



Sino Power
Solutions

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Better Life On Tech.

High Voltage / Low Voltage Prefabricated Substation Product Brochure





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YB□ Series Prefabricated Substation

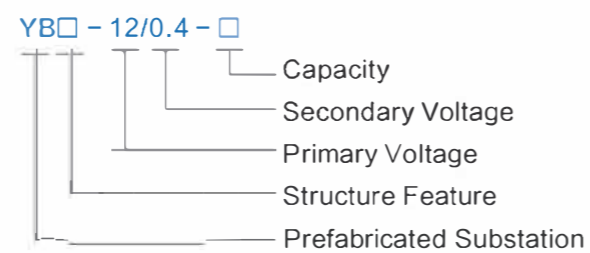


General Description

This series of prefabricated substations are suitable for 12kV three-phase AC system with a rated frequency of 50Hz, the capacity configuration is below 2000kVA in residential quarters, commercial buildings, hotels, large construction sites, high-rise buildings, industrial and mining enterprises and temporary construction sites and ring network power supply, radial terminal power supply etc.

This series of prefabricated power distribution station has the advantages of compact structure, strong complete set, safe and reliable operation, convenient maintenance, beautiful appearance, small on-site installation workload, short installation and commissioning period and the characteristics of moving with the load center.

Model



YB□ Series Prefabricated Substation



Operation Conditions

- The equipment is installed outdoors
- Ambient air temperature: not higher than 40℃, not lower than -40℃
- Relative humidity: daily average not more than 95% (+25℃)
- Maximum daily temperature difference: not higher than 35℃
- Altitude: not higher than 1000m (high altitude needs to be specified)
- Vertical inclination: no more than 5°, places without severe vibration

Features

- Compact structure, large capacity, less land occupation and short construction period
- High reliability, long service life, 20 years maintenance-free
- Standardized design of functional modules, flexible and diverse program combinations and strong adaptability
- The enclosure is double-layered, sealed and insulated. Various materials are available
- Anti-condensation and automatic temperature control monitoring, heating and dehumidification devices



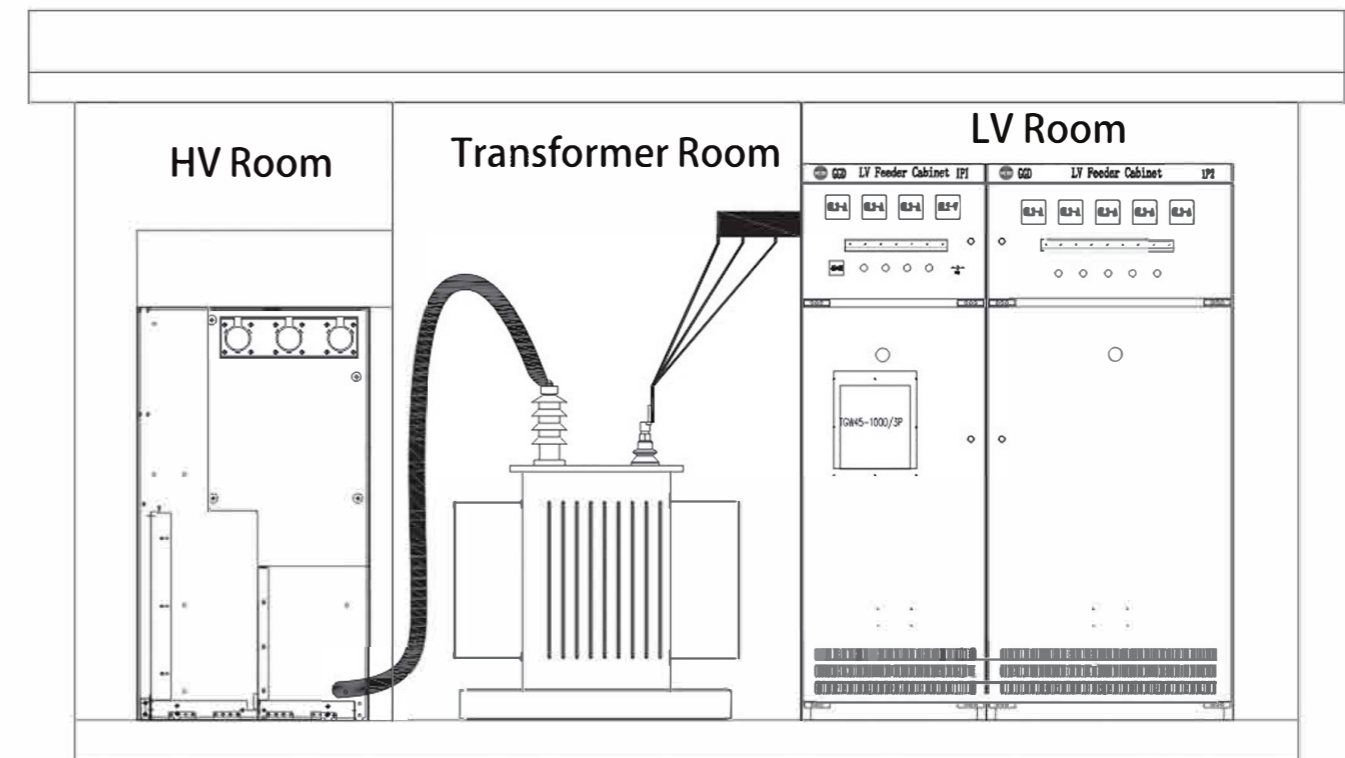
▶ Technical Data

Part	Item	Unit	Data	
High Voltage Part	Rated Voltage	kV	7.2 / 12	
	Rated Frequency	Hz	50	
	Rated Current	A	6.3~1250	
	Rated Frequency 1min Withstand Voltage	Earth	kV	42
		Contact	kV	48
	Rated Lightning Impulse Withstand Voltage Peak Value	Earth	kV	75
Contact		kV	85	
Rated Short Time Withstand Current and Duration		kA/s	20 / 4	
Transformer	Model		S11 / S13 / SH15 / SCB	
	Rated Capacity	kVA	30~2000	
	HV Windings Rated Voltage	kV	10 / 10.5	
	LV Windings Rated Voltage	kV	0.4 / 0.69	
	Tap Range		$\pm 2 \times 2.5\% / \pm 5\%$	
	Vector		Dyn11 / Yyn0	
Low Voltage Part	Rated Current	A	50~3200	
	Rated Working Voltage	V	400 / 690	
	Rated Insulation Voltage	V	690	
	Branch Current	A	10~1250	
	Rated Operating Short-circuit Breaking Capacity	kA	50	
Substation Structure Part	Substation Structure Temperature Rise	K	20	
	Protection Class		IP33D	
	Noise Level	dB	≤ 55	

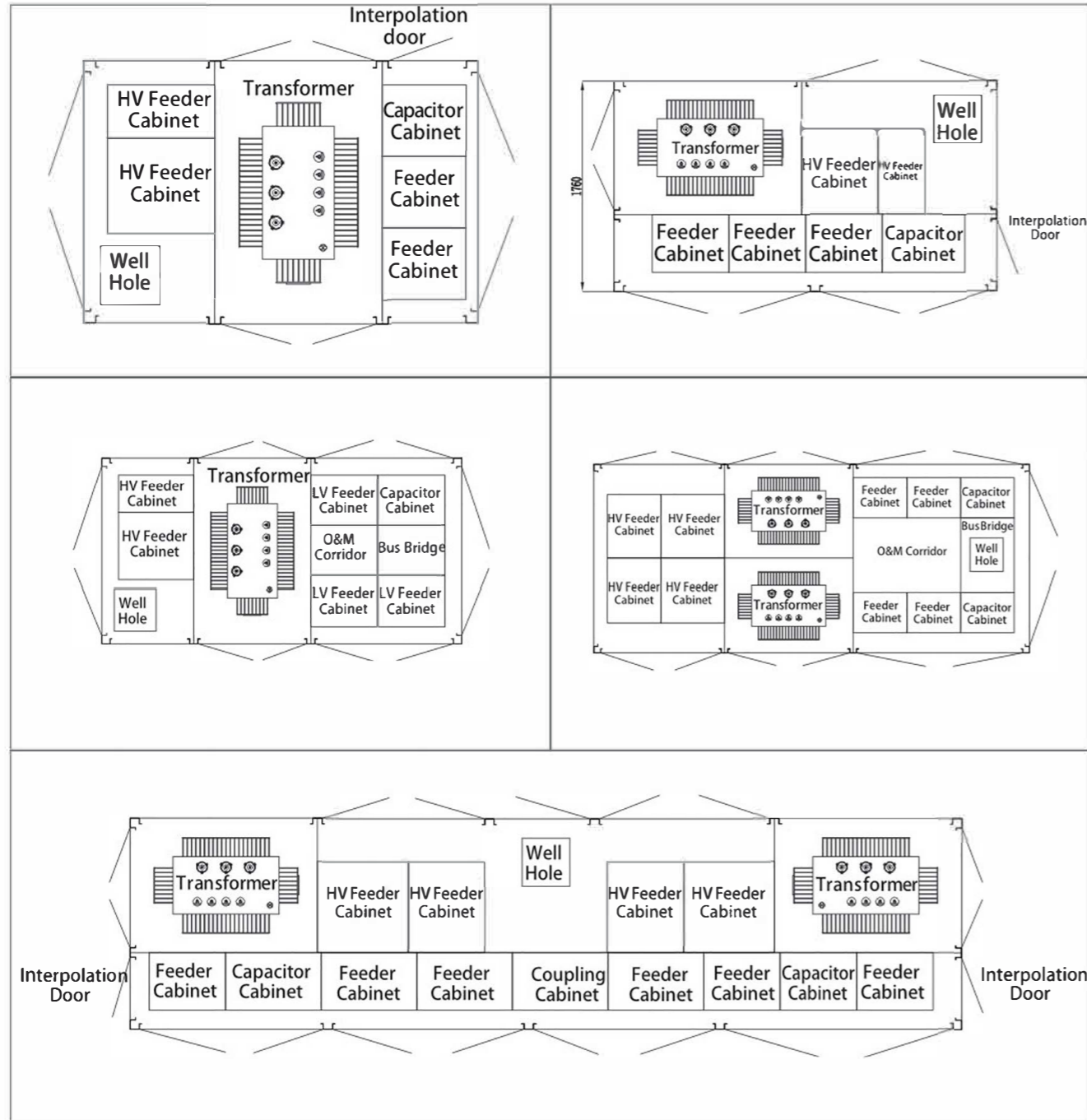
▶ Structure

The substation structure is composed of three parts: base, enclosure and top cover. The base is generally welded with channel steel, angle steel, steel plate or fixed by bolts.

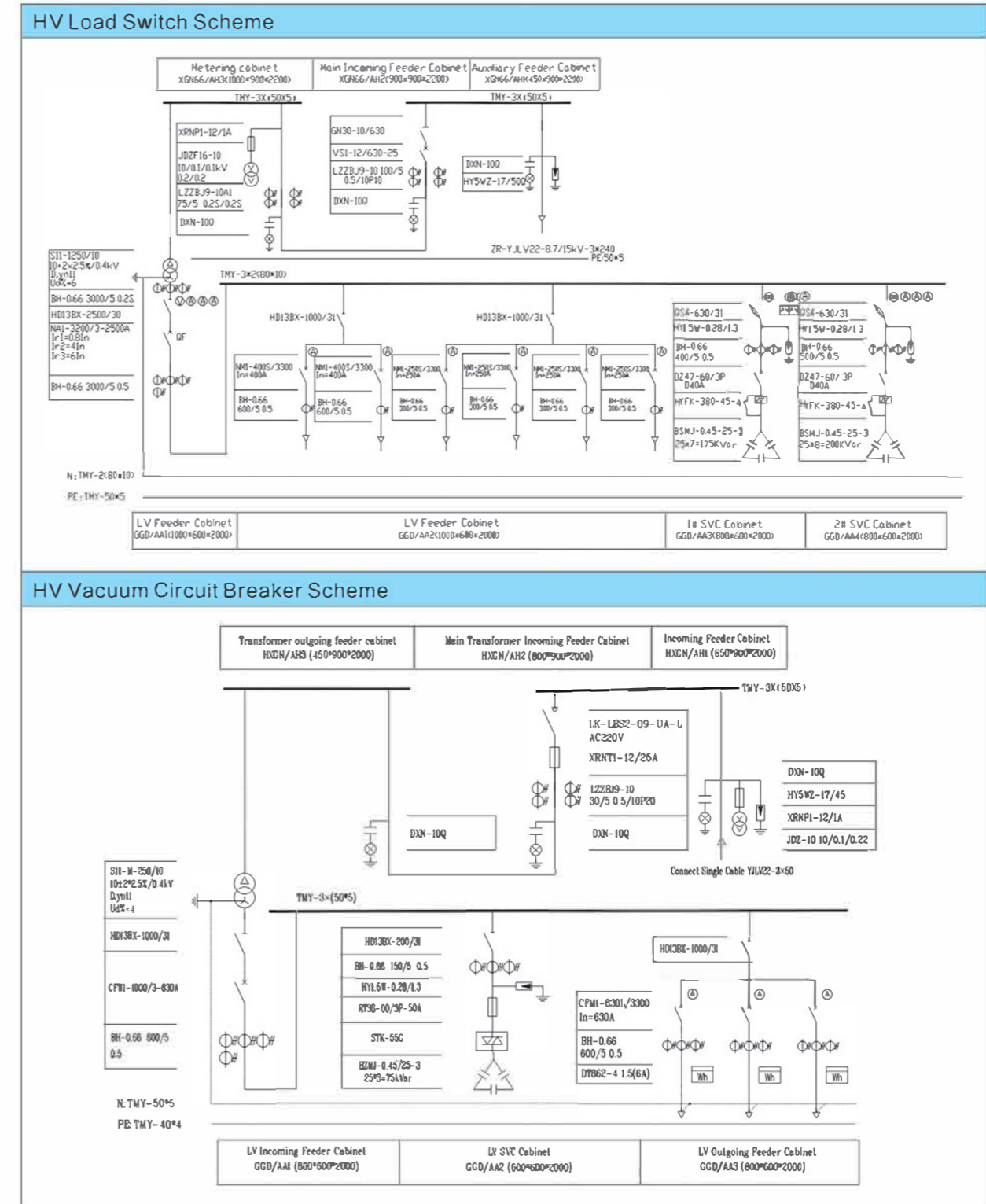
In order to meet the needs of ventilation, heat dissipation and incoming and outgoing lines, strip holes and circular holes are opened at the corresponding positions, and if necessary, an axial flow fan can be installed for ventilation and heat dissipation.



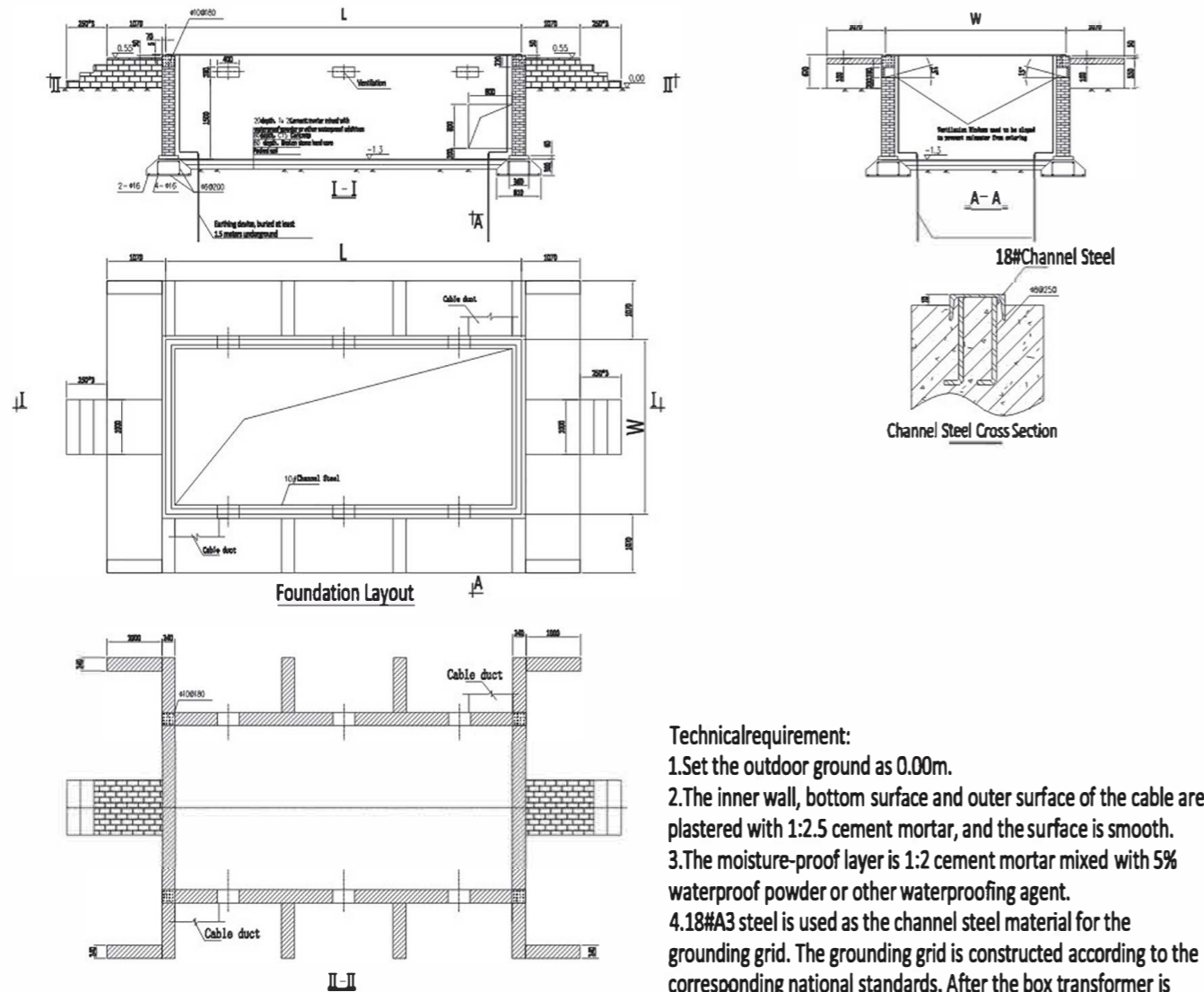
Typical Layout



Typical Scheme



▶ Foundation

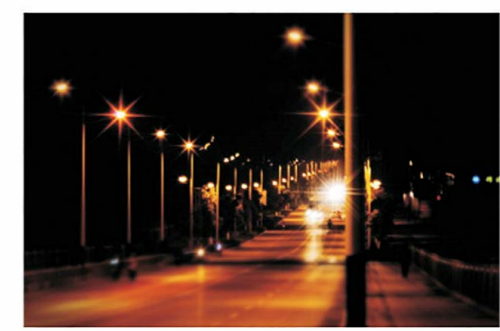


- Technical requirement:**
1. Set the outdoor ground as 0.00m.
 2. The inner wall, bottom surface and outer surface of the cable are plastered with 1:2.5 cement mortar, and the surface is smooth.
 3. The moisture-proof layer is 1:2 cement mortar mixed with 5% waterproof powder or other waterproofing agent.
 4. 18#A3 steel is used as the channel steel material for the grounding grid. The grounding grid is constructed according to the corresponding national standards. After the box transformer is installed in place, it is welded with the channel steel on the inner side.
 5. The manhole is inside the substation.
 6. The upper plane of the floor mesh channel steel should be leveled to prevent deformation after the box is in place.
 7. Ventilation windows should be able to prevent small animals such as rats and snakes from entering the box base.
 8. Box length: L=according to the project; box width: W=according to the project.
 9. The grounding device is arranged at the four corners of the foundation, and the $\Phi 16$ galvanized steel bar is used to bury the ground at least 1.5 meters deep. Add charcoal and salt to the soil to reduce the grounding resistance.
 10. The earthing resistance of the earthing device should be less than 4 ohms. If the actual measurement is greater than 4 ohms, a vertical earth electrode should be added.

▶ General Description

This series of prefabricated substations are specially designed to provide power supply for street lights. It is different from ordinary prefabricated substation mainly in that the low-voltage part adopts street lamp automatic controller and street lamp control contactor. The structure is compact, the volume is small, and the landscape structure is mostly adopted, which is novel and beautiful.

Power Supply	3p, 1P
HV Connection	Ring network type, terminal type
LV Connection	Night light, non-contact, fixed type
SVC Method	Contact, non-contact, fixed type
Capacity	50~400kVA

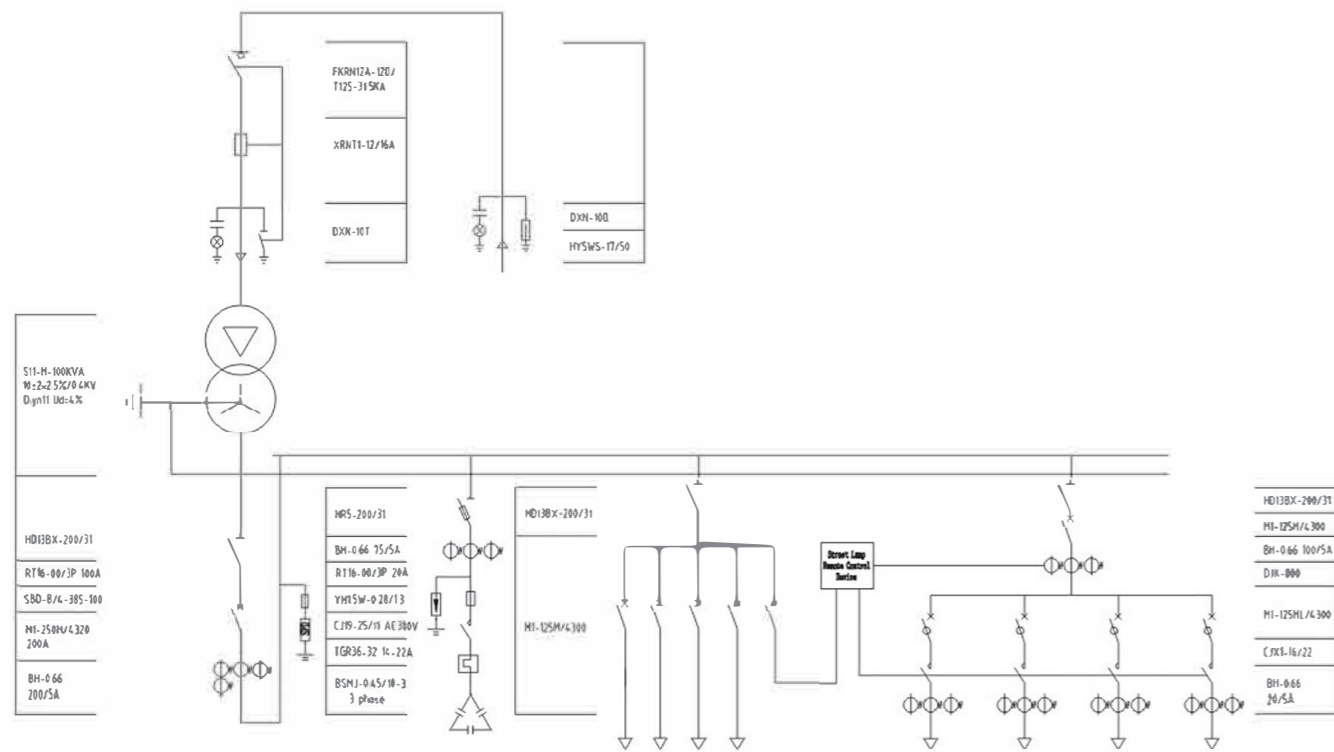


▶ Scheme Description

- High Voltage Cabinet**
The high-voltage cabinet can be either fully insulated and fully enclosed or air-insulated, and the power supply scheme can be ring network type or terminal type.
- Transformer**
The transformer adopts dry-type transformer or fully enclosed oil-immersed transformer.
- Low Voltage Feeder**
Set the quantity and capacity of feeders according to actual needs.
- Static Var Compensation**
Compensation method could be non-contact type and contact type. Since the street light prefabricated substation is used for general lighting power supply, the compensation capacity is generally 10%~20% of the transformer capacity.
- Microcomputer Street Light Controller**
A microcomputer street light controller is installed, which has the function of parameter modification, parameter display function, a variety of working modes, automatic control function according to longitude and latitude, and has multiple passive contact outputs. After power failure, the internal clock works normally and the setting state memory features, centennial calendar, etc.

Prefabricated substation for Street Lamp

Typical Scheme



Smart Prefabricated Power Distribution Station



General Description



The smart prefabricated power distribution station is suitable for 40.5kV, 12kV, three-phase AC system with a rated frequency of 50Hz, used for power reception and distribution, achieve ring network power supply, radial terminal power supply etc.



This series of prefabricated power distribution station has the advantages of compact structure, strong complete set, safe and reliable operation, convenient maintenance, beautiful appearance, small on-site installation workload, short installation and commissioning period and the characteristics of moving with the load center.

Operation Conditions

- The equipment is installed outdoors
- Ambient air temperature: not higher than 40°C, not lower than -40°C
- Relative humidity: daily average not more than 95% (+25°C)
- Maximum daily temperature difference: not higher than 35°C
- Altitude: not higher than 1000m (high altitude needs to be specified)
- Vertical inclination: no more than 5°, places without severe vibration
- Earthquake intensity: no more than 8 degrees
- Outdoor wind speed: no more than 35m/s





Technical Feature

The HV cabinet could adopt RMU scheme of SF₆ load switch or vacuum load switch, or metal-clad withdrawable switchgear scheme of KYN28B-12, KYN28C-12, the scheme combination is flexible, diverse and adaptable.

The power distribution station protection performance is good, the operation is convenient, the metering scheme is optional, and the power distribution RTU can be equipped according to actual needs.

Substation cover is designed as a double-layer structure, and the interlayer is filled with thermal insulation rock wool, which has a good thermal insulation effect. The interior is designed with an independent top plate, and the transformer room is equipped with anti-condensation and automatic temperature control monitoring, heating and cooling devices.

The substation body adopts natural ventilation, and forced ventilation equipment can also be installed. A dust-proof device is installed on the outside of the door panel and the side panel at the position corresponding to the shutter.



Switch Device Classification

By arc extinguishing type

- ◆ Load switch
- ◆ Vacuum circuit breaker

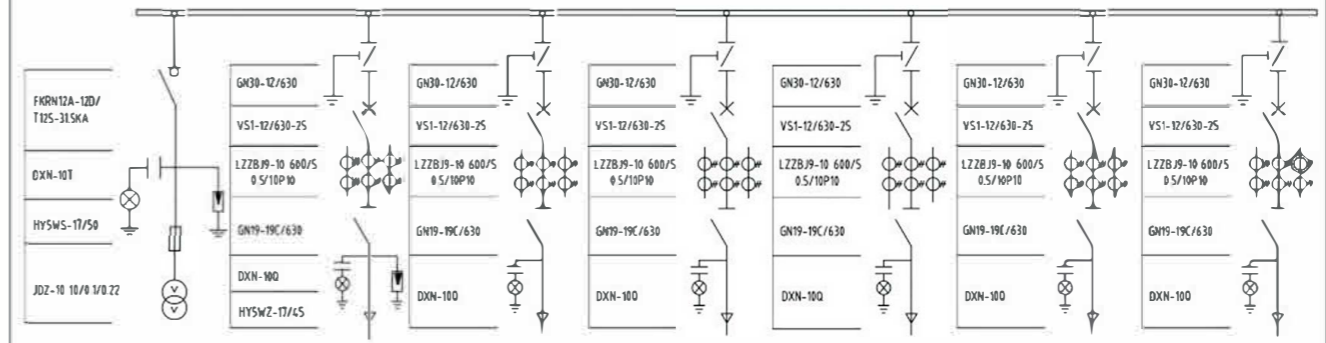
By cabinet type

- ◆ XGN15-12
- ◆ XGN66-12
- ◆ KYN28A/B-12
- ◆ HXGN□-12
- ◆ KYN61-40.5

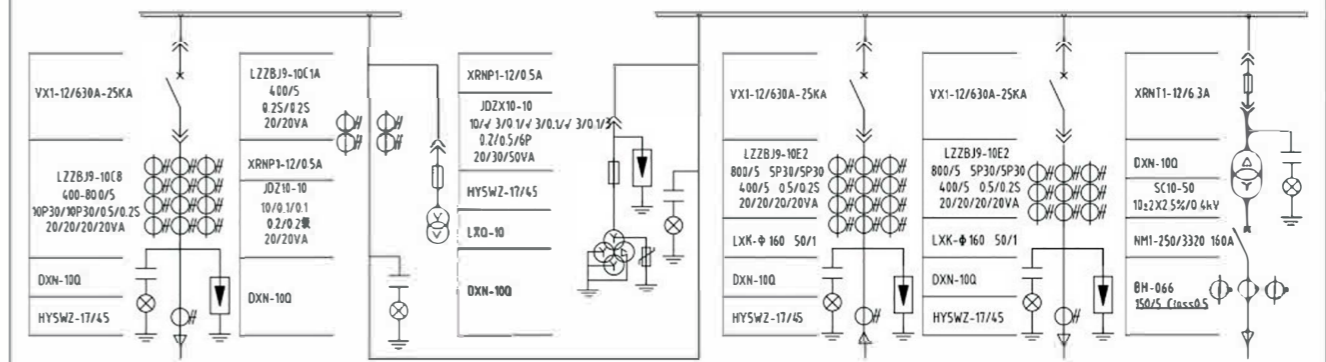


Typical Scheme

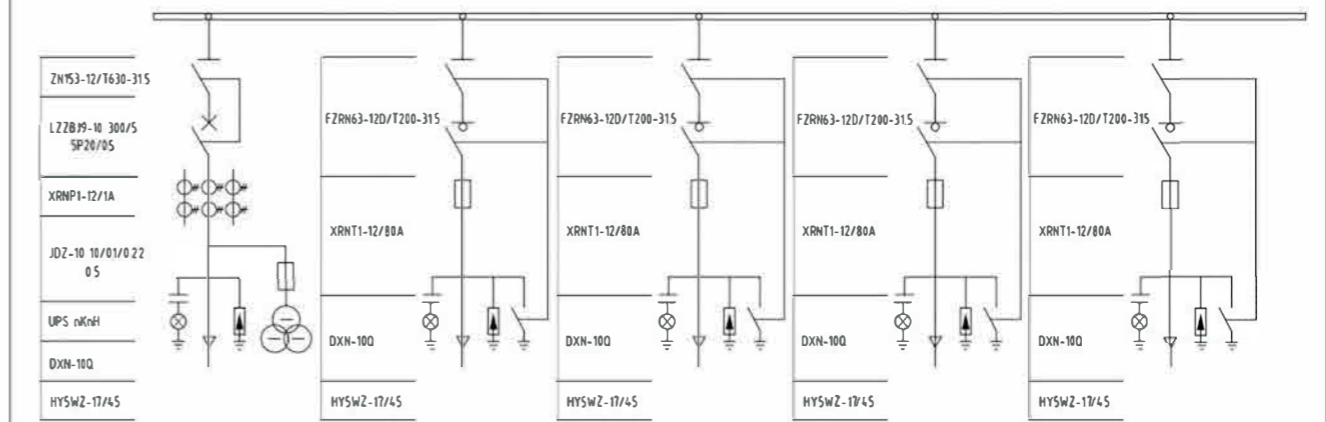
Scheme 1



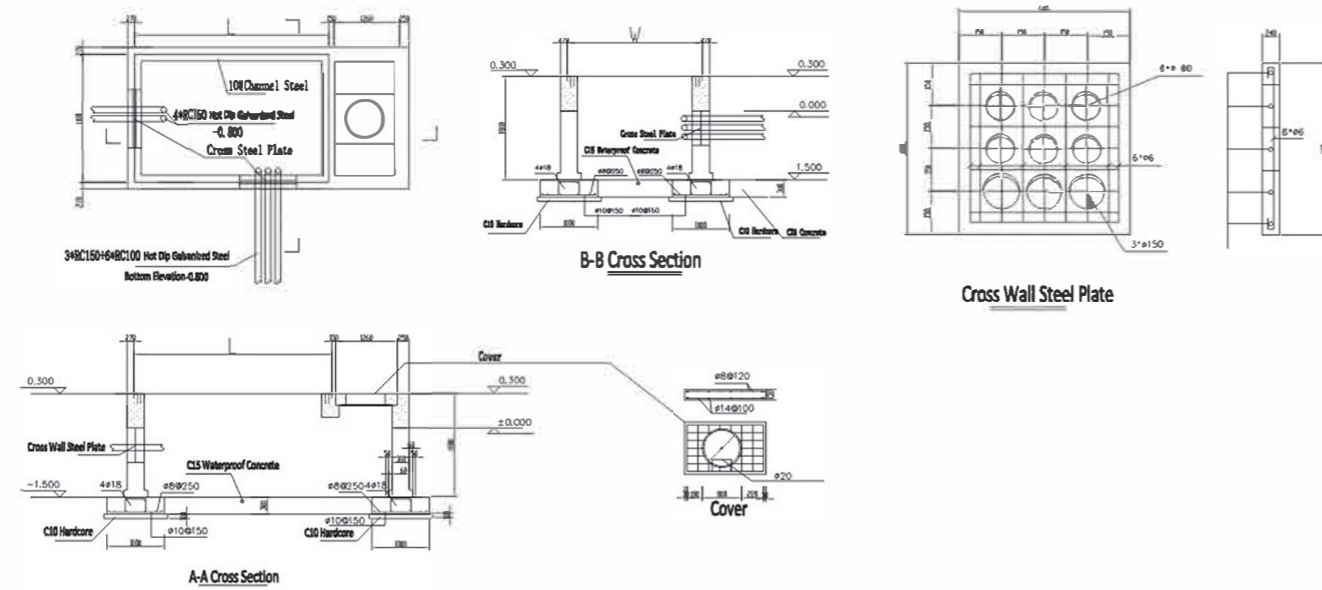
Scheme 2



Scheme 3



Typical Foundation Layout



Instruction:

1. The inner wall and foundation plane of the cable are plastered with 1:2.5 cement mortar, the thickness is 20, and the surface is smooth;
2. Basic materials: MU10 machine-made brick, M5 cement mortar;
3. The moisture-proof layer is 1:2.5 cement mortar mixed with 5% waterproof powder 20 thick, set at the elevation ± 0.000 ;
4. Beam material C25 concrete, steel bar \varnothing is HPB235 grade, \varnothing is HRB335 grade.
5. The wall panel material is C25 concrete, the steel bar \varnothing is HPB235 grade, and \varnothing is HRB335 grade. The gaps between the through-wall panels and the through-wall holes are sealed with bricks and concrete.
6. After the electrical construction is completed, seal the remaining holes on the wall panel with bricks and cement mortar.
7. This picture is for reference only, please make it by the civil engineering team according to the actual situation on site.

General Description



Renewable energy pad-mounted substations include solar farm and wind farm substations. The purpose is to convert the AC power generated from solar and wind farm into a 35kV / 10kV three-phase AC power through a step-up transformer, and connect to grid operation. The substation includes three parts: LV control cabinet, step-up transformer and HV control switch. A control transformer is installed in the LV compartment converted into mains power to supply power to substation itself.

Model

- Product model: ZGS11-1250/35
- Product name: Pad-mounted Substation
- The highest voltage of the equipment: 40.5kV



Operation Conditions

- Altitude generally does not exceed 1000m
- Ambient temperature range: $-25^{\circ}\text{C} \sim 45^{\circ}\text{C}$
- Outdoor wind speed does not exceed 35m/s
- Pollution grade: III
- Installation location: outdoor

Renewable Energy Pad-mounted Substation



Technical Feature

- Real-time operation condition monitoring, automatic start and stop of dehumidification and exhaust devices.
- Flexible transformer scheme variation according to actual needs.
- Double-layer enclosed thermal insulation structure, with good thermal insulation effect and reliable operation of the equipment.
- The surface of the structure is treated with anti-corrosion to ensure that it will not rust or fade for 20 years of operation.
- Supporting fire monitoring, automatically uploading accident signals.

Technical Data

Main data of solar farm substation

Main components

Transformer Capacity(kVA)	HV Combination and Tap Range			Vector	No-load loss (kW)	load loss (kW)	Impedance (%)
	HV(kV)	Tap Range%	LV(kV)				
500 ~ 6300kVA	35	± 2*2.5%	0.315	Dyn11 Dy11	According to actual needs	According to actual needs	6.5
	36.75		0.27				
	38.5		0.3/0.4				

Main data of HV side

Voltage class(kV)	40.5
Power frequency withstand voltage(kV)	95
Lightning impulse voltage(kV)	200
Rated current(A)	630
Rated short time withstand current and duration(kA)/2s	20
Mechanical life	2000 times
Fuse rated current(A)	40
Melt rated current(A)	40 (1600kVA) 63 (2150kVA, 2280kVA)

Main data of LV side

Rated voltage(V)	400
Rated current(A)	1250, 1600, 2000, 2500, 3200
Rated short time withstand current and duration(kA)/2s	50

Renewable Energy Pad-mounted Substation

Main data of wind farm substation

Main components

Transformer Capacity(kVA)	HV Combination and Tap Range			Vector	No-load loss (kW)	load loss (kW)	Impedance (%)
	HV(kV)	Tap Range%	LV(kV)				
500 ~ 6300kVA	35	± 2*2.5%	0.69	Dyn11 Dy11	According to actual needs	According to actual needs	6.5
	36.75						
	38.5						

Main data of HV side

Voltage class(kV)	40.5
Power frequency withstand voltage(kV)	95
Lightning impulse voltage(kV)	200
Rated current(A)	630
Rated short time withstand current and duration(kA)/2s	20
Mechanical life	2000 times
Fuse rated current(A)	40
Melt rated current(A)	40 (1600kVA) 63 (2150kVA, 2280kVA)

Main data of LV side

Rated voltage(V)	400
Rated current(A)	1250, 1600, 2000, 2500, 3200
Rated short time withstand current and duration(kA)/2s	50

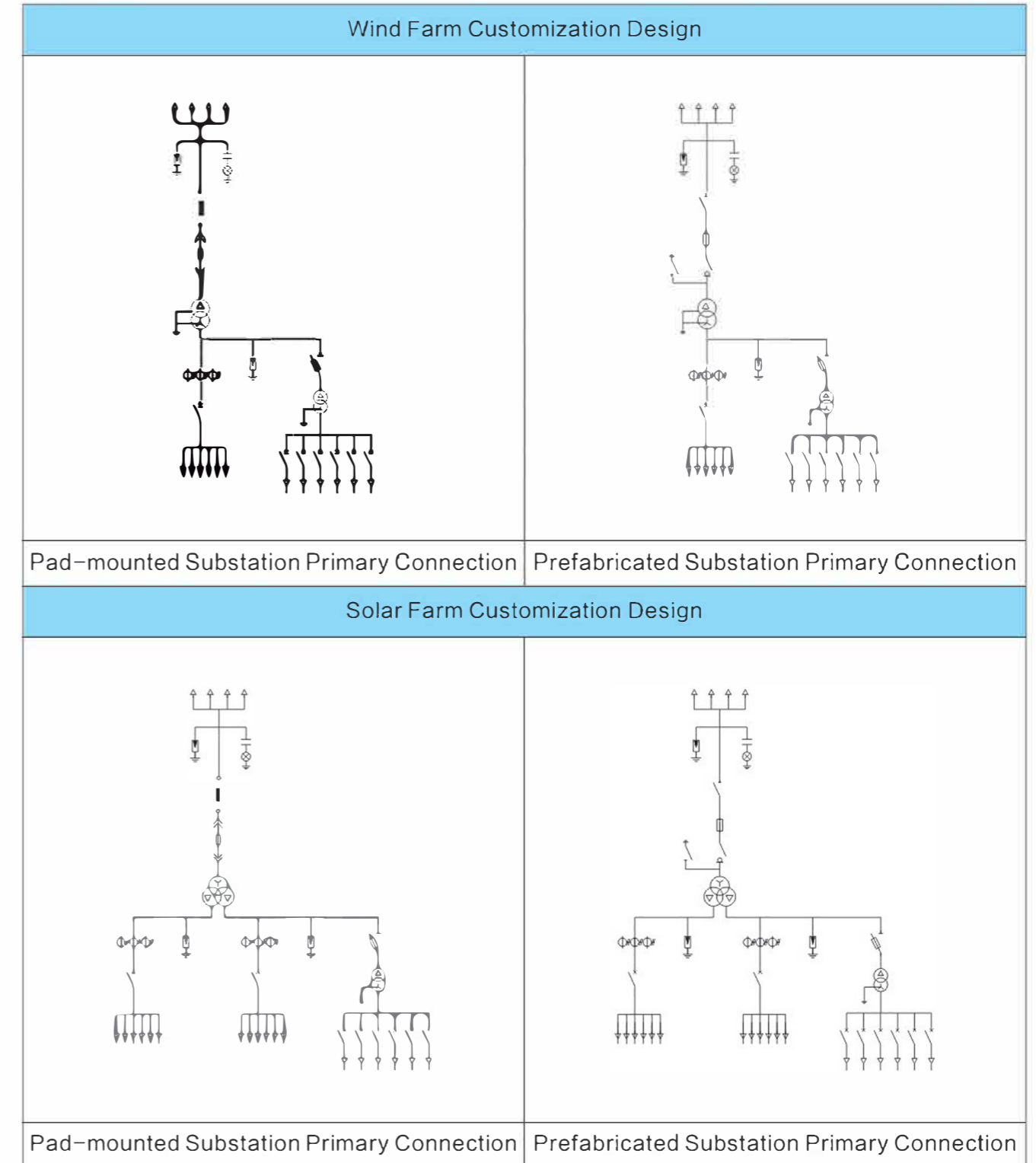


Product Structure Characteristics

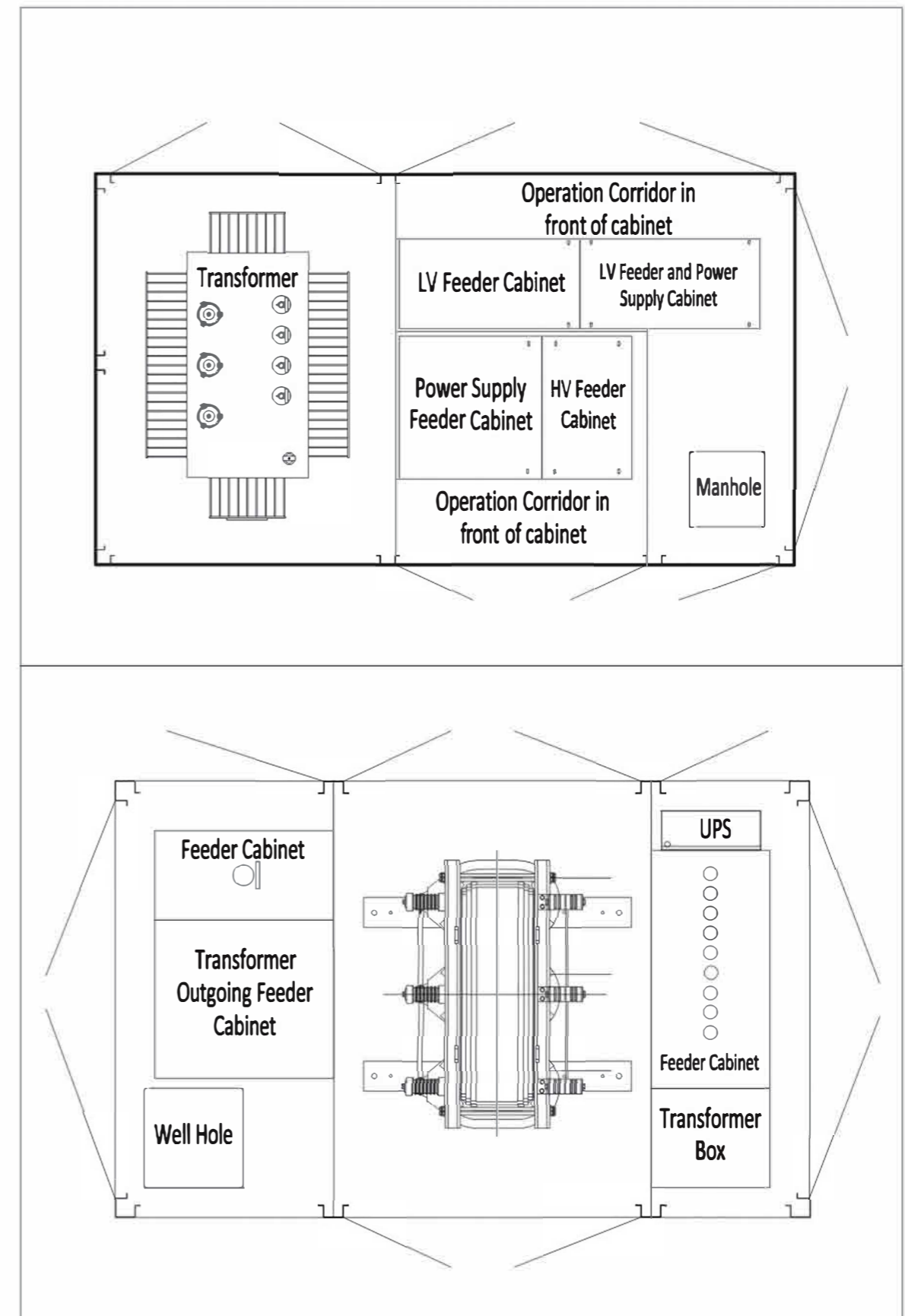
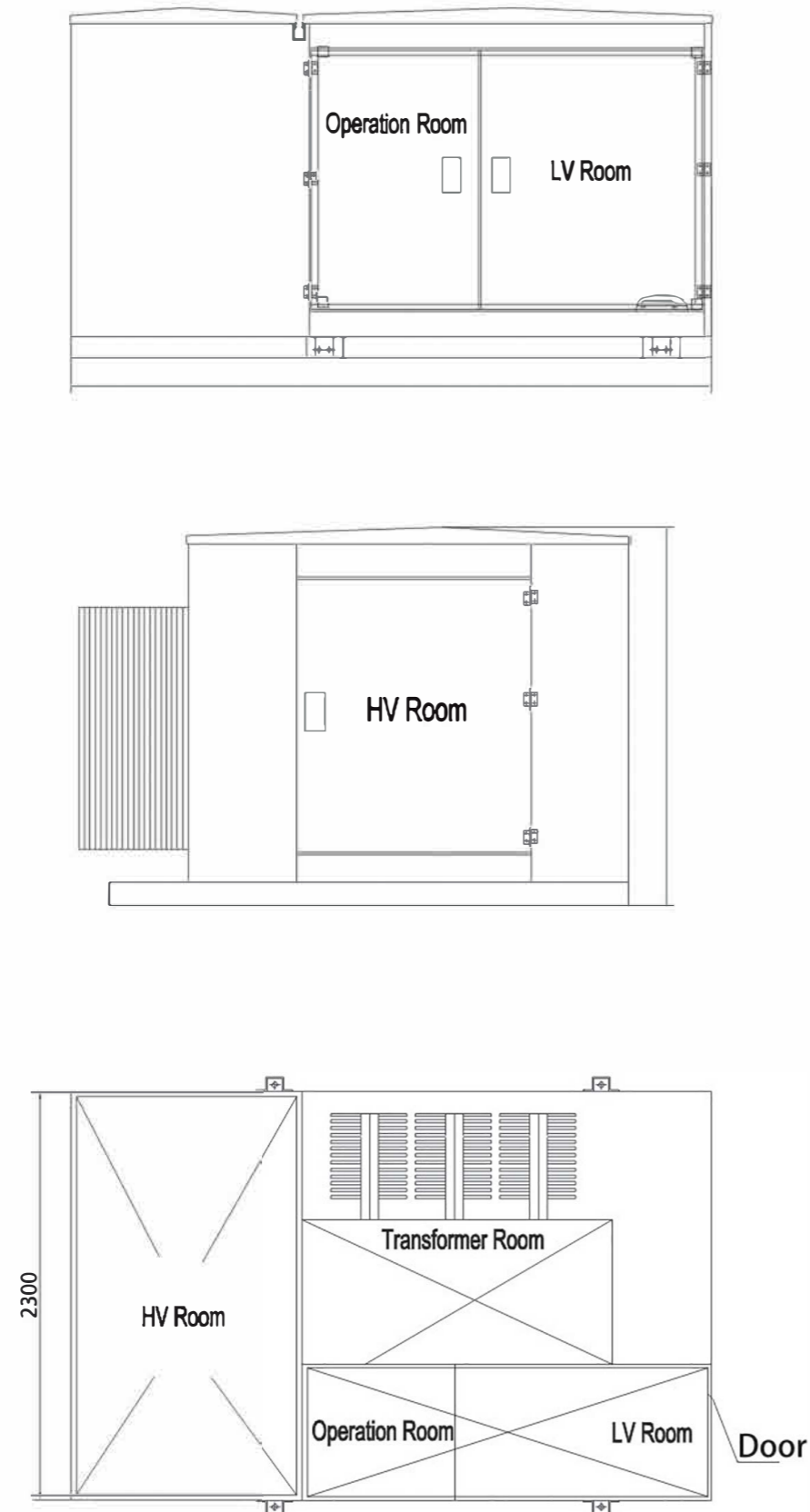
- The structure of the renewable energy pad-mounted substation can be divided into six parts: transformer, high-voltage room, low-voltage room, testing room, switch operation room and fuse room.
- The substation door adopts windproof hinges, and all the doors on the substation enclosure open outward with an opening angle of not less than 90°, and is equipped with a positioning device. The door adopts sealing measures and equipped with door seal which can provide buffer function, handle and concealed latch, which can prevent rain, blocking, rust and damage.
- The substation enclosure is sealed anti-theft structure, using concealed high-strength bolts and oil-resistant nitrile rubber gasket sealing cover, the whole substation enclosure without external leakage removable bolts.
- The load switch and fuse are installed in the transformer oil tank, using the transformer insulating oil as the insulating medium and heat dissipation medium, the whole has the advantages of compact structure and good heat dissipation performance.
- High-voltage side outlet adopts high-voltage dry bushing supporting copper busbar structure, which can facilitate multiple cable connections. Low-voltage side outlet can be directly connected or configured according to user requirements of low-voltage outlet scheme.
- The substation enclosure is made of stainless steel or aluminum zinc coated steel plate, paint adopts baked paint, anti-salt fog, anti-humidity and heat, anti-mold, good weatherability performance, for different operating environments apply different enclosure anti-corrosion technology.



Typical Scheme



▶ Typical Layout(Pad-mounted Substation)





General Description

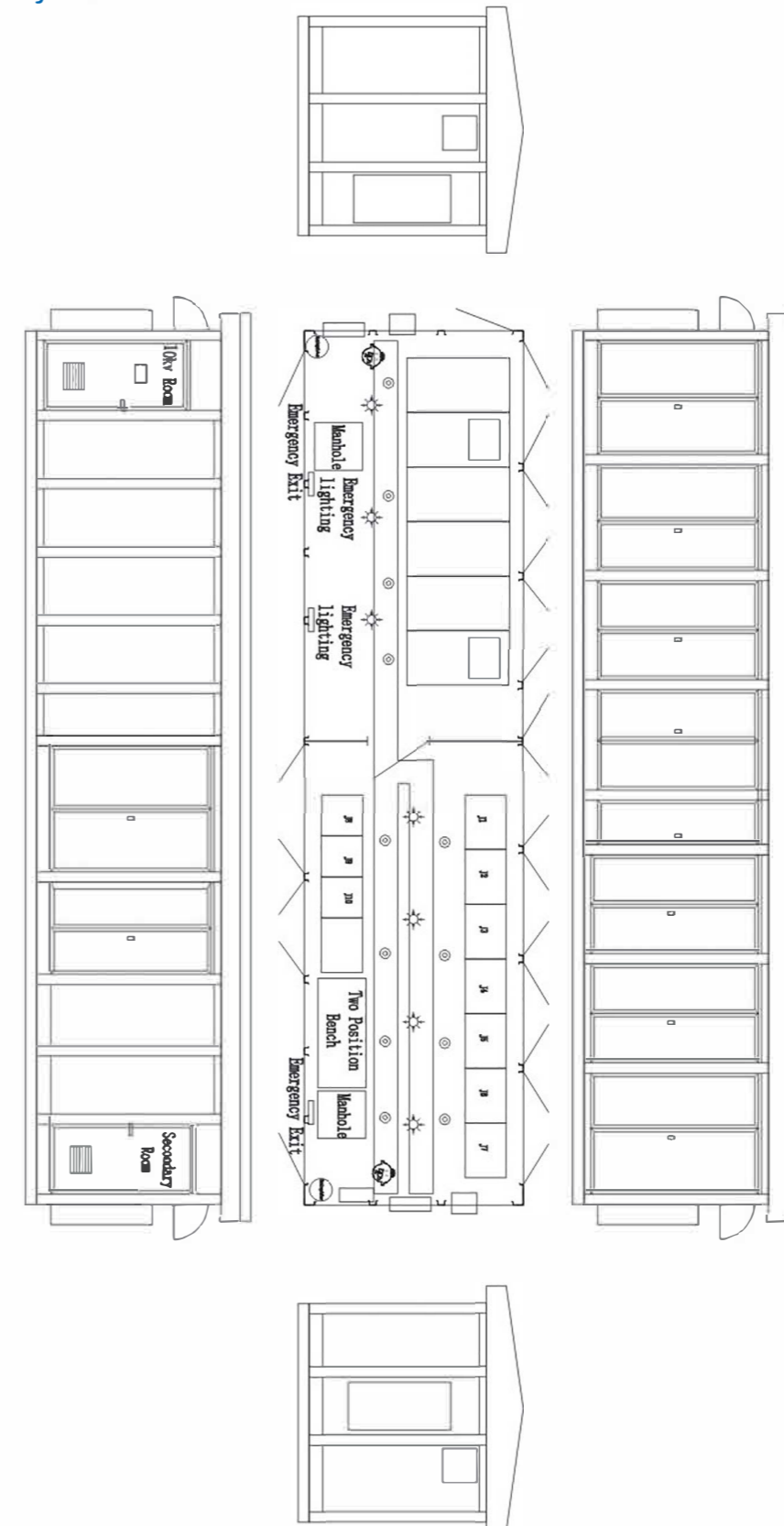
The prefabricated power house is composed of the cabin and internal primary and secondary combined equipment, auxiliary facilities, equipment cabinets (or racks) etc. The cabin can be equipped with fire protection, security, heating, lighting, communication such auxiliary facilities, and complete related wiring, commissioning and other work in the factory, and can be transported to the project site as a whole. Its internal environment meets the operating conditions of the primary and secondary equipment of the substation and the requirements of the on-site operation of O&M personnel.

The engineering application of prefabricated power house meets the construction principles of "standardized design, factory processing, modular construction, and mechanized construction". Therefore, in the new generation of smart substations, traditional buildings are basically replaced by prefabricated power house.

Technical Data

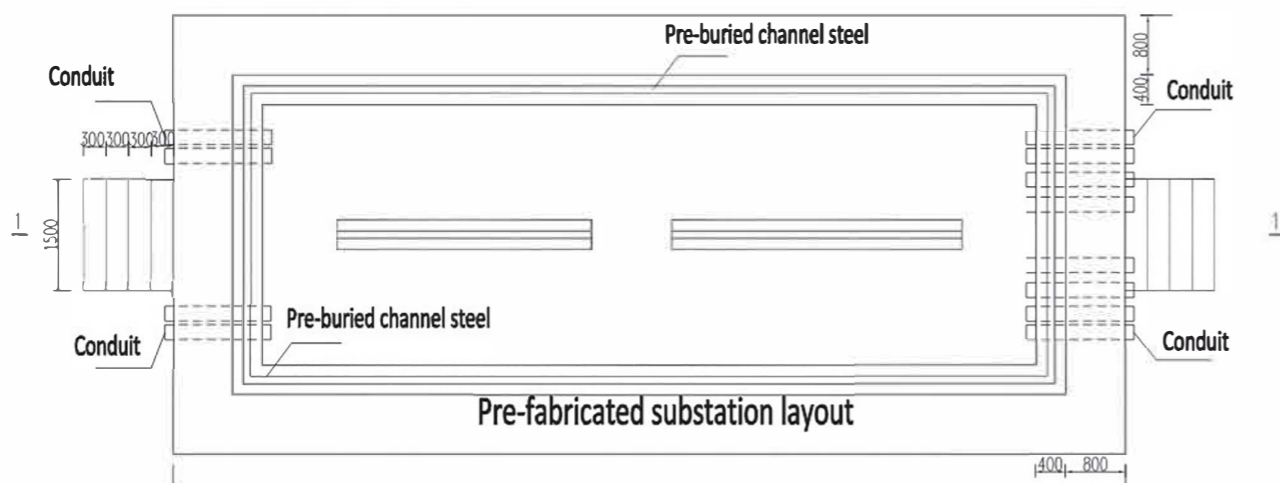
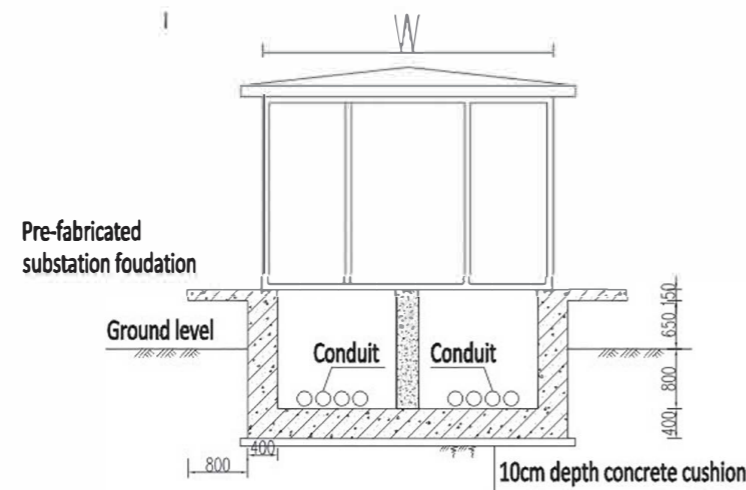
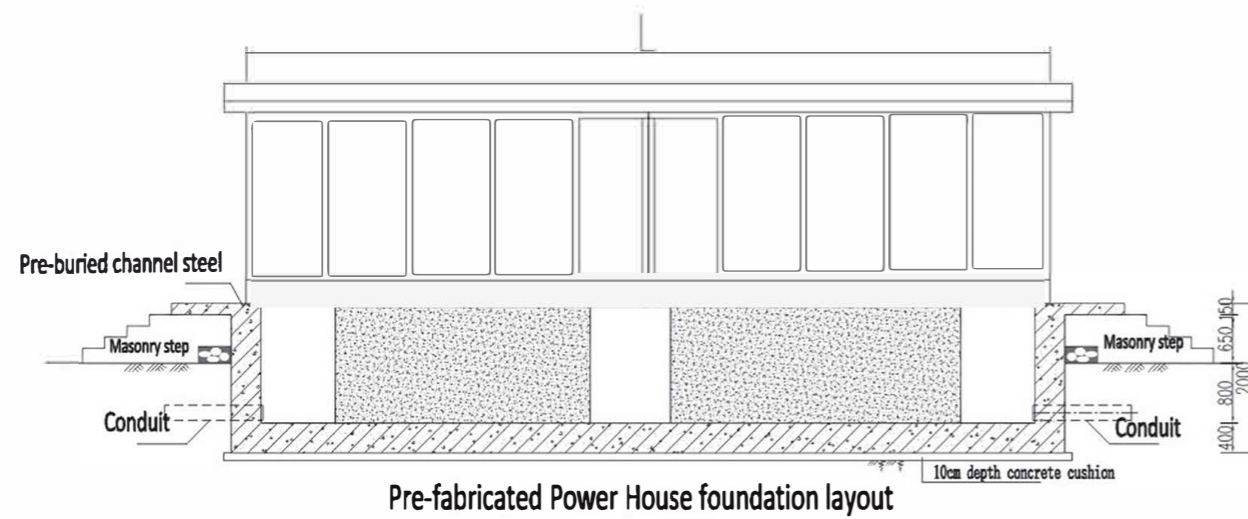
- The cabin adopts a double-layer structure, the outer side adopts corrugated or flat plate, and the heat preservation and flame retardant cotton is added in the middle.
- Complete safety protection, fire alarm and CCTV measures are set up in the prefabricated power house, as well as lighting (system), maintenance (system), earthing (system), etc. (auxiliary protection measures) to ensure the safety of O&M personnel and internal equipment.
- Ceramic anti-static raised floor is used for the floor, and the steel bracket of the raised floor should be fixed on the bilge. The height of the anti-static raised floor is 200-250mm, which is convenient for cable laying and maintenance.
- The lighting fixtures adopts embedded LED light strips, which should be evenly arranged in the corridor and the top of the rear screen.
- The lighting system consists of normal lighting, accident lighting and emergency lighting, and an evacuation indicator with its own battery is provided at the exit.
- At least one distribution box is installed for lighting and power supply.
- Embedded industrial air conditioner and fan are used to realize temperature regulation and ventilation.
- An emergency escape door is set up, ensuring the safety of O&M personnel.

Typical Layout



Step-up Switchyard Prefabricated Power House

Compact Transformer



Instruction:

1. All label dimension in this drawing is mm;
2. Concrete grade: Prefabricated substation foundation concrete is C25W4F200, plain concrete cushion is C10;
3. Conduit and earthing steel flat is determined by design institute.



General Description

This series of products are indoor miniaturized and compact substations, which are widely used in car charging projects, especially designed for special occasions in underground garages. Suitable for residential quarters, high-rise buildings, commercial buildings, railway stations, airports and other indoor places.

Compared with traditional prefabricated substation:

1. The traditional substation is on ground, and the power supply radius of the low-voltage cable is too long;
2. The underground garage space is tight, except for the pipeline space, the net height is 2.4 meters, and the normal prefabricated substation change cannot enter;

Advantages of compact substation:

The height is short, the area is small, and the structure is compact. It can be assembled on site for separate transportation, and can meet the power distribution requirements of electric vehicle charging station in underground garages.

Typical Configuration

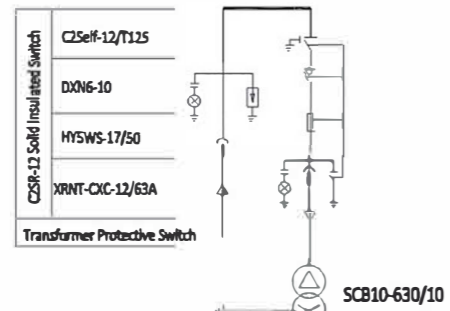
Capacity	Dimension	Configuration		
		HV unit	Transformer	LV unit
≤630kVA	2400 × 2000 × 1950	Solid Insulated Breaker	SCB10	1 ACB(2000A), 6 nos of MCCB (400A), 30% SVC
				1 ACB(2000A), 9 nos of MCCB (250A), 30% SVC
≤1250kVA	2400 × 2600 × 1950	Solid Insulated Breaker	SCB10	1 ACB(2000A), 16 nos of MCCB (400A), 30% SVC
				1 ACB(2000A), 22 nos of MCCB (250A), 30% SVC

Compact Transformer

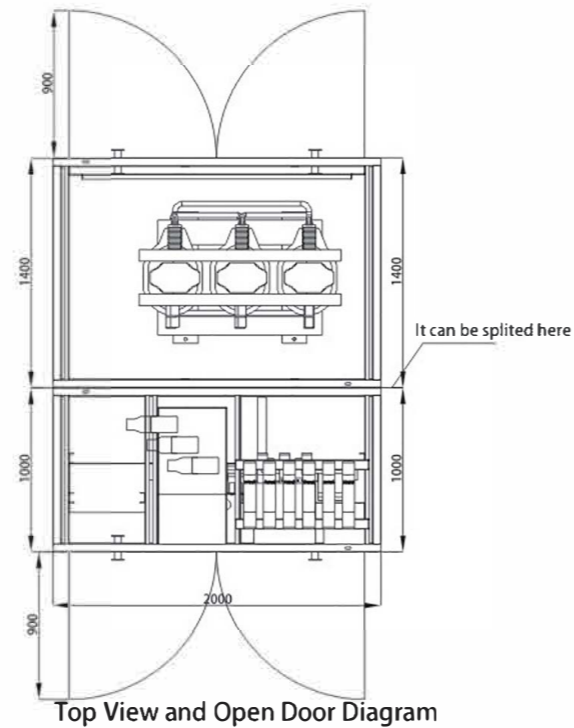
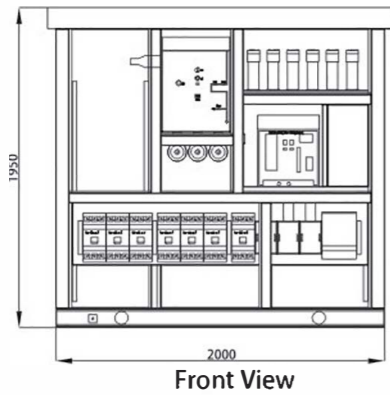


Typical Scheme

System and Layout of Economical Scheme

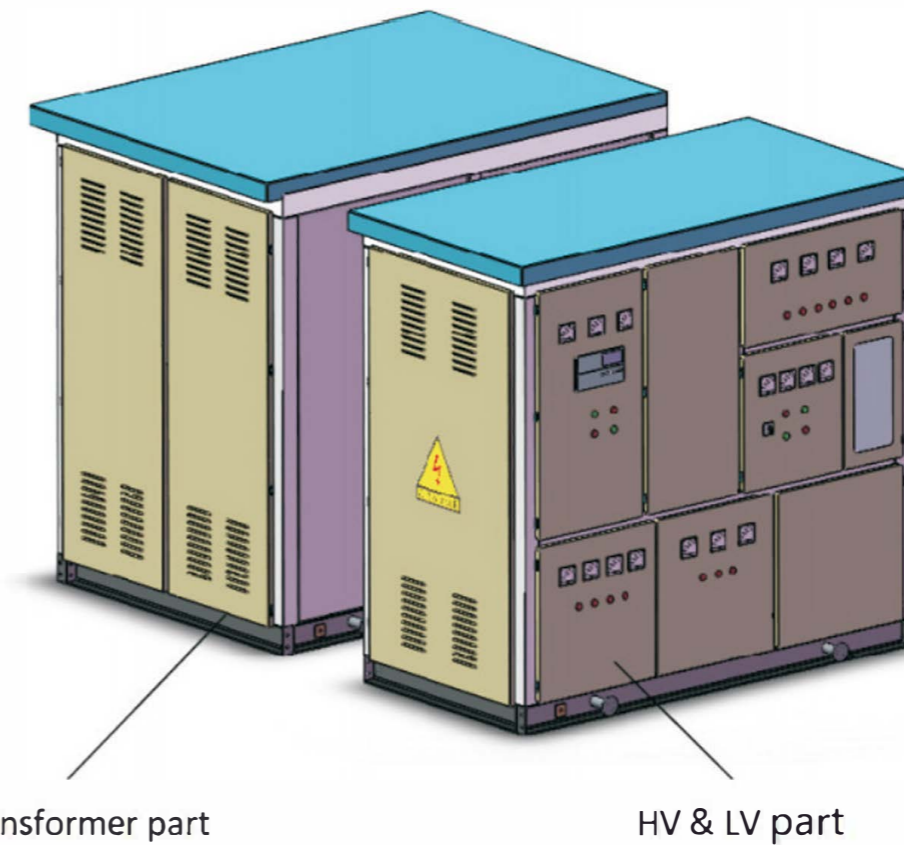
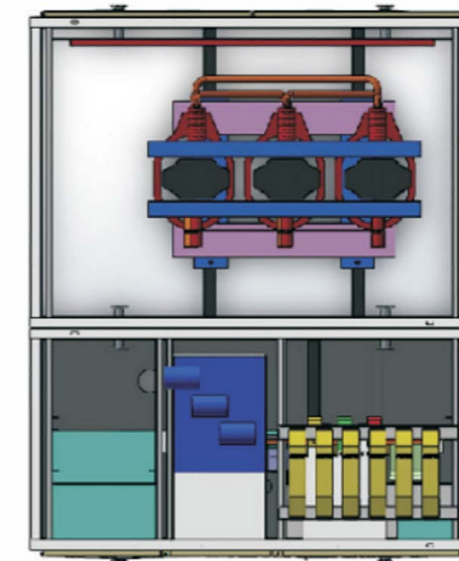


Ser.no	C3S-D-12/630 Compact Prefabricated Substation Dimension: 2000*2400*1950mm						
Main Bus Position Primary Connection Scheme TMY- (50*5)							
Device Type and Model	Incoming Feeder	Capacitor	Outgoing Feeder				
Smart Circuit Breaker TGM4S-2000/3	1250A						
MCCB TGM1-400/3		C3A-400/31	400A	400A	400A	400A	400A
Current Transformer BH-0.66	(800/5 0.2)*3 (1000/5 0.5)*4	(400/5A)*3	400/5A	400/5A	400/5A	400/5A	400/5A
Smart Capacitor 6SMU-U.45		(20.10)*6					



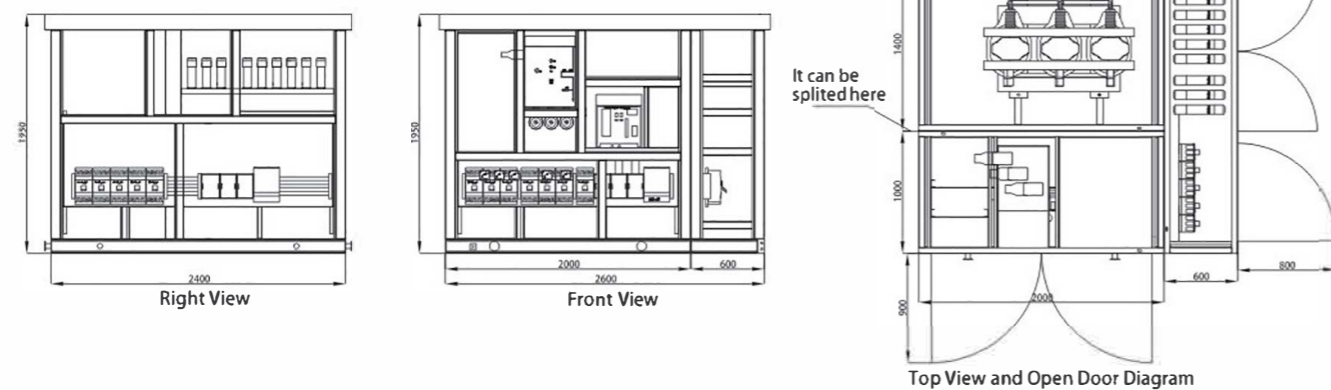
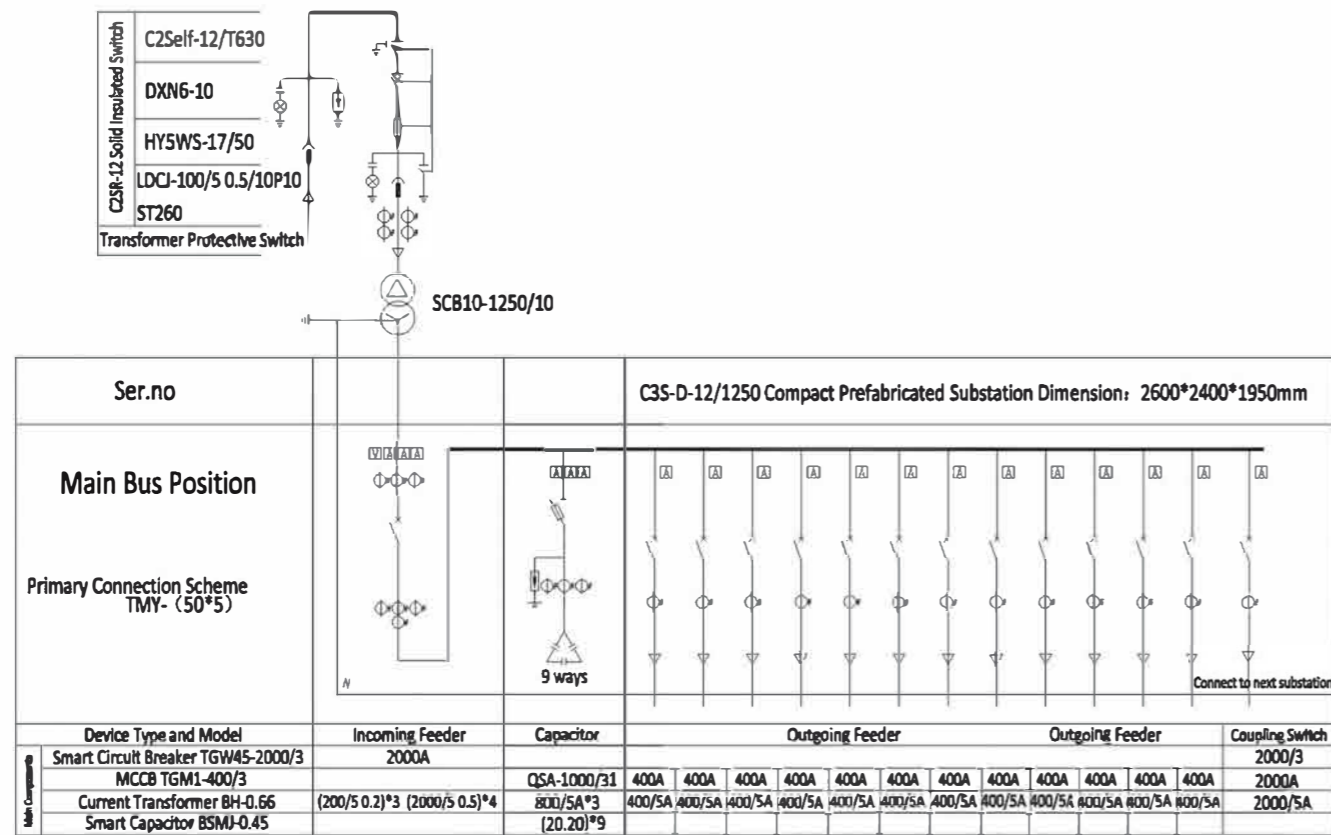
Compact Transformer

Three Dimension Simulation of Economical Scheme



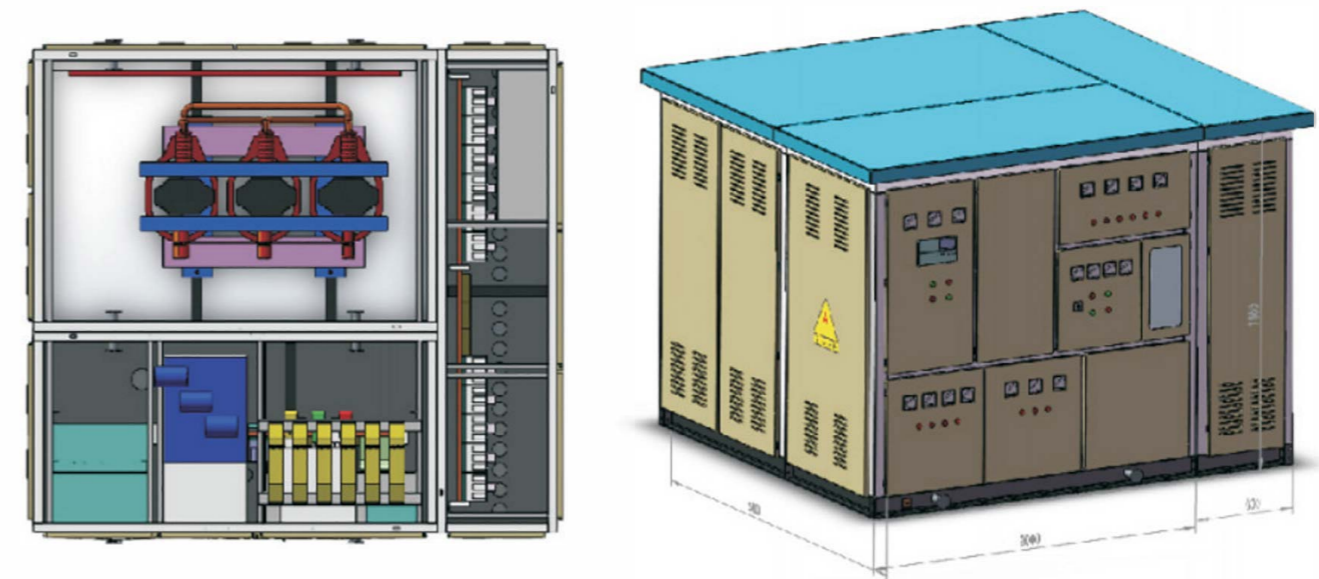
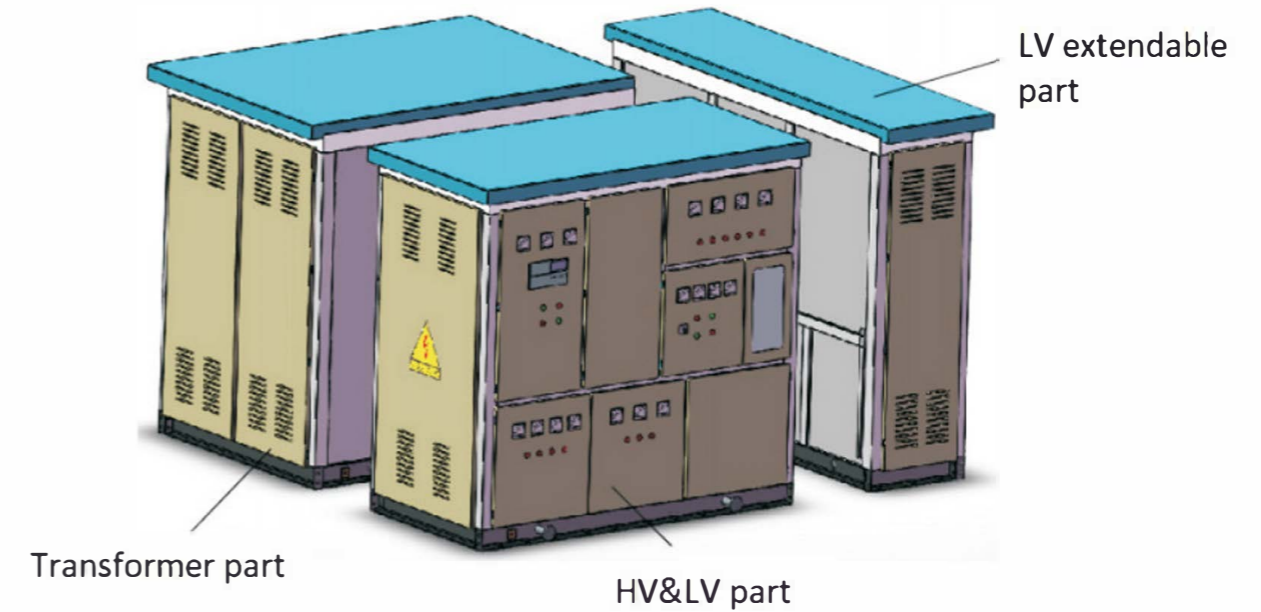
Compact Transformer

System and Layout of Extendable Scheme



Compact Transformer

Three Dimension Simulation of Extendable Scheme



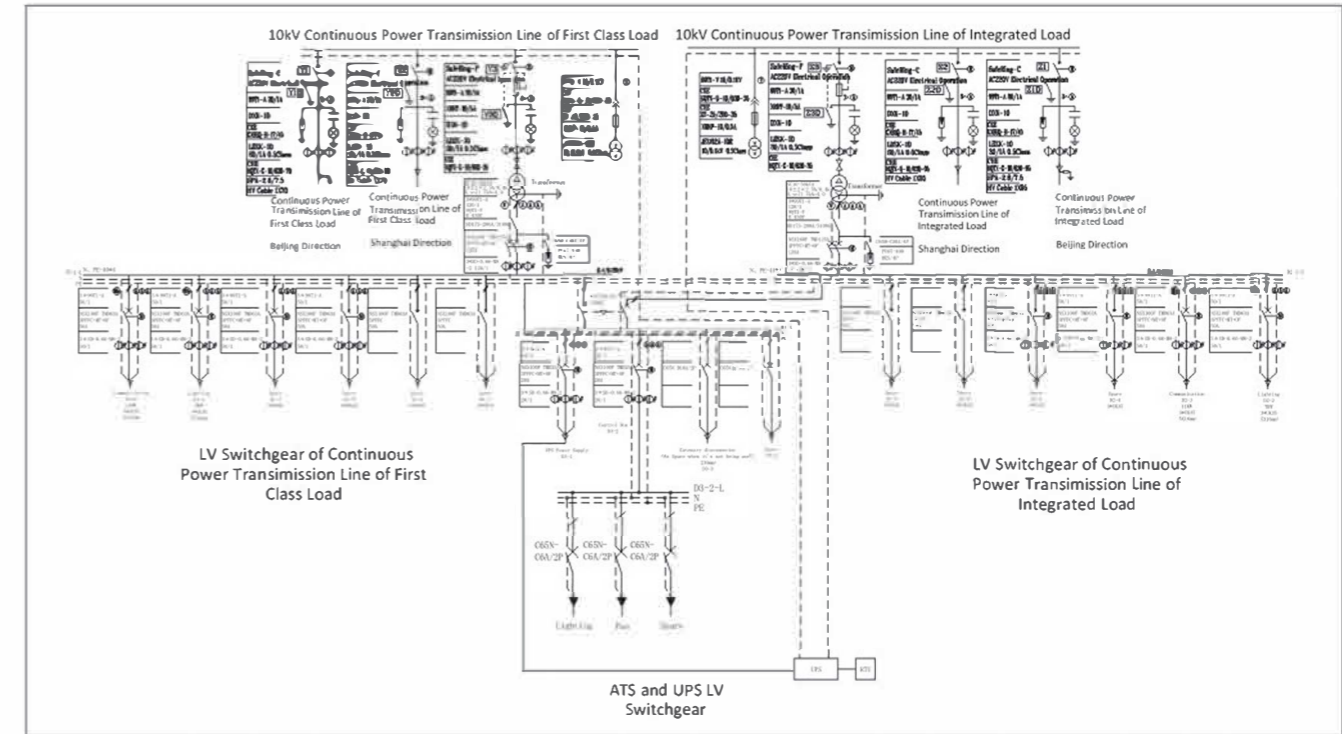


General Description

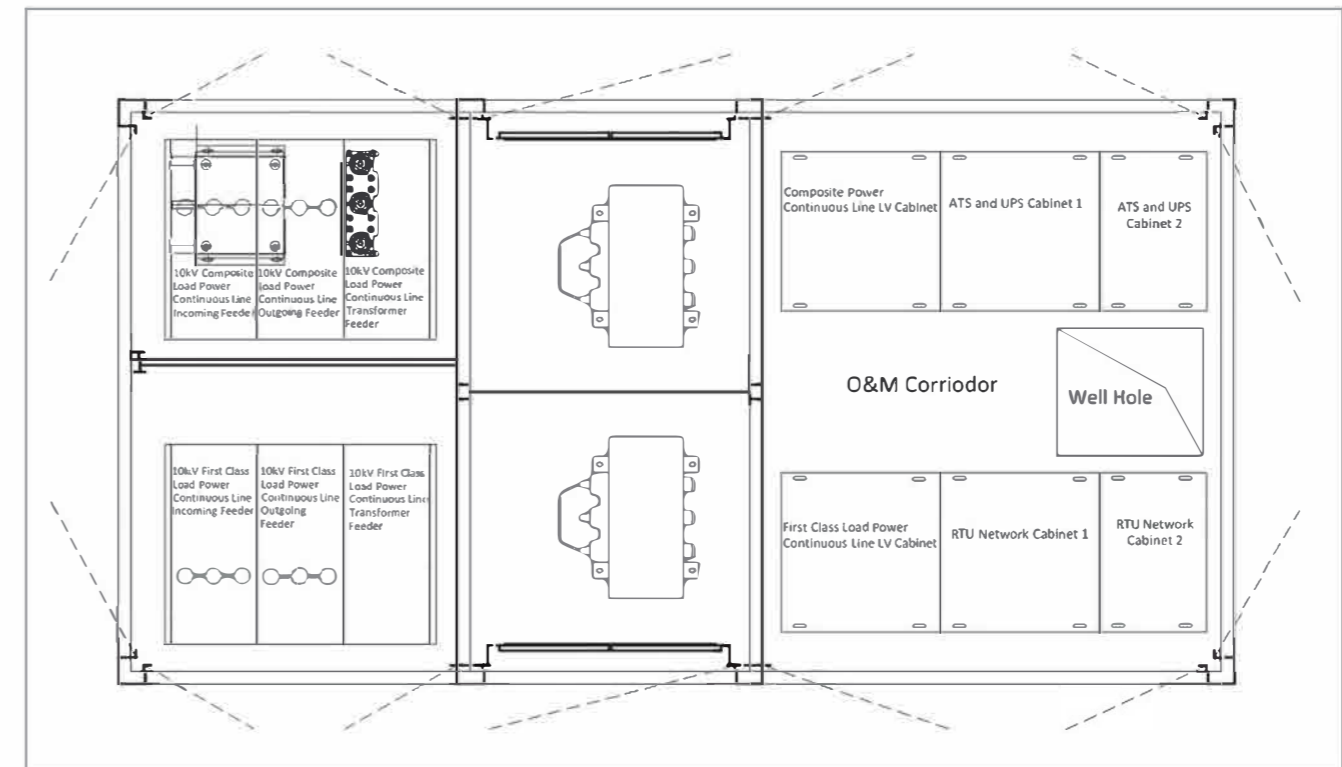
This series of products is a new type of product specially developed and designed for railway systems according to the characteristics of automatic blocking of railways and continuous power supply lines. The railway power supply prefabricated substation has the characteristics of primary and secondary system integration, modular assembly, factory-like construction, and simplified construction (etc.). The maintenance is centralized and simple, the structure is compact, safe and reliable, the function extendable space is large, and it is immune to bad environment condition.



Typical Scheme



Typical Layout



IEC Certification and Type Test



Test Report	China National Center for Quality Supervision and Inspection Test of Electrical Apparatus Products	
1. Sample parameters	Type: YB(H)-40.5/0.69-6300	Performed station: ...
	Internal arc designation: IAC-AB-31.5kA-0.5s	Rated class of internal arc: ...
	Frequency: 50Hz	Weight: 19300kg
	Serial number: 202102116	
2. Test standards	GB/T17467—2020 High-voltage/low-voltage prefabricated substations IEC62271-202: 2014 High-voltage switchgear and controlgear Part 2 prefabricated substation	
Commission requirements		
3. Sample description		
3.1 Transformer	Manufacturer: Shijiazhuang Kelin Electric Co.,Ltd. Type: S13-6300/35 Rated power: 6300kVA Rated voltage: 38.5/0.69kV Rated current: 94.48/5271.5A Tapping ranges: ±2×2.5% Rated frequency: 50Hz Cooling method: ONAN Connection symbol: Dyn11	
3.2 High-voltage switchgear	Manufacturer: Jiangsu Yunfeng Electric Equipment Co.,Ltd. Type: YFGZ35-40.5D/T1250-31.5	
3.3 Conventional circuit-breaker	Manufacturer: Zhejiang CHINT Electrics Co.,Ltd. Type: NA1-6300	

شهادة – Сертификат – 證明書 – Certificat – 증명서 – شهادة

Form QAT_10-M05, version 00, effective since March 25th, 2020

Certificate of Compliance

No. 6G220412.SKEUC74

Certificate's Holder: Shijiazhuang Kelin Electric Co., Ltd.
Nanjiangbi, Hongqi Street, Luquan District, Shijiazhuang City, Hebei Province, China

Certification ECM Mark:

Product: Prefabricated Substation (Prefabricated Cabin)
Model(s): YB(H)-40.5/□-1000kVA~6300kVA, ZGS-40.5/□-1000kVA~3500kVA, YB□-12/□-315kVA~2500kVA, YZB(C)-□

Verification to: Standard: EN 62271-202-2015, IEC 62271-111:2012, IEC 60694-2002, IEC 60439-1-2004, BS EN 61000-4-5-2014+A1-2017
related to CE Directive(s): 2014/30/EU (Electromagnetic Compatibility)

Remark: This document has been issued on a voluntary basis and upon request of the manufacturer. It is our opinion that the technical documentation received from the manufacturer is satisfactory for the requirements of the ECM Certification Mark. The conformity mark above can be affixed to the products accordingly to the ECM regulation about its release and its use.

Additional information and clarification about the Marking:
 The manufacturer is responsible for the CE Marking process, and if necessary, must refer to a Notified Body. This document has been issued on the basis of the regulation on ECM Voluntary Mark for the certification of products. RG01_ECM rev.3 available at: www.entecerma.it

Issuance date: 12 April 2022
Expiry date: 11 April 2027

Reviewer: Technical expert Amanda Payne
Approver: ECM Service Director Luca Bedonni

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شهادة – Сертификат – 證明書 – Certificat – 증명서 – شهادة

Form QAT_10-M04, version 00, effective since March 25th, 2020

Certificate of Compliance

No. 3N211022.SKEQO06

Certificate's Holder: Shijiazhuang Kelin Electric Co., Ltd.
Nanjiangbi, Hongqi Street, Luquan District, Shijiazhuang City, Hebei Province, China

Certification ECM Mark:

Product: Prefabricated Substation (Prefabricated Cabin)
Model(s): YB(H)-40.5/□-1000kVA~6300kVA, ZGS-40.5/□-1000kVA~3500kVA, YB□-12/□-315kVA~2500kVA, YZB(C)-□

Verification to: Standard: (see the following annex)
related to CE Directive(s): 2014/34/EU (Equipment for Explosive Atmospheres)

Marking: IIG Ex O IIC T6 Gb

Remark: This document has been issued on a voluntary basis and upon request of the manufacturer. It is our opinion that the technical documentation received from the manufacturer is satisfactory for the requirements of the ECM Certification Mark. The conformity mark above can be affixed to the products accordingly to the ECM regulation about its release and its use.

Additional information and clarification about the Marking:
 The manufacturer is responsible for the CE Marking process, and if necessary, must refer to a Notified Body. This document has been issued on the basis of the regulation on ECM Voluntary Mark for the certification of products. RG01_ECM rev.3 available at: www.entecerma.it

Issuance date: 22 October 2021
Expiry date: 21 October 2026

Reviewer: Technical expert Amanda Payne
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شهادة – Сертификат – 證明書 – Certificat – 증명서 – شهادة

Form QAT_10-M05, version 00, effective since March 25th, 2020

Certificate of Compliance

No. 6G220412.SKEUC74

Certificate's Holder: Shijiazhuang Kelin Electric Co., Ltd.
Nanjiangbi, Hongqi Street, Luquan District, Shijiazhuang City, Hebei Province, China

Certification ECM Mark:

Product: Prefabricated Substation (Prefabricated Cabin)
Model(s): YB(H)-40.5/□-1000kVA~6300kVA, ZGS-40.5/□-1000kVA~3500kVA, YB□-12/□-315kVA~2500kVA, YZB(C)-□

Verification to: Standard: EN 62271-202-2015, IEC 62271-111:2012, IEC 60694-2002, IEC 60439-1-2004, BS EN 61000-4-5-2014+A1-2017
related to CE Directive(s): 2014/30/EU (Electromagnetic Compatibility)

Remark: This document has been issued on a voluntary basis and upon request of the manufacturer. It is our opinion that the technical documentation received from the manufacturer is satisfactory for the requirements of the ECM Certification Mark. The conformity mark above can be affixed to the products accordingly to the ECM regulation about its release and its use.

Additional information and clarification about the Marking:
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Issuance date: 12 April 2022
Expiry date: 11 April 2027

Reviewer: Technical expert Amanda Payne
Approver: ECM Service Director Luca Bedonni

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International Project reference



Client Organization	Project Name	Product Name	Quantity
Century Compact Transformer & Switch Gear Manufacturing Plc	Ethiopia	Prefabricated Substation	95
Chenguang Quzhou County Trading Co., Ltd.	Zambia	Prefabricated Substation	2
China Power Construction Group Chengdu Survey, Design and Research Institute Co., Ltd.	Bosnia and Herzegovina Hydroelectric Power Station	Prefabricated Substation	20
China Power Construction Group Overseas Investment Co., Ltd.	Central Myanmar Photovoltaic Project Group Jingda, Xida, Xuejing 33kV Box-type Substation Equipment Procurement	European-style prefabricated substation	22
Chenguang Quzhou County Trading Co., Ltd.	Zambia	Prefabricated Substation	1
Chenguang Quzhou County Trading Co., Ltd.	Zambia	Prefabricated Substation	2
Dongfang Electric Corporation International Cooperation Co., Ltd.	Nigeria Maiduguri University Biomass-Solar Hybrid Project	Prefabricated Substation Transformer 2500KVA	15
Dongfang Electric Corporation International Cooperation Co., Ltd.	Nigeria Kaduna National Defense University Biomass-Solar Hybrid Project	Prefabricated Substation Transformer 1250KVA	7
SINOHYDRO Bureau 11 Co., Ltd	Compact Substation for the Lesotho Highlands Diversion Project Phase II Project	Prefabricated Substation Transformer 1250KVA Compact Substation 1250KVA	34
Poly New Energy Technology (Beijing) Co., Ltd.	Latin America 12MW Photovoltaic Power Station Supply Project	Integrated Automation, Complete Set, Prefabricated Substation	1