



Transformer Portfolio

PowerStorage Solutions

Accelerating Power Infrastructure for Data Center & Grid Projects

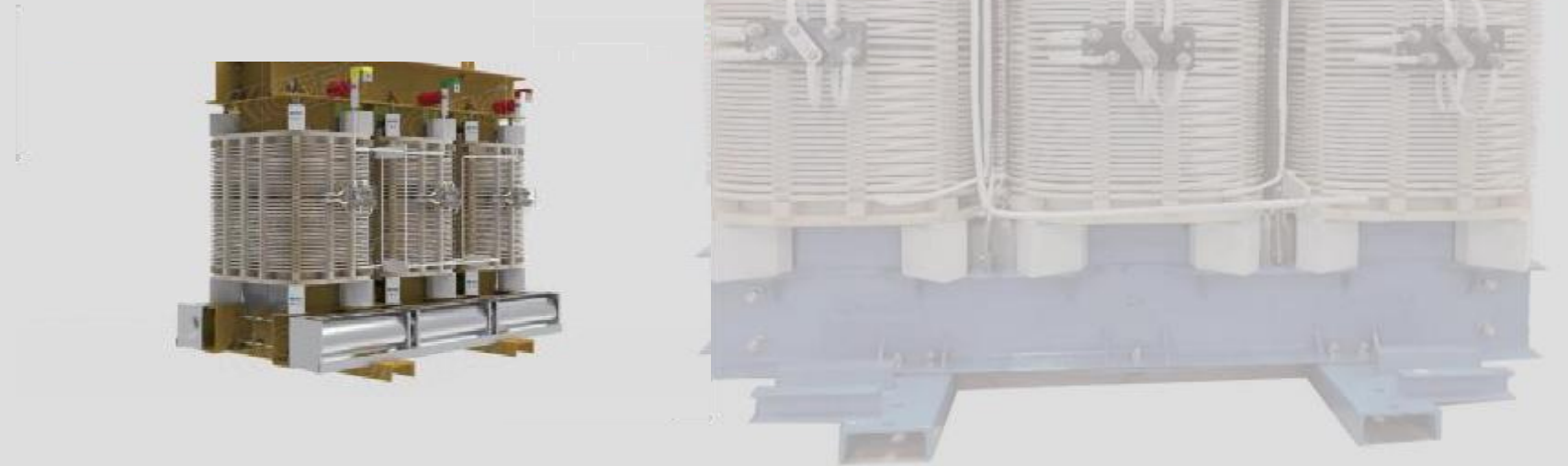
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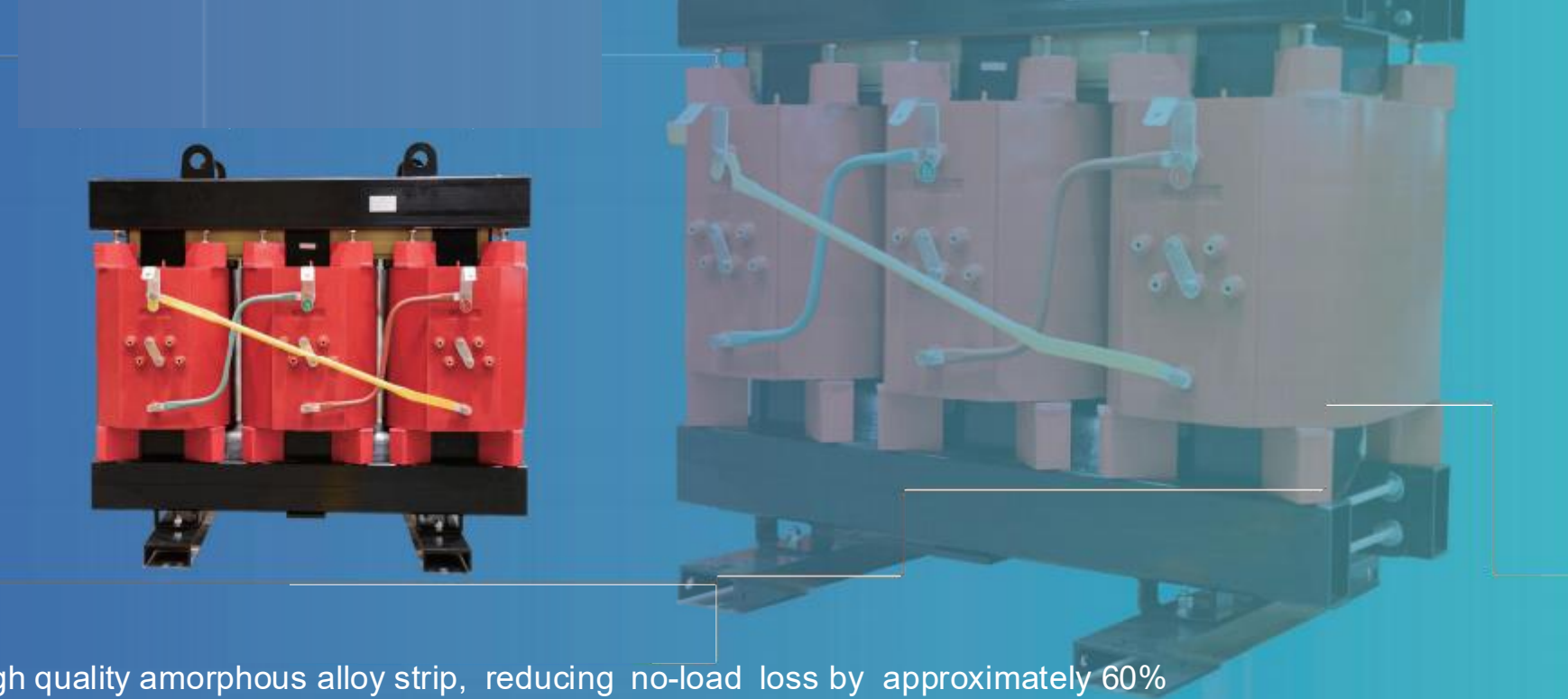
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SGBH 19 series
Open Ventilated Dry Type Transformer



- High-quality amorphous alloy strip, reducing no-load loss by 60% and achieving significant energy savings
- Self-developed three-phase three-column structure, allowing easy assembly with reduced space
- Unique iron core mounting technology with low mechanical stress and low noise level
- With DuPont Nomex® insulation material, ensuring high insulation and heat resistance
- High flame resistance, and strong overload capacity
- Equipped with intelligent transformer terminals and cloud platform for smart operation and maintenance

SCBH series Amorphous Alloy Dry Type Transformer



- High quality amorphous alloy strip, reducing no-load loss by approximately 60%
- Self-developed three-phase three-column structure, occupying less space
- Low vibration design, unique core mounting technology and end sealing process to ensure low core stress and low noise
- Semi-enclosed structure with strong dust proof ability and high insulation performance
- High mechanical strength, good water proof and short-circuit resistance

S(B)H-M series Oil-immersed Type Amorphous Alloy Distribution Transformer



- Produced in a constant temperature, constant humidity and dust-free manufacturing workshops
- Using high-quality amorphous alloy strips
- Automatic manufacturing process to produce leakage free tank
- Vacuum oil injection process
- Automated testing equipment and process for product testing

S series Transformer



- The Class-one S22/Class-two S20/Class-three S13 series oil-immersed type transformers combine the traditional structure of oil-immersed type transformers with modern oil-immersed type transformer structures.
- They are widely used in urban power grids, rural power grids, steel mills, coal mines, chemical plants, cement and paper mills.

SRN series High-temperature Resistant Transformer



Mobile Transformer on vehicles



The mobile transformer is of vital importance to the overall performance of mobile substations. Although there is only a slight difference in wording between "mobile transformer" and "mobile transformer for vehicles," the design concepts differ significantly. The “mobile transformer on vehicles” for mobile substations meet the transportation requirements of various road conditions and must fulfill the energized operation needs of the mobile substation for several months or even years. The technical requirements for the “Mobile transformer on vehicles” are higher than those of traditional ones. This type of transformer can be integrated into a flatbed trailer or transported as a whole using conventional transport vehicles.



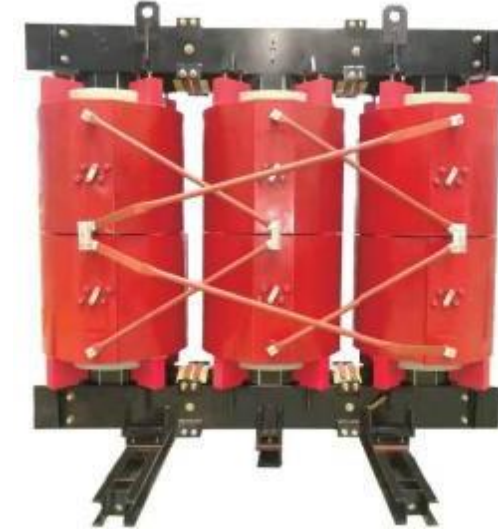
- Strong overload capacity
- With DuPont Nomex®
- Wide applicability: Suitable for industries operating in high ambient temperatures or under long term high loads
- Low maintenance cost
- Energy efficient and environmentally friendly
- Strong corrosion resistance and water-proof properties, ensuring safe and reliable long-term operation

Oil-immersed Type Converter Transformer



- High temperature resistance
- Maintenance-free
- High overload capacity
- Low noise
- High reliability
- Low possibility of oil leakage

Dry Type Converter Transformer



- High quality silicon steel laminations core
- Optional winding choices include axial split, radial split, or multiple windings on the valve side for multiple voltage outputs
- Optional insulation choices including Class F or Class H
- Optional choices include epoxy resin casting or vacuum pressure impregnation



SG series Dry Type Transformer



- Rated Class H insulation
- High-quality and permeability silicon steel laminations core
- DuPont ReliatraN® core technology
- Intelligent operation, maintenance and diagnosis
- Suitable for locations with high energy consumption, high loads, susceptibility to overload, and uneven load distribution
- Suitable for coal mines, nuclear power plants, and cement factories
- Suitable for occasions that require high moisture and corrosion resistance

Marine and Offshore Platform Transformer



- High-quality and permeability silicon steel laminations core
- DuPont Nomex® paper insulation
- Two types of process system: VPI (Vacuum Pressure Impregnation) process and epoxy vacuum casting process
- All fasteners and exposed conductive parts are specially galvanized
- Waterproof design enclosure
- Combination of air cooling and water cooling

Cast Resin Transformer

- High quality silicon steel laminations core
- nano-paint and self leveling Surface
- Strong waterproof, short-circuit resistance, overload capacity
- The first company in China to pass KEMA's E2, C2 and F1 tests
- Dual-mode structure scheme
- Intelligent operation, maintenance and diagnosis



- Low partial discharge
- Capable of operating under long time overload without air cooling
- Strong impulse withstand ability
- Flame retardant and self extinguishing capabilities
- Low temperature rise, strong overload capacity
- Evenly distributed load
- Double split coil structure
- High mechanical strength, good moisture resistance, partial discharge $\leq 10\text{pc}$
- Low noise, low electromagnetic radiation pollution



ZPSG Frequency Conversion Transformer



- Silicon steel laminations core
- Special winding allows strong short-circuit withstand capability
- Air cooling guiding system to achieve high heat dissipation efficiency
- Effective reduction of harmonics
- Various structures available to meet the requirements of different frequency conversion systems
- Maximum power output of 9000kVA, enabling 72-pulse rectification

KBSG2-T Mining Explosion-proof Transformer KBSGZY2-T Mining Explosion-proof Mobile Substation



- Unique and patented structure effectively enables heat dissipation
- Cylindrical explosion proof shell
- DuPont Nomex® Paper
- Low loss, low partial discharge, low noise and strong overload capacity
- Maintenance free, safe, flame-retardant, explosion proof and fire proof, pollution free

KBZSGZY Mining Explosion-proof Converter Mobile Substation

- High quality magnetic conductivity silicon steel laminations core
- Three-dimensional fastening structure for iron core
- Compact oval structure suitable for limited space
- Efficient heat dissipation and strong explosion proof performance
- Nomex® paper insulation



PBG/KBG High-voltage Vacuum Switch for Mine Explosion-proof Mobile Substation
BBD Low-voltage Protection Box for Mine Explosion-proof Mobile Substation

- Equipped with programmable logic controller (PLC) and human machine interface(HMI)
- Current can be continuously set with a stepping value of 1A
- Capable of supporting live maintenance
- Small size plus compact structure
- Comprehensive protection functions including overload, short circuit, under voltage, over voltage, leakage lockout, phase loss, high temperature, etc

Energy Storage Dedicated Open Ventilated Dry Type Transformer



- Open and ventilated winding structure to realize heat dissipation, strong overload capacity, and safety
- Using DuPont Nomex® VPI (Vacuum Pressure Impregnation) insulation
- Capable of withstanding high temperatures up to 220°C and low temperatures down to -40°C
- Flame retardant design to accommodate applications like ESS, charging stations, data centers, etc
- Equipped with intelligent terminal connected with cloud platform to enable smart operation

Energy Storage Dedicated Epoxy Dry Type Transformer



- High level protection against dust, moisture, and vibration
- Strong overload capacity and excellent resistance to thermal shock
- Strong ability to withstand harmonics
- Low self-loss and high efficiency
- Different high and low voltage terminals and output methods, with a compact structure
- Compliant to all requirements on capacity, voltage, and impedance

Energy Storage Dedicated Oil-Immersed Type Transformer



- Partial discharge tests on each transformer to ensure that the partial discharge level at 1.2 times rated voltage ($1.2U_r$) and 1.4 times rated voltage ($1.4U_r$)
- Random selection for lightning impulse tests and temperature rise test
- Designed to handle high magnitude and frequency of harmonics
- subjected to anti-corrosion treatment in strict accordance with the requirements of ISO compliance standards

Hydrogen-specific Rectifier Transformer



- Safe and reliable, using non-toxic epoxy resin
- Dry type rectifier transformer
- Maximum overload capacity of 200%
- Noise level is reduced by 3 to 5 dB compared to other standards
- Can be installed together with rectifiers and other electrical equipment, eliminating the need for separate design of power distribution rooms
- Customized design possible



Energy Storage Step-up Substation integrated with Converter (Dry Type Transformer)

- Turn-key solution design
- PV inverter, transformer, and switchgear in one unit, saving installation and commissioning time
- Container design, eliminating the need for special lifting equipment, making transportation and installation convenient.
- Outdoor application with multiple weather conditions
- Good ventilation and heat dissipation;
- Tailored product solutions possible



Energy Storage step up substation intergrated with Converter (Oil-immersed Type Transformer)

- high-voltage varies from 6kV to 35kV, and the low-voltage side 0.315kV to 0.69kV
- both oil-immersed and dry type transformers integrated
- DC voltage as high as 1500V; 4) Supporting system size up to 6.8MW



ZGS series Prefabricated Substation



- Compact structure to realize easy installation and movement
- Fully sealed shell design to protect external shocks
- Unique ventilation technology, with good heat dissipation effect and strong overload capacity
- Various power supply schemes of terminal or ring network can be adopted
- Dry type, oil type, amorphous alloy and other types of transformers can be configured according to user requirements
- CT, PT, protection and communication devices can be installed at the high-voltage side, and other instruments at the low-voltage side

YB Series Prefabricated Substation



- Specially painted steel structure to achieve long time of service under various outdoor weather conditions
- A thermal insulation layer to prevent system failure caused by rapid temperature change.
- Movable, fully enclosed, moisture-proof and anti-corrosion
- Data acquisition and collection function available, realizing active operation, maintenance and power flow management under various scenarios.
- Protection and communication devices are installed at the high-voltage side and other instruments are installed at the low voltage side



Prefabricated Containerized Intelligent Substation



- container type standard design
- easy on-site modular construction
- all AC electric equipments including transformer, high-voltage switchgear, internal wiring, low-voltage switchgear, metering, compensation, surge arresters and other auxiliary devices enclosed
- easy to ship and unload
- individual design functions are also available



- Modular transportation
- Convenient to install
- Compact size
- Low operation and maintenance costs
- Fully enclosed structure with long service life and super performance under multi weather conditions





220kV Oil-immersed Power Transformer



(1) 220kV 31500kVA~420000kVA Three-phase, Double-winding Power Transformer with Off-circuit Tap-changer

Rated capacity (kVA)	Voltage combination and tapping range		Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)
	HV tapping range(%)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	
31500	220±2×2.5% 242±2×2.5%	6.3 6.6 10.5	YNd11	15	115	18	115	22	122	12~14
40000				18	134	21	134	26	142	
50000				21	161	25	161	31	170	
63000				25	188	30	188	37	199	
75000		10.5 13.8		29	213	34	213	42	225	
90000				34	246	40	246	49	259	
120000				41	304	49	304	60	321	
150000		10.5 13.8 15.75 18 20		49	360	58	360	71	380	
160000				51	378	60	378	74	399	
180000				56	413	66	413	82	436	
240000				70	484	83	484	102	511	
300000		15.75 18 20		83	577	98	577	121	609	
360000				95	662	112	662	138	698	
370000				97	675	114	675	141	713	
400000				103	716	122	716	150	755	
420000				106	742	125	742	154	783	

Note: Transformers with various special parameters and performance can be manufactured according to customer requirements.

(2) 220kV 31500kVA~300000kVA Three-phase, Three-winding Power Transformer with Off-circuit Tap-changer

Rated capacity (kVA)	Voltage combination and tapping range			Vector group	Energy consumption class I		Energy consumption classv II		Energy consumption classv III		Short-circuit impedance	
	HVt apping MV (kV) range(kV)		LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load oss(kW)	Boost	Decompression
31500	220±2×2.5% 230±2×2.5% 242±2×2.5%	69 115 121	6.3 6.6 10.5 21 36 37 38.5	YN yn0d11	18	138	21	138	26	145	HV-MV 22~24 HV-LV 12~14 MV-LV 7~9	HV-MV 12~14 HV-LV 22~24 MV-LV 7~9
40000			21		165	25	165	30	174			
50000			24		194	29	194	35	205			
63000			29		231	34	231	42	244			
90000			10.5 13.8 21 36 37 38.5		37	300	44	300	54	316		
120000			46		369	55	369	67	390			
150000			10.5 13.8 15.75 21 36 37 38.5		55	438	65	438	80	463		
180000			62		500	73	500	90	527			
240000			72		616	91	616	112	650			
300000			91		726	108	726	133	767			

Note: 1.The capacity load loss in the table is (100/100/100)%, for step-up type is (100/50/100)%; for step-down type can be (100/100/50)% or (100/50/100)%

2.Transformers with various special parameters and performance can be manufactured according to customer requirements.

(3) 220kV 31500kVA~240000kVA Three-phase Double-winding Power Transformer with Off-circuit Tap-changer(LV 66kV)

Rated capacity CkVA)	Voltage combination and tapping range		Vedor group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)
	HV/tapping range(%)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	
31500	220±2X2.5% 230±2X2.5%	63	YNd11	17	129	20	129	24	136	12~14
40000				20	150	23	150	29	159	
50000				23	180	27	180	34	190	
63000				28	211	33	211	40	222	
90000		66		36	275	43	275	53	291	
120000		69		45	330	53	330	65	349	
150000				53	387	63	387	78	409	
180000				61	438	72	438	88	463	
240000				75	543	88	543	109	573	

Note: Transformers with various special parameters and performance can be manufactured according to customer requirements.

(4) 220kV 31500kVA~240000kVA Three-phase Double-winding Power Transformer with On-load Tap-changer

Rated capacity CkVA)	Vol tage combi nation and tappi ng range		Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-ciruai t im pedance (%)
	HV tapping range(%)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	
31500	220±8x 1.25% 230±8X 1.25%	6.3 6.6 10.5	YNd1 1	17	115	20	115	24	122	12 - 14
40000		21		20	134	23	134	29	142	
50000		36		24	161	28	161	34	170	
63000		37		28	188	33	188	40	199	
90000		38.5		35	246	42	246	51	259	
120000		10.5 21		43	304	51	304	63	321	
150000		36 37		51	360	60	360	74	380	
180000		38.5		59	413	70	413	86	436	
120000				45	303	53	303	65	320	
150000		66		53	355	62	355	77	374	
180000		69		62	406	73	406	90	428	
240000				77	504	91	504	112	532	

Note: Transformers with various special parameters and performance can be manufactured according to customer requirements.



(5) 220kV 31500kVA~240000kVA Three-phase Three-winding Power Transformer with on-load Tap-changer

Rated capacity (kVA)	Voltage combination and tapping range			Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Capacity assignment (%)	Short-circuit impedance (%)
	HV tapping	MV	LV		No-load	On-load	No-load	On-load	No-load	On-load		
	range(kV)	(kV)	(kV)		loss(kW)	loss(kW)	loss(kW)	loss(kW)	loss(kW)	loss(kW)		
31500	220±8x1.25% 230±8x1.25%	69 115 121	6.3	YN yn0d11	19	138	23	138	28	145	100/100/100 100/50/100 100/100/50	HV-MV 12~14 HV-LV 22~24 MV-LV 7~9
			6.6									
			10.5									
			21									
40000			36		23	165	27	165	33	174		
50000			37		26	194	31	194	38	205		
63000			38.5		31	231	36	231	45	244		
90000			10.5		40	300	47	300	58	316		
120000			21		51	369	60	369	74	390		
150000			36		59	438	70	438	86	463		
180000			37		68	538	81	538	99	568		
240000			38.5		85	667	100	667	123	704		

Note: 1. The data in the above sheet applies to the step-down type transformer, and the step-up type transformer are also available as requested.
2.Transformers with various special parameters and performance can be manufactured according to customer requirements.

(6) 220kV 31500kVA~24000kVA Three-phase Three-winding Autotransformer with On-load Tap-changer

Rated capacity (kVA)	Voltage combination and tapping range			Vector group	Energy		Energy		Energy		Capacity assignment (%)	Short-circuit impedance (%)
					consumption class I		consumption class II		consumption class III			
	No-load	On-load	No-load		On-load	No-load	On-load					
	loss(kW)	loss(kW)	loss(kW)		loss(kW)	loss(kW)	loss(kW)					
31500	220±8 x1.25%	115	6.3	YN0d11	11	92	13	92	16	10/50	HV-MV 8~11	
			6.6									
			10.5									
21												
40000			36		13	113	16	113	19	119		
50000			37		15	134	18	134	22	142		
63000			38.5		18	161	21	161	26	170		
90000			10.5		22	211	26	211	32	222		
120000			21		28	263	33	263	41	277		
150000			36		33	311	39	311	48	329		
180000			37		37	358	44	358	54	378		
240000			38.5		46	462	54	462	66	487		

Note: 1. The data in the above sheet applies to the step-down type autotransformer.
2.Transformers with various special parameters and performance can be manufactured according to customer requirements.



330kV Oil-immersed Power Transformer



(1) 330kV 90000kVA~720000kVA Three-phase Double-winding Power Transformer with Off-circuit Tap-changer

Rated capacity (kVA)	Voltage combination and tapping range		Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)
	HV tapping range(%)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	
90000	345 345±2×2.5% 363 363±2×2.5%	10.5 13.8 15.75 18 20	YNd11	37	247	44	247	54	260	14~15
120000				47	306	45	306	68	323	
150000				56	362	66	362	81	382	
180000				64	415	75	415	93	438	
240000				80	515	94	515	116	543	
360000				109	722	129	1212	158	762	
370000				111	736	131	736	162	777	
400000				118	780	139	780	171	824	
720000				183	1212	216	1212	266	1280	

Note: Transformers with various special parameters and performance can be manufactured according to customer requirements.

(2) 330kV 90000kVA~240000kVA Three-phase Three-winding Power Transformer with Off-circuit Tap-changer

Rated capacity (kVA)	Voltage combination and tapping range			Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Capacity assignment (%)	Short-circuit impedance (%)
	HV tapping range(kV)	MV (kV)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)		
90000	330±2×2.5% 345±2×2.5%	121	10.5 13.8 15.75	YN yn0d11	42	302	50	302	62	318	HV-MV 24~26 HV-LV 14~15 MV-LV 8~9	100/100/100
120000					53	374	62	374	77	394		
150000					63	442	74	442	91	466		
180000					72	507	85	507	104	535		
240000					89	629	105	629	130	664		

Note: 1. The data in the above sheet are applicable to step-up transformer.
2. The capacity allocation of the step-up type can also be (100/50/100)%.
3. Step-down type transformer can be provided as required, its short circuit impedance: HV-LV 24%~26%, HV-MV14%~15%, MV-LV 8%~9%, and its capacity can be (100/100/50)% or (100/50/100)%.
4. Short circuit impedance in the sheet is based on 100% rated capacity.
5. Transformers with various special parameters and performance can be manufactured according to customer requirements.



(3) 330kV 90000kVA~360000kVA Three-phase Three-winding Autotransformer with Off-circuit Tap-changer (Regulating in Series Winding)

Rated capacity (kVA)	Voltage combination and tapping range			Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)	Capacity assignment (%)
	HV tapping range(kV)	MV (kV)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)		
90000	330±2x2.5%	121	10.5 11 35 38.5	YN a0d11	25	237	29	237	36	250	HV-MV 10~11 H/ -LV 24~26 MV-LV 12~14	100/100/30
120000					31	292	36	292	45	308		
150000					37	347	44	347	54	366		
180000					42	396	50	396	62	418		
240000					53	492	62	492	77	520		
360000					72	668	85	668	104	705		

Note: 1. The data in the above sheet are applicable to step-down type transformer.
2. The step-up type transformer can be provided as required, and its short circuit impedance: HV-LV 10%-11%, HV-MV 24%-26%, MV-LV 12%-14%.
3. Short circuit impedance in the sheet is based on 100% rated capacity.
4. Transformers with various special parameters and performance can be manufactured according to customer requirements.

(4) 330kV 90000kVA~360000kVA Three-phase Three-winding Autotransformer with On-load Tap-changer (Regulating at the End of Series Winding)

Rated capacity (kVA)	Voltage combination and tapping range			Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)	Capacity assignment (%)
	HV tapping range(kV)	MV (kV)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)		
90000	330±8X 1.25% 345±8X 1.25%	121	10.5 11 35 38.5	YN a0d11	26	235	31	235	38	248	HV-MV 10~11 HV-LV 24~26 MV-LV 12~14	100/100/30
120000					32	292	38	292	47	308		
150000					38	345	45	345	55	364		
180000					43	396	51	396	63	418		
240000					54	492	64	492	79	520		
360000					74	668	87	668	107	705		

Note: 1. The data in the above sheet are applicable to step-down type transformer. Step-up type transformer can be provided as required.
2. Short circuit impedance in the sheet is the value based on 100% rated capacity.
3. Transformers with various special parameters and performance can be manufactured according to customer requirements.



(5) 330kV 90000kVA~360000kVA Three-phase Three-winding Autotransformer with On-load Tap-changer (Regulating at MV 110kV Line End Side)

Rated capacity (kVA)	Voltage combination and tapping range			Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)	Capacity assignment (%)
	HV (kV)	MV tapping range (kV)	LV (kV)		No-load loss (kW)	On-load loss (kW)	No-load loss (kW)	On-load loss (kW)	No-load loss (kW)	On-load loss (kW)		
90000	330 345	121±8x12.5%	10.5 11 35 38.5	YNa0d11	27	251	32	251	39	265	HV-MV 10~11 LV 26~28 MV-LV 16~17	100/100/30
120000					34	311	40	311	49	329		
150000					40	369	47	369	58	390		
180000					46	423	54	423	66	447		
240000					56	526	66	526	82	555		
360000					76	713	90	713	111	752		

Note: 1. The data in the above sheet are applicable to step-down type transformer. Step-up type transformer can be provided as required.
2.Short circuit impedance in the sheet is the value based on 100% rated capacity.
3.Transformers with various special parameters and performance can be manufactured according to customer requirements.

(6) 330kV 90000kVA~360000kVA Three-phase Three-winding Autotransformer with Off-circuit Tap-changer (Regulating at MV 220kV line end side)

Rated capacity (kVA)	Voltage combination and tapping range			Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)	Capacity assignment (%)
	HV (kV)	MV tapping range (kV)	LV (kV)		No-load loss (kW)	On-load loss (kW)	No-load loss (kW)	On-load loss (kW)	No-load loss (kW)	On-load loss (kW)		
90000	330 345	230±2x2.5% 230±3x2.5% 242±2x2.5% 242±3x2.5%	10.5 11 35 38.5	YNa0d11	13	264	15	264	18	278	HV-MV 10~11	100/100/30
120000					16	327	19	327	23	345		
150000					19	388	22	388	27	409		
180000					21	445	25	445	31	469		
240000					27	552	32	552	39	582		
360000					37	752	44	752	54	794		

Note: 1. The data in the sheet above are applicable to step-down type transformer. Step-up type transformer can be provided as required.
2.Short circuit impedance in the sheet is the value based on 100% rated capacity.
3.Short circuit impedance for HV-MV and MV-LV shall be agreed by the manufacturer and the user. 4.Transformers with various special parameters and performance can be manufactured according to customer requirements.

500kV Oil-immersed Power Transformer



(1) 500kV 100MVA~484MVA Single-phase, Double-winding Power Transformer with Off-circuit Tap-changer

Rated capacity (kVA)	Voltage combination and tapping range		Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)	
	HV tapping range(%)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)		
100	500/√3 525/√3 535/√3 550/√3	13.8;15.75	li0	34	203	40	203	49	214	14	
120		15.75;18;20		39	234	46	234	56	247		
200		15.75;18;20;24		63	342	74	342	91	361		
223		18		68	371	81	371	99	391		
240		18;20;24		72	392	85	392	105	413		
260		18;20		77	414	91	414	112	437		
380		24;27			102	549	121	549	149	580	16 or 18
400					106	570	125	570	154	601	
410					108	581	128	581	158	613	
484					123	657	145	657	178	694	

Note: Transformers with various special parameters and performance can be manufactured according to customer requirements.

(2) 500kV 120MVA~1170MVA Three-phase, Double-winding Power Transformer with Off-circuit Tap-changer

Rated capacity (kVA)	Voltage combination and tapping range		Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)	
	HV tapping range(%)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)		
120	500 525 550	13.8; 15.75	YNd11	41	356	49	356	60	375	14	
160				50	441	59	441	72	466		
240				69	599	81	599	100	632		
300				13.8; 15.75; 18	80	707	94	707	116		746
370				15.75; 18; 20	94	810	111	810	136		855
400				18; 20; 24	96	855	114	855	140		903
420		15.75; 18; 20		102	860	120	860	148	907	14 or 16	
480		15.75; 18; 20		110	954	130	954	160	1007		
600		15.75; 18; 20; 24		143	1202	169	1202	208	1268		
720		18; 20; 24		168	1382	198	1382	244	1458		
750		20; 22		173	1422	205	1422	252	1501	16 or 18	
780		22		176	1467	208	1467	256	1549		
860				190	1575	224	1575	276	1663		
1140		27		237	1949	280	1949	344	2057		
1170				242	1980	286	1980	352	2090		

Note: Transformers with various special parameters and performance can be manufactured according to customer requirements.



(3) 500kV 120MVA~1170MVA Three-phase, Double-winding Power Transformer with Off-circuit Tap-changer

Rated capacity (kVA)	Voltage combination and tapping range			Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)	Capacity assignment (MVA)
	HV (kV)	MV tapping range(kV)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)		
120	500/√3 525/√3 550/√3	230/√3 230/√3 ±2×2.5% 242/√3 ±2×2.5%	35 36 37 38.5 63 66	la0l0	28	207	33	207	40	219	HV-MV 12 HV-LV 34~38 MV-LV 20~22	120/120/40
167					33	248	39	248	48	261		167/167/40 167/167/60
250					47	333	55	333	68	352		250/250/60 250/250/80
334					58	428	68	428	84	451		334/334/100
400					66	491	78	491	96	518		400/400/120
120					28	221	33	221	40	233	HV-MV 12 HV-LV 42~46 MV-LV 28~30	120/120/40
167					33	261	39	261	48	276		167/167/60 250/250/60
250					47	356	55	356	68	375		250/250/80 334/334/80
334					58	459	68	459	84	485		334/334/100 400/400/120
400					66	522	78	522	96	551		120/120/40
120					28	221	33	221	40	233	HV-MV 14~15 HV-LV 42~46 MV-LV 28~30	167/167/60 250/250/80
167					33	261	39	261	48	276		334/334/80 334/334/100
250					47	356	55	356	68	375		334/334/100 400/400/120
334					58	459	68	459	84	485		
400					66	522	78	522	96	551		

Note: Transformers with various special parameters and performance can be manufactured according to customer requirements.

(4) 500kV 120MVA~400MVASingle-phase, Three-winding Auto transformer with On-load Tap-changer (Regulating at MV line end side)

Rated capacity (kVA)	Voltage combination and tapping range			Vector group	Energy consumption class I		Energy consumption class II		Energy consumption class III		Short-circuit impedance (%)	Capacity assignment (MVA)
	HV (kV)	MV tapping range(kV)	LV (kV)		No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)	No-load loss(kW)	On-load loss(kW)		
120	500/√3 525/√3 550/√3	230/√3 ±8×1.25%	35 36 37 38.5 63 66	la0l0	28	212	33	212	40	223	HV-MV 12 HV-LV 34~38 MV-LV 20~22	120/120/40
167					33	257	39	257	48	271		167/167/40 167/167/60
250					47	342	55	342	68	361		250/250/40 250/250/80
334					61	441	72	441	88	466		334/334/100
400					72	504	85	504	104	532		400/400/120
120					28	225	33	225	40	238	HV-MV 12 HV-LV 42~46 MV-LV 28~30	120/120/40
167					33	270	39	270	48	285		167/167/60 250/250/60
250					47	365	55	365	68	385		250/250/80 334/334/80
334					61	477	72	477	88	504		334/334/100 400/400/120
400					72	549	85	549	104	580		120/120/40
120					28	225	33	225	40	238	HV-MV 14~15 HV-LV 42~48 MV-LV 28~30	167/167/60 250/250/80
167					33	270	39	270	48	285		334/334/80 334/334/100
250					47	365	55	365	68	385		334/334/100 400/400/120
334					61	477	72	477	88	504		
400					72	549	85	549	104	580		

Note: 1. Short circuit impedance is the value based on 100% rated capacity.
2.Transformers with various special parameters and performance can be manufactured according to customer requirements.



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