Safe-Clean-Lean

DX GIS Products

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Company Profile

Facility was founded in 1993, adheres to the mission of "Serving Smart Power Grids, Building Green Lives". It has a factory area of 20,000 square meters and a registered capital of 100 million yuan.The company boasts rich experience in high-voltage product design and assembly. Its employees hold corresponding special operation certificates and vocational skill level certificates.

We specialize in a range of products including 110kV-500kV high-voltage transformers (PT, CVT, CT), surge arresters, transformer terminal control cabinets, GIS control cabinets, GIL pipe gallery busbars, GIS main busbars, GIS modular assembly, and GIS substation engineering general contracting, operation and maintenance.

Server Power System
Create Green Energy Life

Electromagnetic type voltage transformer (PT)

The company started producing GIS voltage transformers in 2004, with product series covering 110kV, 220kV, 330kV and 550kV. The products are superior in performance, stable and reliable. Especially, the low magnetic flux density transformer products for pumped storage and wind power projects are technologically leading, and their performance reliability far exceeds national standards.

110kV GIS Three-Phase Transformer

220kV GIS Single-Phase Transformer

330kV GIS Single-Phase Transformer

550kV GIS Transformer

Technical Specifications of 110kV Electromagnetic Voltage Transformer (Single-phase)

Item	Description			Parameters
1	Model			JDQXF3-110
2	Rated primary voltage (kV)			110/$\sqrt{3}$
3	Highest voltage of equipment(kV)			126
4	Rated secondary voltage(V)			100/$\sqrt{3}$
5	Rated frequency			50Hz
6	Rated withstand voltage for operating impulse (kV) (peak)			——
7	Lightning impulse voltage (kV)	Rated lightning impulse withstand voltage (peak)		550
		Peak withstand voltage for lightning wave impact		115% Um
8	Partial discharge level	Partial discharge measurement voltage (kV)	1.2 Um/$\sqrt{3}$	1.2 Um/$\sqrt{3}$
			1.2 Um	1.2 Um
		Partial discharge tolerance level (pC)	≤3	≤3
			≤3	≤3
9	Rated power factor			0.8 lagging
10	Rated voltage factor	Rated voltage factor/Rated time		1.2 Continuous, 1.5 30s
11	Temperature rise limit (K) at rated voltage factor			a.Under rated primary voltage and frequency, with the secondary winding connected to a load corresponding to its thermal limit output while the residual voltage winding remains unloaded, the transformer winding temperature rise must not exceed 60K
				b.When the secondary winding and residual voltage winding are connected to rated load, apply 1.5 times the rated voltage for 30 seconds. The winding temperature rise must not exceed 70K. This test should be conducted after the temperature rise test in clause 3.11a reaches a stable state. Alternatively, the test can start from cold state, in which case the winding temperature rise shall not exceed 10K.
12	Short-circuit withstand			When excited at rated voltage, it can withstand the external short circuit mechanical effect and thermal effect for 1s without damage.
13	Inductive withstand voltage			230kV /40s/150Hz
14	Power frequency withstand voltage of grounding terminal	Secondary winding to ground (kV RMS)		3kV
15		One ground terminal-to-ground (kV RMS)		5kV
16	Annual SF6 gas leakage rate			≤0.5%
17	Water content of SF6 gas			≤150ppm
18	SF6 gas rated pressure			0.5MPa (20℃)
19	Minimum operating pressure of SF6 gas			0.4MPa (20℃)
20	Rated voltage ratio			$\frac{110}{\sqrt{3}}/\frac{0.1}{\sqrt{3}}/0.1$kV
21	Primary and secondary loads (VA)			0.5/3P 50/50
22	Secondary load limit (VA)			2.5
23	Maximum simultaneous output			0.5 100
24	Wiring Group			/
25	Three-phase imbalance			/
26	Secondary winding thermal limit output (VA)			2000
27	Insulation resistance (MΩ)	Once to twice		＞1000
		Between secondary winding		＞500
		Secondary winding to ground		＞500
28	Error measurement			Meets GB20840.3/JJG1021
29	Pressure vessel	Material		Steel
		Max working pressure		0.81Mpa
		Hydraulic test pressure		1.1Mpa 30min
30	Crash recorder management value			≤3G
31	Standard			GB/T 20840.1-2010；GB/T 20840.3-2013； IEC 61869-1:2007；IEC 61869-3:2011

Technical Specifications of 220kV Electromagnetic Voltage Transformer

Item	Description			Parameters
1	Model			JDQXF3-220
2	Rated primary voltage (kV)			220/$\sqrt{3}$
3	Maximum device voltage (kV)			252
4	Rated secondary voltage (V)			100/$\sqrt{3}$
5	Rated frequency			50Hz
6	Rated withstand voltage for switching surge (kV) (peak value)			——
7	Lightning impulse voltage (kV)	Rated lightning surge/Peak voltage tolerance		1050
		Truncate lightning wave impact/ Peak voltage tolerance		115% Um
8	Partial discharge horizontal	Spotlight Measurement voltage (kV)	Relatively	1.2 Um/$\sqrt{3}$
			Relative phase	1.2 Um
		Partial discharge allowable limit (pC)	Relatively	5
			Relative phase	3
9	Rated power factor			0.8 (lag)
10	Rated voltage factor	Rated voltage factor/base time		1.2 Continuous, 1.5 30s
11	Temperature rise limit (K) at rated voltage factor			75
12	Short-circuit withstand			When excited at rated voltage, it can withstand the external short circuit mechanical effect and thermal effect for 1s without damage.
13	Inductive withstand voltage	2x frequency		460kV /60s
		3x frequency		460kV /40s
14	Earth terminal power frequency Withstand voltage	Secondary winding to ground (kV RMS)		3kV
15		One ground terminal-to-ground (kV RMS)		5kV
16	Peak over-voltage limit (kV)			1.6
17	Annual SF6 gas leakage rate			≤0.1%
18	Gas water content(20℃)dew point			- 30℃
19	SF6 gas rated pressure			0.5MPa (20℃)
20	Minimum operating pressure of SF6 gas			0.45MPa (20℃)
21	PT rated voltage ratio			$\frac{220}{\sqrt{3}}/\frac{0.1}{\sqrt{3}}/\frac{0.1}{\sqrt{3}}/\frac{0.1}{\sqrt{3}}/0.1$kV
22	Line PT accuracy class and secondary load (VA)			0.2/0.5(3P)/0.5(3P)/6P 10/10/10/10
23	Secondary load limit (VA)			2.5
24	Maximum simultaneous output of line PT			0.2/0.5(3P)/0.5(3P)/3P 100/100/100/1000
25	Wiring Group			Y/Y /Y/△
26	Three-phase imbalance			1
27	Secondary winding thermal limit output (VA)			1000
28	Insulation resistance (MΩ)	Once to twice		＞1000
		Between secondary winding		＞500
		Secondary winding to ground		＞500
29	Error measurement			Meets GB20840.3/JJG1021
30	Pressure vessel	Material		Aluminium
		Maximum working pressure		0.81Mpa
		Hydraulic test pressure		1.1Mpa 30min
31	Resistance imbalance between winding			≤5%
32	Position of one winding ground terminal			Outside the chamber (inside the terminal box)
33	Standard			GB/T 20840.1-2010；GB/T 20840.3-2013； IEC 61869-1:2007；IEC 61869-3:2011

Technical Specifications of 500kV Electromagnetic Voltage Transformer

Item	Description			Parameters
1	Model			JDQXF-500
2	Rated primary voltage (kV)			$500/\sqrt{3}$
3	Maximum device voltage (kV)			550
4	Rated secondary voltage (V)			$100/\sqrt{3}$
5	Rated frequency			50Hz
6	Rated withstand voltage for switching surge (kV) (peak value)			1300
7	Lightning impulse voltage (kV)	Rated lightning surge/Peak voltage tolerance		1675
		Truncate lightning wave impact/ Peak voltage tolerance		115% Um
8	Partial discharge horizontal	Spotlight Measurement voltage (kV)	Relatively	$1.2\ Um/\sqrt{3}$
			Relative phase	1.2 Um
		Partial discharge allowable limit (pC)	Relatively	3
			Relative phase	3
9	Rated power factor			0.8 (lag)
10	Rated voltage factor	Rated voltage factor/base time		1.2 Continuous, 1.9 30s
11	Temperature rise limit (K) at rated voltage factor			75
12	Short-circuit withstand			When excited at rated voltage, it can withstand the external short circuit mechanical effect and thermal effect for 1s without damage.
13	Inductive withstand voltage	2x frequency		740kV /60s
		3x frequency		740kV /40s
14	Earth terminal power frequency Withstand voltage	Secondary winding to ground (kV RMS)		3kV
15		One ground terminal-to-ground (kV RMS)		5kV
16	Peak over-voltage limit (kV)			1.6
17	Annual SF6 gas leakage rate			≤0.1%
18	Water content of SF6 gas			≤150ppm
19	SF6 gas rated pressure			0.45MPa (20℃)
20	Minimum operating pressure of SF6 gas			0.4MPa (20℃)
21	Rated voltage ratio			$\frac{500}{\sqrt{3}}/\frac{0.1}{\sqrt{3}}/\frac{0.1}{\sqrt{3}}/\frac{0.1}{\sqrt{3}}/0.1kV$
22	Line PT accuracy class and secondary load (VA)			0.2/0.5(3P)/0.5(3P) 30/30/30
23	Secondary load limit (VA)			2.5
24	Maximum simultaneous output			0.2/0.5(3P)/0.5(3P) 50/50/50
25	Wiring Group			Y/Y /Y/△
26	Three-phase imbalance			1
27	Secondary winding thermal limit output (VA)			1000
28	Insulation resistance (MΩ)	Once to twice		> 1000
		Between secondary winding		> 500
		Secondary winding to ground		> 500
29	Error measurement			Complies with GB/T 20840.3/JJG1021
30	Pressure vessel	Material		Aluminium
		Maximum working pressure		0.78Mpa
		Hydraulic test pressure		1.5Mpa 30min
31	Resistance imbalance between winding			≤5%
32	Position of one winding ground terminal			Outside the chamber (inside the terminal box)
33	Standard			GB/T 20840.1-2010；GB/T 20840.3-2013；IEC 61869-1:2007；IEC 61869-3:2011

Capacitive Voltage Transformers (CVT)

The product series include two voltage levels: 110kV and 220kV, and two types: line type and busbar type.

- 110kV GIS Three-Phase Transformer
- 220kV GIS Single-Phase Transformer
- 330kV GIS Single-Phase Transformer
- 550kV GIS Transformer

Technical Specifications of 110kV GIS Lightning Arresters

Item	Description		Object	Unit	110kV lightning arrester			
1	Model		core		Y10WF-96/250	Y10WF-100/260	Y10WF-102/266	Y10WF-108/281
2	Rated frequency		core	Hz	50			
3	Rated voltage of the lightning arrester		core	kV rms	96	100	102	108
4	Continuous operating voltage		core	kV rms	75	78	79.6	84
5	Nominal discharge current 8/20 μs		core	kA	10			
6	2mA power frequency reference voltage		core	kV rms	≥96	≥100	≥102	≥108
7	1mA DC reference voltage		core	kV	≥140	≥145	≥148	≥157
8	Leakage current at 0.75 times DC 1mA reference voltage		core	μA	≤30			
9	Leakage current at continuous operating voltage	Full current (effective value)	core	μA	≤900	≤900	≤900	≤900
		Resistive current		μA	≤230	≤230	≤230	≤230
10	Residual voltage at rated discharge current		core	kVcrest	≤250	≤260	≤266	≤281
11	Residual voltage under steep wave impact current		core	kVcrest	≤280	≤291	≤297	≤315
12	Residual voltage under switching inrush current		core	kVcrest	≤213	≤221	≤226	≤239
13	Line discharge level		core	rank	2			
14	2ms square wave current shock tolerance18 times		core	A	600/800			
15	Rated energy absorption per kilovolt			kJ/kV	7.8			
16	4/10 μs high current surge 2 times		core	kA	100			
17	Partial discharge at 1.05 times the continuous operating voltage		core	pC	≤5			
18	Inner insulationwithstand voltage	Power frequency withstand voltage	LA	kV rms	230			
		Lightning surge withstand voltage		kVcrest	550			
19	Rated pressure of SF6 gas 20℃		LA	MPa	0.5			
20	Minimum working pressure of SF6 gas 20℃		LA	MPa	0.45			
21	SF6 gas moisture content (handover acceptance value)		LA	μL/L	150			
22	Annual SF6 gas leakage rate ≤		LA	%	0.5			
23	Earthquake resistance							
24	Seismic intensity			linear measure	9			
25	Safety factor				≥1.67			
26	Case Material				5A02			

Current Transformers (CT)

The product series include current transformers of 110kV, 220kV and 550kV. The company specializes in the whole-process production of current transformers for GIS, from core coil winding to complete machine assembly.

- 110kV, 220kV, 550kV Gas-Insulated CT Coils
- 110kV, 220kV, 550kV Oil-Insulated CT Coils
- Current Transformer Assembly

Surge Arresters

- 110kV GIS Surge Arrester
- 220kV GIS Surge Arrester

Technical Specifications of 220kV GIS Lightning Arresters

Item	Description		Standard parameter values				
1	Maximum system voltage (kV, RMS)		252				
2	System rated voltage kV (effective value)		220				
3	Nominal voltage of the lightning arrester (kV, RMS)		200	204	216		
4	Continuous operating voltage (kV, RMS)		156	159	168.5		
5	Nominal discharge current kA		10				
6	Internal insulation strength	1-minute power frequency withstand voltage (effective value)	460				
		Lightning surge withstand voltage (peak) kV	1050				
7	DC 1mA reference voltage kV ≥		290	296	314		
8	Power frequency reference voltage (effective value) kV ≥		200	204	216		
9	Power frequency reference current (peak) mA ≤		2				
10	Continuous current (full current) mA <		1.2				
11	Direct current (resistive) mA ≤		0.25				
12	0.75 DC 1mA leakage current μA ≤		50				
13	Peak residual voltage of steep wave impact (kV) ≤		582	594	630		
	Lightning surge residual voltage (peak) ≤ kV		520	532	562		
	Operation impact residual voltage (peak) ≤		442	452	478		
14	Tolerates 2ms square wave current (20 times) A (peak)		800/1000				
	Line discharge level		2/3				
15	4/10 withstands 2 kA (peak) surge current		100				
16	Power frequency voltage tolerance-time characteris		1.2Ur	1.15Ur	1.1 Ur	1.08Ur	1.0Ur
			0.1s	1.0s	10s	30s	1200s
17	Action loadtics		③Level 3, voltage imbalance coefficient <1.05 ④Aging: 115 ,1000h, Kct<1.0				
18	Absorption capacity in kJ/kV for a rated voltage of kV		6.3				
19	Pressure relief capacity kA/s		50 0.2				
20	1.1 The partial discharge quantity pC under Uc ≤		5				
21	SF6 gas pressure (20℃)	Nominal value (relative value) MPa	0.5 (20℃)				
		Alarm value (relative value) MPa	0.45 (20℃)				
		Minimum functional pressure (relative value) MPa	0.4 (20℃)				
22	Annual SF6 gas leakage		≤0.1%				
23	Moisture content		≤150ppm				
24	Explosion-proof rating (MPa)		0.8				
25	Type		Zinc oxide gapless type				

Terminal Control Cabinets (Power Transformers)

Transformer terminal control cabinets and GIS control cabinets are independently developed and customized according to customer requirements in terms of cabinet shape and internal electrical principles. The company has integrated full-chain production capacity from shell manufacturing to electrical assembly. Transformer terminal control cabinets are mainly applied in export projects supporting Jinan Siemens.

- Air-Cooled Control Cabinet
- GIS Control Cabinet

Key Achievements

Customer Name	Project Name	Product Name	Quantity
Siemens Energy	812988-812990 Malaysia	Control Cabinet	2
Siemens Energy	812938-940 USA	Control Cabinet	3
Siemens Energy	813006-011 Philippines	Control Cabinet	6
Siemens Energy	813006, 009.012 Philippines	Control Panel	3
Siemens Energy	813006, 009.012 Philippines	Control Cabinet	3
Siemens Energy	812436 Vietnam8	Control Cabinet	1
Siemens Energy	12952-953 France	Control Cabinet	2
Siemens Energy	813108-109 Peru	Control Cabinet	2
Siemens Energy	812952-953 Indonesia	Control Cabinet	2
Siemens Energy	812754-787 (Saudi Arabia)	Control Cabinet	2
Siemens Energy	813097-098 (Georgia)	Control Cabinet	2
Siemens Energy	812782 Egypt	Control Cabinet	1
Siemens Energy	812860-862 Australia	Terminal Control Cabinet	3
Siemens Energy	813050-053 (Venezuela)	Control Cabinet	4
Siemens Energy	813050-053 (Venezuela)	Interface Cabinet	5
Siemens Energy	813001-003 Spain	Terminal Box	3
Siemens Energy	812846-847 Portugal	Integrated Terminal Control Cabinet	2
Siemens Energy	813035 Mexico	Integrated Terminal Control Cabinet	1
Siemens Energy	813062 Czech Republic	Integrated Terminal Control Cabinet	1

Ultra-High Voltage Pipe Gallery Busbars (GIL)

Since 2017, the company has been producing high-voltage pipe gallery busbars, GIS main busbars, and branch busbars. We provide supporting services for enterprises such as Shandong Hitachi Switchgear and Xuji Electric. Core components including spiral tube shells and conductive rods are all self-manufactured.

Busbar Parameters

Parameter Item	110kV GIS Busbar	220kV GIS Busbar	Description
Rated system voltage (kV)	126	252	System nominal voltage level
Maximum Working Voltage (kV)	145	252/275	The highest voltage that the equipment withstands for a long time
Rated Current (A)	2000, 2500, 3150, 4000	3150, 4000, 5000, 6300+	The maximum current that the busbar is allowed to pass for a long time. 6300A and above are for special large-capacity requirements
Rated Short-Time Withstand Current (kA)	31.5, 40, 50	50, 63	The short-circuit current (RMS value) that can be withstood within a short time (usually 1s/3s)
Rated Peak Withstand Current (kA)	80, 100, 125	125, 160, 171	The peak value of the first major half-cycle of the short-circuit current that can be withstood, usually 2.5 times the short-time withstand current
Rated Lightning Impulse Withstand Voltage (kV, peak)	Phase-to-ground: 230, Interrupting: 230 / 265	Phase-to-ground: 850 / 950, Interrupting: 850 / 1050	Simulate the insulation level of lightning overvoltage. The requirement for the interrupting (isolation break) is usually higher
Rated Power Frequency Withstand Voltage (kV, 1min)	Phase-to-ground: 550, Interrupting: 550 / 630	Phase-to-ground: 360 / 395, Interrupting: 360 / 460	Withstand voltage level at power frequency for 1 minute
SF_6 Gas Rated Pressure (20°C, MPa)	0.4 ~ 0.6	0.4 ~ 0.6	
SF_6 Gas Leakage Rate	⩽ 0.5% / year or ≤ 1% / year	⩽ 0.5% / year or ≤ 1% / year	

220kV Busbar

Huadian Xinjiang Kashgar Energy Storage

Chengdu Wanxing Environmental Protection

550kV Busbar

Shanghai Huangdu

Beijing Tongzhou

GIS Modular Assembly OEM Services

The company possesses professional manufacturing technology, capable of providing efficient modular production + OEM services for various power equipment manufacturers to meet the rigorous product requirements of customers. It has an annual assembly capacity of 300 bays, and over 1,000 bays of 220kV products have been operating in the power grid.

Circuit Breaker (CB)

110kV GIS Modular Circuit Breaker

220kV GIS Modular Circuit Breaker

Standard Unit (GIS)

110kV GIS Modular Standard Unit

220kV GIS Modular Standard Unit

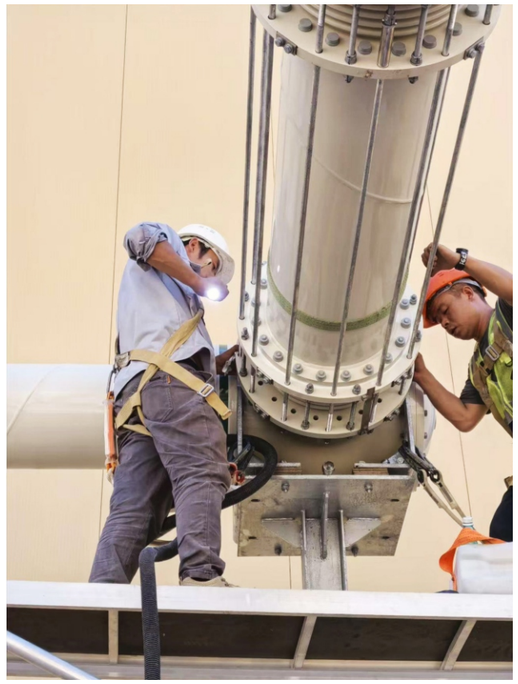
Engineering Services

GIS Substation Engineering Assembly, Operation and Maintenance

The company provides GIS substation engineering assembly, operation and maintenance, and technical upgrading and transformation services for major domestic power companies, with overseas business as the focus. It has undertaken GIS engineering service projects of China XD Electric in Saudi Arabia, Turkey, the Philippines, Bangladesh and other countries, and also undertakes GIS substation projects of State Grid and major domestic power companies.

Saudi Arabia on-site assembly

Turkey on-site assembly

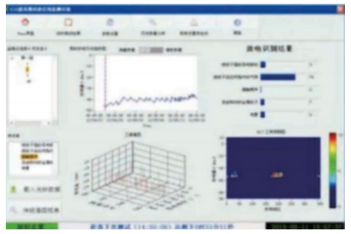


Philippines on-site assembly

Turkey on-site assembly

Power Equipment Testing and Inspection

GIS partial discharge online monitoring (with main interface display)



GIS on-site test data analysis (with spectrum display)

Preventive tests

Key Achievements

Project No.	Project Name	Construction Work
G24085	Turkey - Akkuyu 500kV Nuclear Power Plant	Busbar Assembly
G24023	Saudi Arabia - ALBAHR	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24024	Saudi Arabia - RYADHIYAH	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24025	Saudi Arabia - HADA-2	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24026	Saudi Arabia - NORTH THUQBAH	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24027	Saudi Arabia - BAYOUNIYAH	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24028	Saudi Arabia - KHOBAR CORNICHE	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24029	Saudi Arabia - NORTH KHOBAR	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24030	Saudi Arabia - SHERAA	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24031	Saudi Arabia - WADI ALDHAHRAN	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24032	Saudi Arabia - DANA 2	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24033	Saudi Arabia - QATIF SHATI	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24034	Saudi Arabia - QALAH	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24035	Saudi Arabia - URUBA	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24036	Saudi Arabia - ABU MAAN	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24037	Saudi Arabia - DEFAA	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection
G24038	Saudi Arabia - SENAEYA-2	Single-bay mechanism transmission commissioning; inter-bay electrical interlock commissioning; wiring inspection