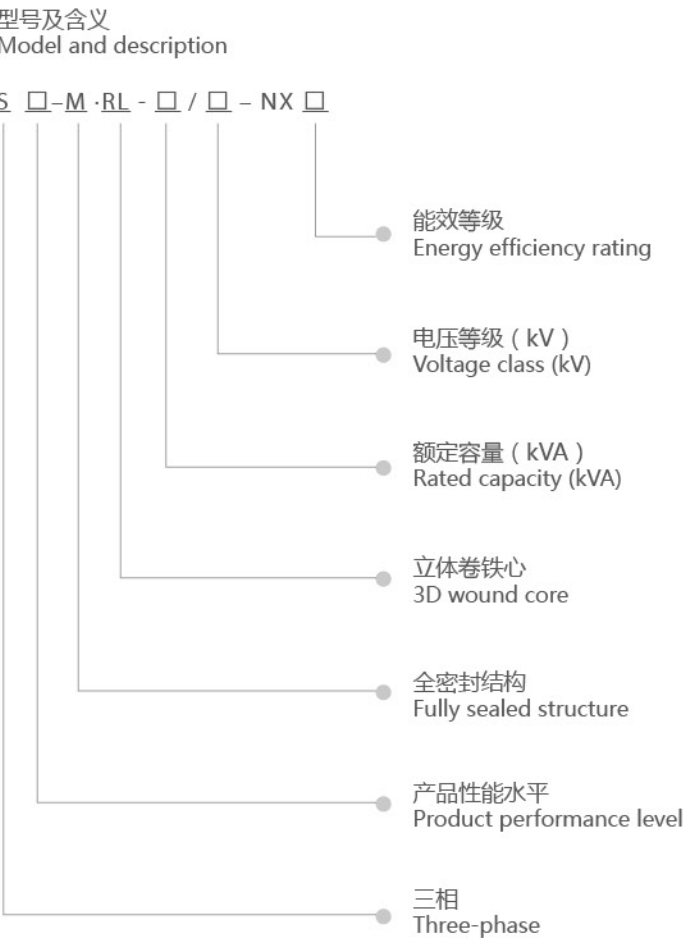
The company has domestically-advanced production lines and manufacturing processes, organizes production strictly in accordance with national standards and national power grid standards, and implements full-process monitoring from raw materials to the out-put and in-put of warehouse of finished products.

公司试验站设施齐备、性能先进、试验结果准确可靠，可进行全套例行试验和部分型式试验，可进行油中气体含量、含水量、介质损耗等参数分析。

With complete advanced facilities, the Company's test station can provide accurate and reliable test results and can perform a full set of routine tests and some type tests, and can analyze such parameters as gas content, water content and dielectric loss in the oil.



主要产品
Main products



技术特点
Technical characteristics

- 抗短路能力强
 - 噪音低
 - 过载能力强
 - 空载损耗低，节能环保
- High resistance to short circuit
 - Low noise
 - High overload capacity
 - Low no-load loss, energy conservation and environmental protection

应用场景
Applications

- 任何变电场合
- Power transformation

油浸式立体卷铁心变压器技术参数 (能效二级)
Technical Parameters of 3D Wound Core Oil-immersed Transformer
(Energy Efficiency of Level 2)

额定容量 Rated capacity (kVA)	50	100	200	315	400	500	630	800
高压 HV (kV)	10 10.5							
高压分接范围 HV tapping range (%)	±5 ±2×2.5							
低压 LV (kV)	0.4							
联结组标号 Vector group symbol	Dyn11/ Yyn0							
空载损耗 No-load loss (W)	100	150	240	340	410	480	570	700
负载损耗 On-load loss (W)	910/870	1580/1500	2730/2600	3830/3650	4520/4300	5410/5150	6200	7500
短路阻抗 Short-circuit impedance (%)	4	4	4	4	4	4	4.5	4.5
空载电流 No-load current (%)	0.24	0.21	0.18	0.16	0.16	0.16	0.15	0.15
噪声水平, 声功率级 Noise level, sound power level (dB)	48	49	52	54	54	56	56	58

注：表中斜线上方的负载损耗值适用于 Dyn11 联结组，斜线下方的负载损耗值适用于 Yyn0 联结组。
Note: The on-load loss above the oblique line in the table applies to Dyn11; that below the oblique line applies to Yyn0.

油浸式立体卷铁心变压器技术参数 (优质能效一级)
Technical Parameters of 3D Wound Core Oil-immersed Transformer
(High Energy Efficiency of Level 1)

额定容量 Rated capacity (kVA)	50	100	200	315	400	500	630	800
高压 HV (kV)	10 10.5							
高压分接范围 HV tapping range (%)	±5 ±2×2.5							
低压 LV (kV)	0.4							
联结组标号 Vector group symbol	Dyn11/ Yyn0							
空载损耗 No-load loss (W)	100	150	240	340	410	480	570	700
负载损耗 On-load loss (W)	730/695	1265/1200	2185/2080	3065/2920	3615/3440	4330/4120	4960	6000
短路阻抗 Short-circuit impedance (%)	4	4	4	4	4	4	4.5	4.5
空载电流 No-load current (%)	0.24	0.21	0.18	0.16	0.16	0.16	0.15	0.15
噪声水平, 声功率级 Noise level, sound power level (dB)	45	45	45	45	45	48	48	50

注：表中斜线上方的负载损耗值适用于 Dyn11 联结组，斜线下方的负载损耗值适用于 Yyn0 联结组。
Note: The on-load loss above the oblique line in the table applies to Dyn11; that below the oblique line applies to Yyn0.

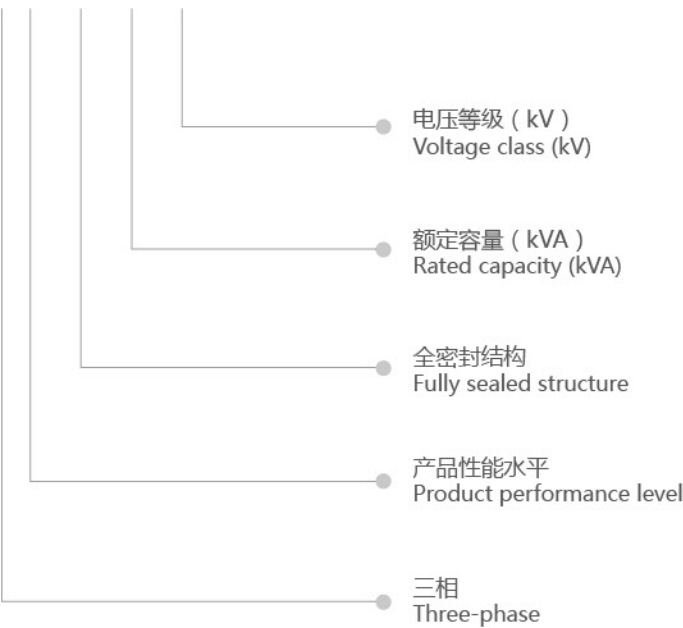


主要产品
Main products



型号及含义
Model and description

S □ - M - □ / □



技术特点
Technical characteristics

- 抗短路能力强
- 过载能力强
- High resistance to short circuit
- High overload capacity

应用场景
Applications

- 任何变电场合
- Power transformation

油浸式平面叠铁心变压器技术参数 (能效二级)
Technical Parameters of Planar Stacked Core Oil-immersed Transformer
(Energy Efficiency of Level 2)

额定容量 Rated capacity (kVA)	50	100	160	200	315	400	500	630	800	1000	1250	1600
高压 HV (kV)	10 10.5											
高压分接范围 HV tapping range (%)	±5 ±2×2.5											
低压 LV (kV)	0.4											
联结组标号 Vector group symbol	Dyn11/Yyn0											
空载损耗 No-load loss (W)	100	150	200	240	340	410	480	570	700	830	970	1170
负载损耗 On-load loss (W)	910/870	1580/1500	2310/2200	2730/2600	3830/3650	4520/4300	5410/5150	6200	7500	10300	12000	14500
短路阻抗 Short-circuit impedance (%)	4	4	4	4	4	4	4	4.5	4.5	4.5	4.5	4.5
空载电流 No-load current (%)	0.5	0.45	0.4	0.4	0.35	0.35	0.30	0.25	0.18	0.17	0.17	0.15
噪声水平, 声功率级 Noise level, sound power level (dB)	50	52	52	53	53	53	60	60	62	63	65	66

注：表中斜线上方的负载损耗值适用于 Dyn11 联结组，斜线下方的负载损耗值适用于 Yyn0 联结组。
Note: The on-load loss above the oblique line in the table applies to Dyn11; that below the oblique line applies to Yyn0.

油浸式平面叠铁心变压器技术参数 (优质能效一级)
Technical Parameters of Planar Stacked Core Oil-immersed Transformer
(High Energy Efficiency of Level 1)

额定容量 Rated capacity (kVA)	50	100	160	200	315	400	500	630	800	1000	1250	1600
高压 HV (kV)	10 10.5											
高压分接范围 HV tapping range (%)	±5 ±2×2.5											
低压 LV (kV)	0.4											
联结组标号 Vector group symbol	Dyn11/Yyn0											
空载损耗 No-load loss (W)	100	150	200	240	340	410	480	570	700	830	970	1170
负载损耗 On-load loss (W)	730/695	1265/1200	1850/1760	2185/2080	3065/2920	3615/3440	4330/4120	4960	6000	8240	9600	11600
短路阻抗 Short-circuit impedance (%)	4	4	4	4	4	4	4	4.5	4.5	4.5	4.5	4.5
空载电流 No-load current (%)	0.5	0.45	0.4	0.4	0.35	0.35	0.30	0.25	0.18	0.17	0.17	0.15
噪声水平, 声功率级 Noise level, sound power level (dB)	45	45	45	45	45	45	48	48	53	53	53	58

注：表中斜线上方的负载损耗值适用于 Dyn11 联结组，斜线下方的负载损耗值适用于 Yyn0 联结组。
Note: The on-load loss above the oblique line in the table applies to Dyn11; that below the oblique line applies to Yyn0.

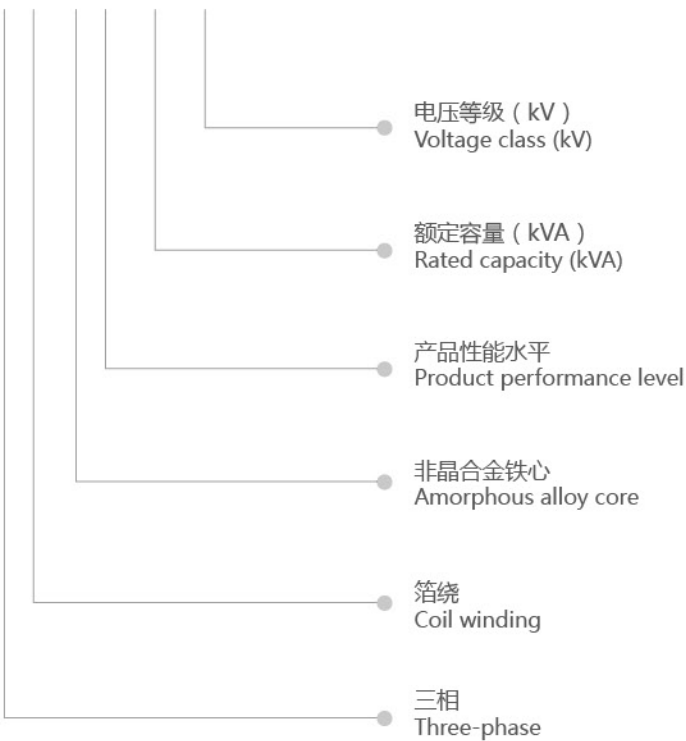


主要产品
Main products



型号及含义
Model and description

S (B) H □ - □ / □



技术特点
Technical characteristics

- 空载损耗超低，节能环保
- Ultra low no-load loss, energy conservation and environmental protection

应用场景
Applications

- 负载率低，节能要求高的场合
- Cases with a low load rate and high energy conservation requirements

油浸式非晶合金变压器技术参数 (能效二级)
Technical Parameters of Amorphous Alloy Oil-immersed Transformer
(Energy Efficiency of Level 2)

额定容量 Rated capacity (kVA)	50	100	200	315	400	500	630	800
高压 HV (kV)	10/10.5/11							
高压分接范围 HV tapping range (%)	±5 ±2×2.5							
低压 LV (kV)	0.4							
联结组标号 Vector group symbol	Dyn11/ Yyn0							
空载损耗 No-load loss (W)	43	75	120	170	200	240	320	380
负载损耗 On-load loss (W)	910/870	1580/1500	2730/2600	3830/3650	4520/4300	5410/5150	6200	7500
短路阻抗 Short-circuit impedance (%)	4	4	4	4	4	4	4.5	4.5
空载电流 No-load current (%)	0.5	0.45	0.4	0.35	0.35	0.3	0.25	0.18
噪声水平，声功率级 Noise level, sound power level (dB)	50	52	56	58	58	60	60	62

注：表中斜线上方的负载损耗值适用于 Dyn11 联结组，斜线下方的负载损耗值适用于 Yyn0 联结组。
Note: The on-load loss above the oblique line in the table applies to Dyn11; that below the oblique line applies to Yyn0.

油浸式非晶合金变压器技术参数 (优质能效一级)
Technical Parameters of Amorphous Alloy Oil-immersed Transformer
(High Energy Efficiency of Level 1)

额定容量 Rated capacity (kVA)	50	100	200	315	400	500	630	800
高压 HV (kV)	10/10.5/11							
高压分接范围 HV tapping range (%)	±5 ±2×2.5							
低压 LV (kV)	0.4							
联结组标号 Vector group symbol	Dyn11/ Yyn0							
空载损耗 No-load loss (W)	43	75	120	170	200	240	320	380
负载损耗 On-load loss (W)	820/785	1420/1350	2455/2340	3445/3285	4070/3870	4870/4635	5580	6750
短路阻抗 Short-circuit impedance (%)	4	4	4	4	4	4	4.5	4.5
空载电流 No-load current (%)	0.5	0.45	0.4	0.35	0.35	0.3	0.25	0.18
噪声水平，声功率级 Noise level, sound power level (dB)	50	50	50	50	50	56	56	58

注：表中斜线上方的负载损耗值适用于 Dyn11 联结组，斜线下方的负载损耗值适用于 Yyn0 联结组。
Note: The on-load loss above the oblique line in the table applies to Dyn11; that below the oblique line applies to Yyn0.



主要产品
Main products



型号及含义
Model and description

S □ - M · Z I - □ / □

电压等级 (kV)
Voltage class (kV)

额定容量 (kVA)
Rated capacity (kVA)

调容
Capacity regulating

有载调压
On-load tap changing

全密封结构
Fully sealed structure

产品性能水平
Product performance level

三相
Three-phase

技术特点
Technical characteristics

- 自动调节电压的高低，提高供电质量
- 根据负荷大小自动切换容量，降低空负载损耗，节能效果明显
- 具有“四遥”功能
- Automatically regulate the voltage level to improve the quality of power supply.
- Automatically switch the capacity according to the load and reduce no-load loss with good energy saving effect.
- Remote metering, remote signaling, remote control and remote regulating functions.

应用场景
Applications

- 负荷峰谷变化大，平均负载率低的场合
- Cases with great variations in peak and valley load values and a low average load rate.

油浸式有载调容调压变压器技术参数 (能效二级)
Technical Parameters of On-load Capacity and Tap Changing Oil-immersed Transformer (Energy Efficiency of Level 2)

额定容量 Rated capacity (kVA)	100(30)	200(63)	315(100)	400(125)	500(160)	630(200)
高压 HV (kV)	10/10.5					
高压分接范围 HV tapping range (%)	±2×2.5					
低压 LV (kV)	0.4					
联结组标号 Vector group symbol	Dyn11/Yyn0					
空载损耗 No-load loss (W)	150(80)	240(110)	340(150)	410(170)	480(200)	570(240)
负载损耗 On-load loss (W)	1580(600)	2730(1040)	3830 (1500)	4520(1800)	5410 (2200)	6200 (2600)
短路阻抗 Short-circuit impedance (%)	4	4	4	4	4	4.5
空载电流 No-load current (%)	1.1 (1.5)	1.0 (1.2)	0.90 (1.1)	0.80 (1.1)	0.80 (1.0)	0.60 (1.0)
噪声水平，声功率级 Noise level, sound power level (dB)	50	56	56	58	60	60





主要产品
Main products



型号及含义
Model and description

S Z □-M - □ / □



技术特点
Technical characteristics

- 自动调节电压的高低，提高供电质量
- 具有“四遥”功能
- Automatically regulate the voltage level to improve the quality of power supply.
- Remote metering, remote signaling, remote control and remote regulating functions.

应用场景
Applications

- 电压波动较大的场合
- Cases with great voltage fluctuation

油浸式有载调压变压器技术参数（能效二级）
Technical Parameters of On-load Tap Changing Oil-immersed Transformer (Energy Efficiency of Level 2)

额定容量 Rated capacity (kVA)	100	200	315	400	500	630	800
高压 HV (kV)	10/10.5						
高压分接范围 HV tapping range (%)	±5 ±2×2.5						
低压 LV (kV)	0.4						
联结组标号 Vector group symbol	Dyn11/Yyn0						
空载损耗 No-load loss (W)	150	240	340	410	480	570	700
负载损耗 On-load loss (W)	1580/1500	2730/2600	3830/3650	4520/4300	5410/5150	6200	7500
短路阻抗 Short-circuit impedance (%)	4	4	4	4	4	4.5	4.5
空载电流 No-load current (%)	0.45	0.4	0.35	0.35	0.30	0.25	0.18
噪声水平，声功率级 Noise level, sound power level (dB)	52	53	53	53	60	60	62

注：表中斜线上方的负载损耗值适用于 Dyn11 联结组，斜线下方的负载损耗值适用于 Yyn0 联结组。
Note: The on-load loss above the oblique line in the table applies to Dyn11; that below the oblique line applies to Yyn0.

油浸式有载调压变压器技术参数（优质能效一级）
Technical Parameters of On-load Tap Changing Oil-immersed Transformer (High Energy Efficiency of Level 1)

额定容量 Rated capacity (kVA)	100	200	315	400	500	630	800
高压 HV (kV)	10/10.5						
高压分接范围 HV tapping range (%)	±5 ±2×2.5						
低压 LV (kV)	0.4						
联结组标号 Vector group symbol	Dyn11/Yyn0						
空载损耗 No-load loss (W)	150	240	340	410	480	570	700
负载损耗 On-load loss (W)	1265/1200	2185/2080	3065/2920	3615/3440	4330/4120	4960	6000
短路阻抗 Short-circuit impedance (%)	4	4	4	4	4	4.5	4.5
空载电流 No-load current (%)	0.45	0.4	0.35	0.35	0.30	0.25	0.18
噪声水平，声功率级 Noise level, sound power level (dB)	45	45	45	45	48	48	50

注：表中斜线上方的负载损耗值适用于 Dyn11 联结组，斜线下方的负载损耗值适用于 Yyn0 联结组。
Note: The on-load loss above the oblique line in the table applies to Dyn11; that below the oblique line applies to Yyn0.



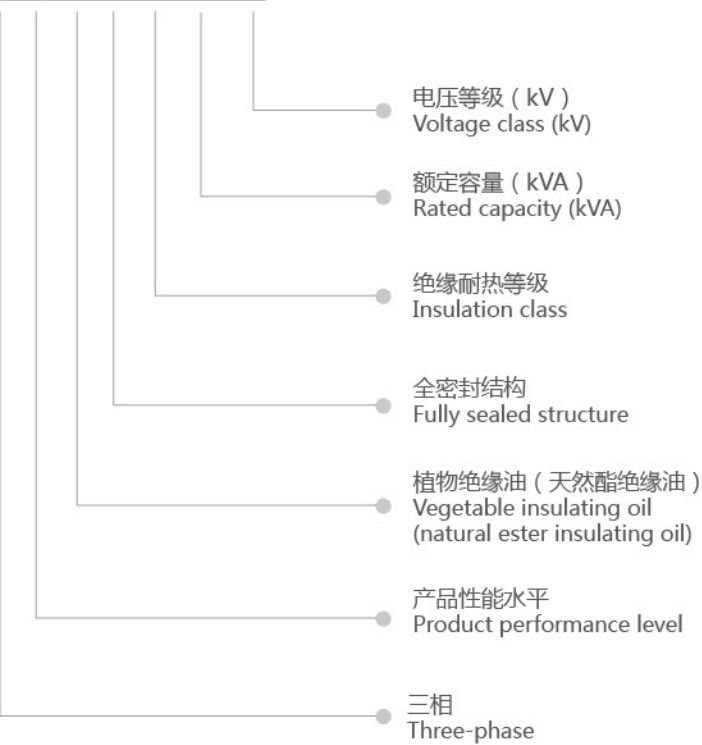
主要产品
Main products



天然酯绝缘油变压器
Natural ester insulating oil transformer

型号及含义
Model and description

S □ W-M □ - □ / □



技术特点
Technical characteristics

- 抗短路能力高
- 环境友好
- 绝缘寿命长
- 过载能力强
- 油的燃点、闪点高，运行安全可靠
- High resistance to short circuit
- Environmentally friendly
- Long insulation life
- High overload capacity
- High oil ignition point and flash point, safe and reliable operation

应用场景
Applications

- 防火防爆、环保要求高的场合
- Cases with high requirements for fire protection, explosion protection and environmental protection

天然酯绝缘油变压器技术参数 (能效二级)
Technical Parameters of Natural Ester Insulating Oil Transformer
(Energy Efficiency of Level 2)

额定容量 Rated capacity （kVA）	50	100	200	400	630	800
调压方式 Tap changing method	无励磁 Off-circuit					
电压组合及分接范围 Voltage combination and tapping range	高压 kV HV kV		10、10.5			
	高压分接范围 HV tapping range%		±2×2.5			
	低压 kV LV kV		0.4			
联结组标号 Vector group symbol	Dyn11/Yyn0					
空载损耗 W No-load loss (W)	100	150	240	410	570	700
负载损耗 W(75℃) On-load loss W (75℃)	910/870	1580/1500	2730/2600	4520/4300	6200	7500
空载电流 No-load current (%)	0.5	0.45	0.4	0.35	0.25	0.18
短路阻抗 % Short-circuit impedance (%)	4.0				4.5	
噪声水平，声功率级 Noise level, sound power level (dB)	50	52	53	53	60	62

注：表中斜线上方的负载损耗值适用于 Dyn11 联结组，斜线下方的负载损耗值适用于 Yyn0 联结组。
Note: The on-load loss above the oblique line in the table applies to Dyn11; that below the oblique line applies to Yyn0.

天然酯绝缘油立体卷铁芯变压器技术参数 (能效二级)
Technical Parameters of 3D Wound Core Transformer Filled with
Natural Ester Insulating Oil (Energy Efficiency of Level 2)

额定容量 Rated capacity (kVA)	50	100	200	315	400	500	630	800
高压 (kV) HV (kV)	10 10.5							
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5							
低压 (kV) LV (kV)	0.4							
联结组标号 Vector group symbol	Dyn11/Yyn0							
空载损耗 (W) No-load loss (W)	100	150	240	340	410	480	570	700
负载损耗 (W) On-load loss (W)	910/870	1580/1500	2730/2600	3830/3650	4520/4300	5410/5150	6200	7500
短路阻抗 (%) Short-circuit impedance (%)	4	4	4	4	4	4	4.5	4.5
空载电流 (%) No-load current (%)	0.24	0.21	0.18	0.16	0.16	0.16	0.15	0.15
噪声水平，声功率级 (dB) Noise level, sound power level (dB)	48	49	52	54	54	56	56	58

注：表中斜线上方的负载损耗值适用于 Dyn11 联结组，斜线下方的负载损耗值适用于 Yyn0 联结组。
Note: The on-load loss above the oblique line in the table applies to Dyn11; that below the oblique line applies to Yyn0.

主要产品
Main products



横向一体化柱上变压器台
Transverse integrated pole-mounted transformer

- 实现变压器变台设备的集成组合和功能融合
- 减少变压器变台设备运输、库存、安装、运维等环节的工作量
- 供电的可靠性高
- Combine the transformer with its stand and integrate the functions.
- Reduce the transportation, storage, installation, operation and maintenance workload of the equipment.
- High reliability of power supply.

- 国家电网柱上变台
- Pole-mounted transformers of the State Grid

横向一体化柱上变压器台技术参数
Technical Parameters of Transverse Integrated Pole-mounted Transformer

型号规格 Model/specification	YZHX-S13-10/0.4-50-ZL	YZHX-S13-10/0.4-100-ZL	YZHX-S13-10/0.4-200-ZL	YZHX-S13-10/0.4-400-ZL
高压 (kV) HV (kV)	10 10.5			
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5			
低压 (kV) LV (kV)	0.4			
联结组标号 Vector group symbol	Dyn11			
空载损耗 (W) No-load loss (W)	100	150	240	410
负载损耗 (W) On-load loss (W)	910	1580	2730	4520
短路阻抗 (%) Short-circuit impedance (%)	4			
空载电流 (%) No-load current (%)	0.5	0.45	0.4	0.35



主要产品
Main products



纵向一体化柱上变压器台
Vertical integrated pole-mounted transformer

- 实现变压器变台设备的集成组合和功能融合
- 减少变压器变台设备运输、库存、安装、运维等环节的工作量
- 供电的可靠性高
- Combine the transformer with its stand and integrate the functions.
- Reduce the transportation, storage, installation, operation and maintenance workload of the equipment.
- High reliability of power supply.

- 国家电网柱上变台
- Pole-mounted transformers of the State Grid

纵向一体化柱上变压器台技术参数
Technical Parameters of Vertical Integrated Pole-mounted Transformer

型号规格 Model/specification	YZZX-S13-10/0.4-50-ZX	YZZX-S13-10/0.4-100-ZX	YZZX-S13-10/0.4-200-ZX	YZZX-S13-10/0.4-400-ZX
高压 (kV) HV (kV)	10 10.5			
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5			
低压 (kV) LV (kV)	0.4			
联结组标号 Vector group symbol	Dyn11			
空载损耗 (W) No-load loss (W)	100	150	240	410
负载损耗 (W) On-load loss (W)	910	1580	2730	4520
短路阻抗 (%) Short-circuit impedance (%)	4			
空载电流 (%) No-load current (%)	0.5	0.45	0.4	0.35



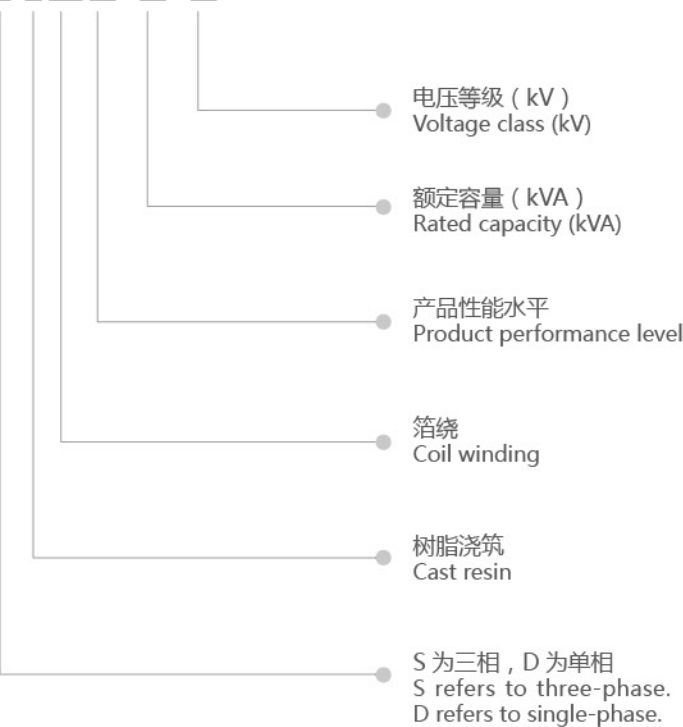
主要产品
Main products



干式变压器
Dry-type transformer

型号及含义
Model and description

S C (B) □ - □ / □



技术特点
Technical characteristics

- 抗短路能力强
- 温升低, 过载能力强
- 噪音低
- 局部放电量低
- High resistance to short circuit
- Low temperature rise, high overload capacity
- Low noise
- Low partial discharge

应用场景
Applications

- 变电场所的户内、箱变
- Indoor areas in substations and packaged transformers

10kV 干式变压器性能参数表
Performance Parameters of 10kV Dry-type Transformer

额定容量 Rated capacity (kVA)	315	400	500	630	630	800	1000	1250	1600	2000	2500
高压 (kV) HV (kV)	10 10.5 11										
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5										
低压 (kV) LV (kV)	0.4										
联结组标号 Vector group symbol	Dyn11										
空载损耗 W No-load loss (W)	10 型 Model 10	880	980	1160	1340	1300	1520	1770	2090	2450	3050 3600
	11 型 Model 11	790	880	1040	1200	1170	1360	1590	1880	2200	2740 3240
	12 型 Model 12	705	785	930	1070	1040	1215	1415	1670	1960	2240 2880
	13 型 Model 13	635	705	835	965	935	1090	1270	1500	1760	2190 2590
负载损耗 (W) On-load loss (W)	10 型 Model 10	3470	3990	4880	5880	5960	6960	8130	9690	11730	14450 17170
	11 型 Model 11	3470	3990	4880	5880	5960	6960	8130	9690	11730	14450 17170
	12 型 Model 12	3470	3990	4880	5880	5960	6960	8130	9690	11730	14450 17170
	13 型 Model 13	3120	3590	4390	5290	5360	6260	7310	8720	10550	13000 15450
短路阻抗 % Short-circuit impedance (%)	4	4	4	4	6	6	6	6	6	6	6

35kV 干式变压器性能参数表
Performance Parameters of 35kV Dry-type Transformer

额定容量 Rated capacity (kVA)	315	400	500	630	800	1000	1250	1600	2000	2500
高压 (kV) HV (kV)	35 38.5									
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5									
低压 (kV) LV (kV)	0.4									
联结组标号 Vector group symbol	Dyn11									
空载损耗 (W) No-load loss (W)	10 型 Model 10	1170	1370	1520	1860	2160	2430	2830	3240	3820 4450
	11 型 Model 11	1050	1230	1365	1670	1940	2185	2545	2915	3435 4005
负载损耗 (W) On-load loss (W)	10 型 Model 10	4510	5410	6650	7690	9120	10450	12730	15480	18240 21850
	11 型 Model 11	4510	5410	6650	7690	9120	10450	12730	15480	18240 21850
短路阻抗 (%) Short-circuit impedance (%)	6									



主要产品
Main products



干式非晶合金变压器
Amorphous alloy dry-type transformer

型号及含义
Model and description

S C (B) H □ - □ / □



技术特点
Technical characteristics

- 抗短路能力强
- 温升低, 过载能力强
- 空载损耗超低, 节能效果明显
- 局部放电量低
- High resistance to short circuit
- Low temperature rise, high overload capacity
- Ultra low no-load loss and good energy-saving effect
- Low partial discharge

应用场景
Applications

- 轨道交通、高速公路充电桩等负载率较低的场所
- Cases with a low load rate, such as charging piles for rail transit and expressways

干式非晶合金变压器技术参数 (15 型)
Technical Parameters of Amorphous Alloy Dry-type Transformer (Model 15)

额定容量 Rated capacity (kVA)	315	400	500	630	630	800	1000	1250	1600	2000	2500
高压 (kV) HV (kV)	10 10.5 11										
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5										
低压 (kV) LV (kV)	0.4										
联结组标号 Vector group symbol	Dyn11										
空载损耗 W No-load loss (W)	280	310	360	420	410	480	550	650	760	1000	1200
负载损耗 (W) On-load loss (W)	3470	3990	4880	5880	5960	6960	8130	9690	11730	14450	17170
短路阻抗 % Short-circuit impedance (%)	4	4	4	4	6	6	6	6	6	6	6
空载电流 (%) No-load current (%)	0.63	0.6	0.54	0.5	0.5	0.45	0.45	0.4	0.4	0.35	0.35
噪声水平 (dB) Noise level (dB)	69	70	70	71	71	72	72	74	75	76	77

非晶合金干式变压器技术参数 (16 型)
Technical Parameters of Amorphous Alloy Dry-type Transformer (Model 16)

额定容量 Rated capacity (kVA)	315	400	500	630	630	800	1000	1250	1600	2000	2500
高压 (kV) HV (kV)	10 10.5 11										
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5										
低压 (kV) LV (kV)	0.4										
联结组标号 Vector group symbol	Dyn11										
空载损耗 W No-load loss (W)	280	310	360	420	410	480	550	650	760	1000	1200
负载损耗 (W) On-load loss (W)	3295	3790	4635	5585	5660	6610	7725	9205	11145	13725	16310
短路阻抗 % Short-circuit impedance (%)	4	4	4	4	6	6	6	6	6	6	6
空载电流 (%) No-load current (%)	0.63	0.6	0.54	0.5	0.5	0.45	0.45	0.4	0.4	0.35	0.35
噪声水平 (dB) Noise level (dB)	69	70	70	71	71	72	72	74	75	76	77

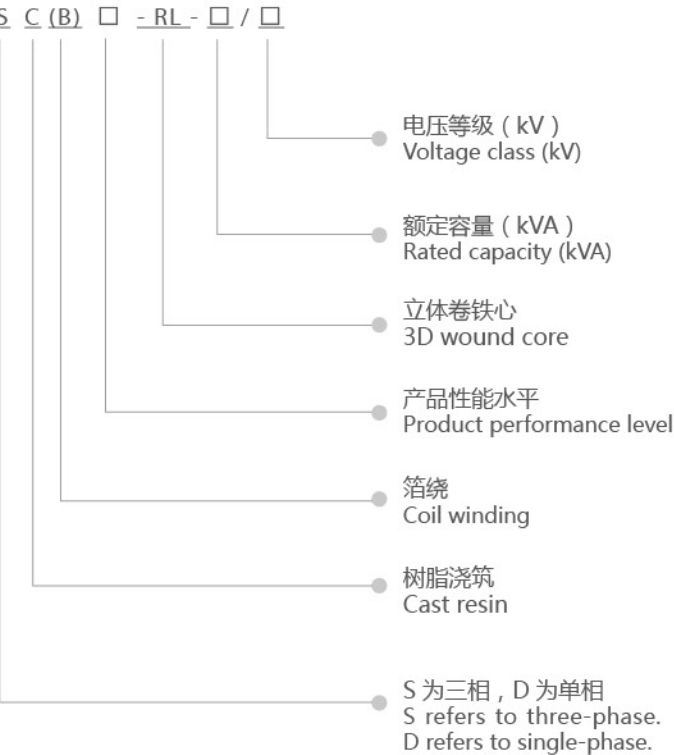


主要产品
Main products



干式立体卷铁心变压器
3D wound core dry-type transformer

型号及含义
Model and description



技术特点
Technical characteristics

- 抗短路能力强
- 温升低, 过载能力强
- 噪音低
- 局部放电量低
- 空载损耗低, 节能效果明显
- High resistance to short circuit
- Low temperature rise, high overload capacity
- Low noise
- Low partial discharge
- Low no-load loss and good energy-saving effect

应用场景
Applications

- 变电场所的户内、箱变
- Indoor areas in substations and packaged transformers

干式立体卷铁心变压器技术参数 (12 型)
Technical Parameters of 3D Wound Core Dry-type Transformer (Model 12)

额定容量 Rated capacity (kVA)	315	400	500	630	630	800	1000	1250	1600	2000	2500
高压 (kV) HV (kV)	10 10.5 11										
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5										
低压 (kV) LV (kV)	0.4										
联结组标号 Vector group symbol	Dyn11										
空载损耗 W No-load loss (W)	705	785	930	1070	1040	1215	1415	1670	1960	2240	2880
负载损耗 (W) On-load loss (W)	3470	3990	4880	5880	5960	6960	8130	9690	11730	14450	17170
短路阻抗 % Short-circuit impedance (%)	4	4	4	4	6	6	6	6	6	6	6
空载电流 (%) No-load current (%)	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
噪声水平 (dB) Noise level (dB)	63	63	65	65	65	66	66	68	68	70	70

干式立体卷铁心变压器技术参数 (13 型)
Technical Parameters of 3D Wound Core Dry-type Transformer (Model 13)

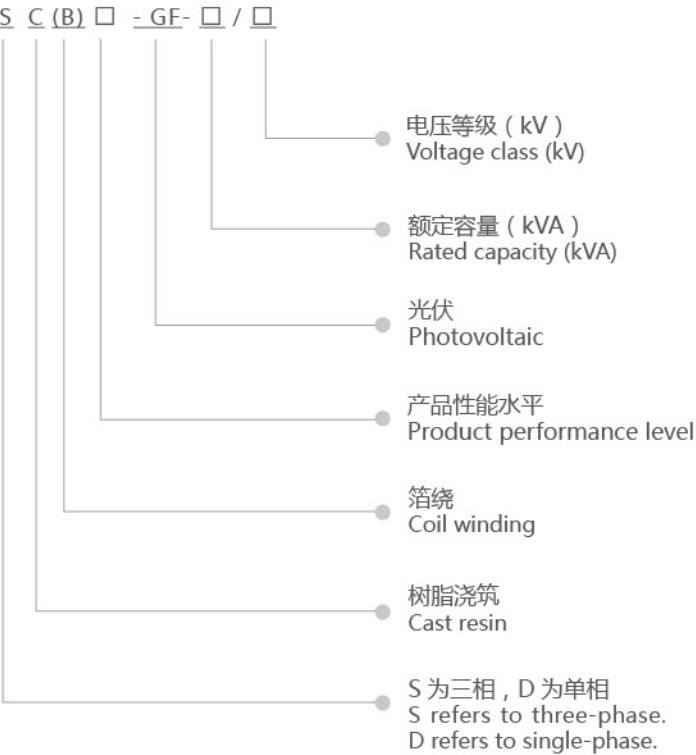
额定容量 Rated capacity (kVA)	315	400	500	630	630	800	1000	1250	1600	2000	2500
高压 (kV) HV (kV)	10 10.5 11										
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5										
低压 (kV) LV (kV)	0.4										
联结组标号 Vector group symbol	Dyn11										
空载损耗 W No-load loss (W)	635	705	835	965	935	1095	1275	1505	1765	2195	2590
负载损耗 (W) On-load loss (W)	3355	3850	4390	5290	5365	6265	7315	8720	10555	13005	15455
短路阻抗 % Short-circuit impedance (%)	4	4	4	4	6	6	6	6	6	6	6
空载电流 (%) No-load current (%)	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
噪声水平 (dB) Noise level (dB)	63	63	65	65	65	66	66	68	68	70	70



主要产品
Main products



型号及含义
Model and description



技术特点
Technical characteristics

- 抗短路能力强
- 温升低, 过载能力强
- 噪音低
- 局部放电量低
- High resistance to short circuit
- Low temperature rise, high overload capacity
- Low noise
- Low partial discharge

应用场景
Applications

- 太阳能光伏发电升压
- Solar photovoltaic power generation and step-up

35kV 级光伏发电用干式变压器技术参数 (10 型)
Technical Parameters of 35kV Dry-type Transformer for Photovoltaic Power Generation (Model 10)

额定容量 Rated capacity (kVA)	630	800	1000	1250	1600	2000	2500
高压 (kV) HV (kV)	38.5 35						
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5						
低压 (kV) LV (kV)	0.315 0.415 0.69 可根据用户需求 As user required						
联结组标号 Vector group symbol	Dyn11Yn11 , Yd11d11 可根据用户需求 As user required						
空载损耗 W No-load loss (W)	1300	1520	1770	2090	2450	3050	3600
负载损耗 (W) On-load loss (W)	5960	6960	8130	9690	11700	14450	17170
短路阻抗 % Short-circuit impedance (%)	6						
空载电流 (%) No-load current (%)	0.85	0.85	0.85	0.85	0.85	0.7	0.7

35kV 级光伏发电用干式变压器技术参数 (11 型)
Technical Parameters of 35kV Dry-type Transformer for Photovoltaic Power Generation (Model 11)

额定容量 Rated capacity (kVA)	630	800	1000	1250	1600	2000	2500
高压 (kV) HV (kV)	38.5 35						
高压分接范围 (%) HV tapping range (%)	±5 ±2×2.5						
低压 (kV) LV (kV)	0.315 0.415 0.69 可根据用户需求 As user required						
联结组标号 Vector group symbol	Dyn11Yn11 , Yd11d11 可根据用户需求 As user required						
空载损耗 W No-load loss (W)	1860	2160	2430	2835	3240	3825	4455
负载损耗 (W) On-load loss (W)	7695	9120	10450	12730	15485	18240	21850
短路阻抗 % Short-circuit impedance (%)	6						
空载电流 (%) No-load current (%)	1.0	1.0	0.75	0.75	0.75	0.75	0.75

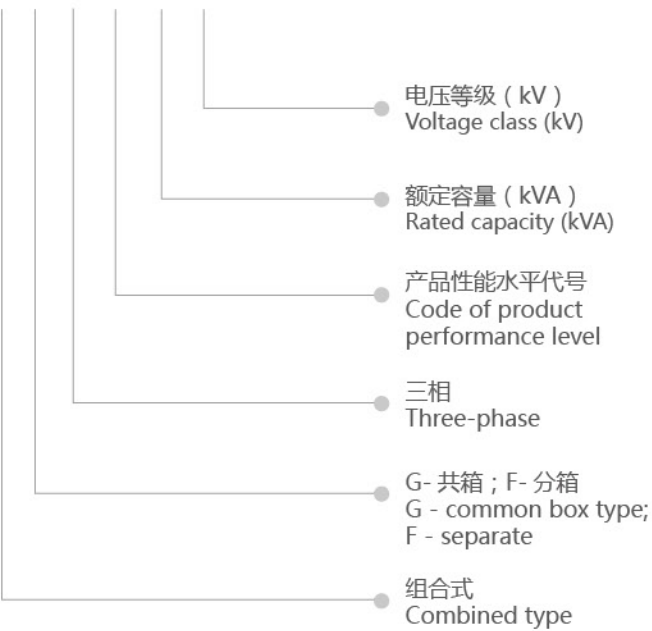
主要产品
Main products



组合式箱式变电站
Packaged substation

型号及含义
Model and description

Z □ S □ - □ / □



技术特点
Technical characteristics

- 全密封结构，安全可靠，结构合理紧凑，外形美观，占地面积小
- 良好的防腐能力，有效防止风沙、雨雪和盐雾侵蚀
- 可承受各种过电压的作用而不发生击穿故障
- 过载能力强，热寿命长
- Fully sealed reasonable and compact structure with safety and reliability, good appearance and a small floor area.
- Good anti-corrosion ability and effective protection against wind, sand, rain, snow and salt mist erosion.
- Withstand various overvoltage actions without breakdown failure.
- High overload capacity and long thermal life.

应用场景
Applications

- 风力或光伏发电、城市配网
- Wind or photovoltaic power generation, urban power distribution network.

组合式箱式变电站技术参数
Technical Parameters of Packaged Substation

名称 Item	单位 Unit	高压开关 HV switchgear		变压器 Transformer		低压电器 LV electrical appliances
额定电压 Rated voltage	KV	12	40.5	10/0.69	35/0.69	0.69
额定容量 Rated capacity	KVA	800-3300				
额定频率 Rated frequency	Hz	50		50		50
额定电流 Rated current	A	200	80			
1min 工频耐受电压（对地 / 断口） 1min power frequency withstand voltage (to ground/ puncture)	KV	42/48	95/110	35	85	5
雷电冲击耐受电压（对地 / 断口） Lightning impulse withstand voltage (to ground/ puncture)	KV	75/85	185/215	75	220	12
额定短路开断电流（有效值） Rated short-circuit breaking current (effective value)	KA	50	31.5	50		
额定短时耐受电流（有效值） Rated short-time withstand current (effective value)	KA	20(4S)	20(4S)	40(1S)		
额定短路关合电流（峰值） Rated short-circuit closing current (peak)	KA	50	50			
额定峰值耐受电流 Rated peak withstand current	KA	50	50			
防护等级 IP rating	IP33					
噪声水平 Noise level	≤ 55dB					

注：电压可根据需求提供。
Note: The voltage may be adjusted as required.



主要产品
Main products

35kV 级油浸式有载调压电力变压器
35kV on-load tap changing oil-immersed transformer



技术特点
Technical characteristics

- 铁心采用全斜五级步进接缝结构，空载损耗和空载电流低。
 - 散热效果好，温升低。
 - 过负荷能力强
 - 噪音低
 - 抗短路能力强
-
- The iron core adopts a fully-inclined 5-step-lap joint structure, and the no-load loss and no-load current are low.
 - Good heat dissipation and low temperature rise.
 - High overload capacity
 - Low noise
 - High resistance to short circuit

应用场景
Applications

- 石油化工、电力、机械等行业和企业的电力系统传输
- Power system transmission in petrochemical, electric power, machinery and other industries and enterprises.

35kV 级油浸式有载调压电力变压器技术参数 (11 型)
Technical Parameters of 35kV On-load Tap Changing Oil-immersed Transformer (Model 11)

额定容量 Rated capacity (kVA)	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	25000	31500
高压 (kV) HV (kV)	10 10.5 11												
高压分接范围 (%) HV tapping range (%)	±3×2.5												
低压 (kV) LV (kV)	6.3 10.5												
联结组标号 Vector group symbol	Yd11 或 or YNd11												
空载损耗 W No-load loss (W)	2.30	2.72	3.23	3.87	4.64	5.63	7.87	9.28	10.9	13.1	15.5	18.3	21.8
负载损耗 (W) On-load loss (W)	19.2	20.6	24.7	29.1	34.2	36.7	40.6	48.0	56.8	70.3	82.7	97.8	116
短路阻抗 % Short-circuit impedance (%)	6.5	6.5	7.0	7.0	7.0	8.0	8.0	8.0	8.0	8.0	8.0	10.0	10.0
空载电流 (%) No-load current (%)	0.50	0.50	0.50	0.50	0.50	0.50	0.40	0.40	0.35	0.35	0.35	0.30	0.30

35kV 级油浸式有载调压电力变压器技术参数 (13 型)
Technical Parameters of 35kV On-load Tap Changing Oil-immersed Transformer (Model 13)

额定容量 Rated capacity (kVA)	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000	25000	31500
高压 (kV) HV (kV)	35-38.5												
高压分接范围 (%) HV tapping range (%)	±3×2.5												
低压 (kV) LV (kV)	6.3 10.5												
联结组标号 Vector group symbol	Yd11 或 or YNd11												
空载损耗 W No-load loss (W)	1.84	2.18	2.58	3.10	3.71	4.50	6.30	7.42	8.72	10.48	12.40	14.64	17.44
负载损耗 (W) On-load loss (W)	19.2	20.6	24.7	29.1	34.2	36.7	40.6	48.0	56.8	70.3	82.7	97.8	116
短路阻抗 % Short-circuit impedance (%)	6.5	6.5	7.0	7.0	7.0	8.0	8.0	8.0	8.0	8.0	8.0	10.0	10.0
空载电流 (%) No-load current (%)	0.50	0.50	0.50	0.50	0.50	0.50	0.40	0.40	0.35	0.35	0.35	0.30	0.30

市场分布及重点客户

Market distribution and key customers

公司产品广泛适用于石油化工、电力、机械、冶金、轻纺、农网城网、地产建设、民航、港口等行业和企业的电力系统配电之中。目前市场覆盖国网、南网、地方电力、新能源电厂、厂矿企业等国内主要 10-35kV 变压器用户，并远销到东南亚、中东和非洲。

The Company's products are widely used in power distribution of the power systems of petrochemical, electric power, machinery, metallurgy, light textile, rural and urban power networks, real estate construction, civil aviation, ports and other industries and enterprises. At present, the market covers the main domestic users of 10-35kV transformers, such as State Grid, China Southern Power Grid, local power companies, new energy power plants, factories and mines. The products have been exported to Southeast Asia, the Middle East and Africa.

