

Switchgear Panels

HUAYI ELEC. APPARATUS GROUP CO., LTD.

New power, a wonderful human dream in science and technology, will create a brilliant future for human civilization and lend an impetus to its leap-forward development.





Brief Introduction

Huayi Electrical Apparatus Group Co., Ltd. (hereinafter referred to as HEAG), was founded in 1986 with total investment of RMB 40,000.00, and was promoted to a group company in 1997. HEAG now has become an inter-province, inter-industry enterprise group comprised of 7 core subsidiaries, 5 joint venture companies and over 100 member enterprises, which centers on wind power and high voltage apparatus, and diversifies into areas such as low voltage apparatus, real estate, chemical industry and tertiary industry. The company is national designated manufacturing enterprise of L.V. & H.V. switchgear and the key hi-tech enterprise listed in State Torch Project, also ranks China's Top 500 Private Enterprises, China's Top 500 Enterprises in Machinery Industry, China's Top 100 Growth Enterprises, China's Top 100 Enterprises in Electric Industry, China's Top 10 Leading Enterprises in Electric Apparatus Manufacturing, etc.. It mainly produces 252kV and below switchgears, automation distribution switches and terminal devices, high voltage switch components, static energy meters, wind power equipments and so on. Hereinto, outdoor high voltage vacuum circuit breakers are recommended as "National Key Promoting New Products" by the former Power Ministry, its market share in China is above 25% and its production and sales continuously have been No.1 in the domestic market for seven years. On Feb. 1st, 2007, one of HEAG's core subsidiaries, Huayi Electric Co., Ltd. successfully got listed on Shanghai Stock Exchange, and became the the first private enterprise listed on the Main Board in Wenzhou city.



Huayi Office Block



Huayi Plant in Shanghai



Process Facilities

High quality of Huayi's products are powerfully supported by advanced technology and processing facilities, world-leading automatic producing line, strict craftwork managing, experienced worker and precise quality control & testing system.



Power Frequency Withstand Test Device



MURATA CNC Multi-stations Punch Press



BEILE CNC Plate shearer



ing Machine



MURATA CNC Bender



Exact Processing Center



Switchgear panels:

As a representative in the field of HV switchgear in China, HEAG continues to engage in R&D and improvement of the Outdoor Transmission & Distribution system, to concentrate on providing the users a complete integrated program of the Transmission & Distribution system from planning to service; as well as working out systematic solutions for power generation and distribution, power controlling and consuming.

HEAG is one of the esteemed enterprises with the most numerous in variety in HV apparatus field in domestic China by having had the systems of HV & LV complete-set switchgears, Transmission & Distribution equipments, wind power generator, HV component equipments, etc.

The outdoor Distribution & Transmission products have played an important role in those projects as: NeiKun Railway (The first railway with automation distribution network), Handan city network distribution automation project, Xi'an City Games Village, Changsha He Long Stadium Centre, etc. As well as some of the products are functioning properly in Lhasa at 4500 metres above sea level.

Cooperation Projects



A ceremony for signing the contract of technical transfer between TOSHIBA Corporation Japan and HEAG



A ceremony for signing the agreement of technical cooperation between ILJIN company Korea and HEAG



Tender contract signed by BPDP, Bangladesh and HEAG



HEAG Switchgear in Guangzhou university town



HEAG circuit breaker in Neikun railway electrification

Qualification and Certificate



ISO9001 Certificate



ISO14001 Certificate



KEMA Certificate



Certificate for Switchgear Panel from Kazakhstan



Verification of LVD & EMC Compliance



Well-known Mark



SCHNEIDER Technology And BusinessPartner



Petrochina Membership Certificate

1	KYN61-40.5 Removable AC Metal-clad Switchgear
3	KYH1-40.5 Model Removable AC Metal-clad Switchgear
6	KYH1-24 Removable AC Metal-clad Switchgear
9	KYN28-12 Removable AC Metal-clad Switchgear
11	KYN28C-7.2/12(J.R)/31.5-40 Armoured Removable AC Metal-clad Switchgear
14	KYN96-12 (AMS) Metal-clad Switchgear
16	KYN18-12 Removable AC Metal-clad Switchgear
18	Mvnex-12 Removable AC Metal-clad Switchgear
20	KGN□-12 Fixed Metal-clad Switchgear
23	KGN8-12 Fixed Metal-clad Switchgear
26	XGN66A-12 AC Fixed Type Metal-clad Switchgear
28	XGN36-12 (DXG-12) AC Fixed Type Metal-clad Switchgear
30	XGN2-12(G) Fixed Type Metal-clad Switchgear
34	XGN(W)74-12 HV Switchgear Metal-clad AC Ring Main Unit
37	HXGN11-12 HV Switchgear Metal-clad AC Ring Main Unit
39	HXGN15-12L HV Switchgear Metal-clad AC Ring Main Unit
41	MNS Low Voltage Withdrawable Switchgear
42	GCS Low Voltage Withdrawable Switchgear
44	GCK Low Voltage Withdrawable Switchgear
46	GGD Low Voltage Switchgear
48	MCS Intelligent LV Withdrawable Switchgear
50	Prisma
52	Blokset
55	HGBD Fixed-Separated Type Low Voltage Switchgear
57	HYDJ1 Capacitor Compensate Cabinet
59	XBK CJ Low Voltage Integrated Distribution Box
60	XL-21(G) Low Voltage Power Panel
62	GZD(W) Micro-computer DC Power Supply Panel
66	HYJ1/S Three Phase Emergency Power Supply(power and illumination)
68	HYJ1/P Frequency-conversion Three-phase Emergency Power Supply
70	HYDB1 Power Distribution Box (Single Door)
71	YB□-40.5(12)/0.69 Wind Power Special Compact Substation
74	YB Series European Style Compact Substation
76	ZBW Series Combination Compact Substation
80	YBZ□-12 Intelligent Compact Substation
82	ZXB Series Intelligent Railway Signal Double Power Compact Substation
83	YB□ American Type Compact Substation
86	DFW-12 Cable Distribution Box

KYN61-40.5 Removable AC Metal-clad Switchgear

Summary

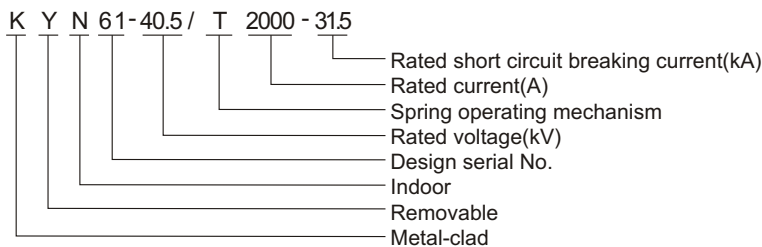
KYN61-40.5 removable AC metal-clad switchgear (short for switchgear as below) applies to 40.5kV, 3 phase, AC and 50/60Hz electrical power network for receiving and distributing power energy and also for control, monitor and protection. It is applicable in general power system and occasions with frequent operation. The product conforms to GB3906: 3~35kV AC Metal Enclosed Switchgear, IEC60694 & GB/T11022: The common technical clauses of HV Switchgear and controlgear Standard, DL/T404-1997: Order Technical term of Indoor AC HV Switchgear and IEC62271-200 1~52kV AC Metal Enclosed Switchgear and controlgear standard.



Ambient condition

1. Ambient temperature: -10°C~40°C, daily average: ≤35°C;
2. Altitude: ≤1000m;
3. Relative humidity: daily average ≤95%, monthly average ≤90%;
4. Earthquake intensity: ≤8 degree;
5. Applicable occasions should be free from corrosives, inflammables and vapour.

Model



Product feature

The switchgear is an assembly unit and the circuit breaker adopts handcart floor model. It owns simply change and well exchange after equipping with advanced composite insulation vacuum circuit breaker. Lead screw nut propulsion mechanism is installed in the handcart frame for preventing from fault operating and damaging propulsion mechanism, the handcart can be remove easily; All of the operation steps can be carried out at closing condition; It is compulsory locking among main switch, handcart and panel door to meet five protection; wide space for connecting several cable in cable cubicle. Earthing switch is used in earthing and loop short circuit, protection degree of enclosure is IP3X, IP2X under opening condition.

Technical specification

No.	Item	Unit	Data	
1	Rated voltage	kV	40.5	
2	Rated current	A	630, 1250, 1600, 2000, 2500	
3	Rated frequency	Hz	50/60	
4	Rated short circuit breaking current	kA	25, 31.5	
5	4s rated short time withstand current	kA	25, 31.5	
6	Rated short circuit making current (peak)	kA	63, 80	
7	Rated peak withstand current(peak)	kA	63, 80	
8	Insulation level	Rated lightning impulse withstand voltage	kV	185(across open contacts: 215)
		Main circuit 1min P.F withstand voltage	kV	95(across open contacts: 110)
		Auxiliary circuit 1min P.F withstand voltage	kV	2
9	Outline dimension(W × D × H)	mm	1400(1200) × 2800 × 2600	
10	Protection degree		IP3X(compartment IP2X)	

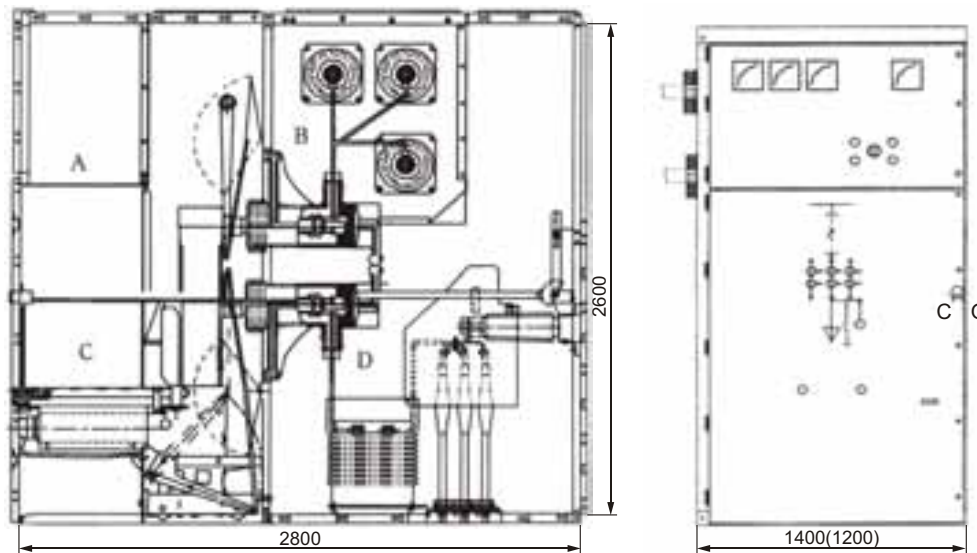
ZN85-40.5 VCB Primary Technical Parameters

No.	Item	Unit	Data
1	Rated voltage	kV	40.5
2	1min power frequency withstand voltage(virtual value)	kV	95
3	Lightning impulse withstand voltage (peak)	kV	185
4	Rated frequency	Hz	50/60
5	Rated current	A	630, 1250, 1600, 2000, 2500
6	Rated short time withstand current	kA	25, 31.5
7	Rated peak withstand current	kA	63, 80
8	Rated short circuit continuous time	s	4
9	Rated short circuit breaking current	kA	25, 31.5
10	Rated short circuit making current	kA	63,80
11	Rated operation sequence		O-0.3s-CO-180s-CO
12	Breaking time	ms	≤80
13	Rated short circuit breaking current breaking times	Times	20
14	Single capacitor breaking current	A	630
15	Back to back capacitor bank breaking current	A	400
16	Rated operating voltage	V	AC/DC 110/220
17	Mechanical life	Times	10000

Structure feature

The switchgear divides into enclosure and handcart, the enclosure is made of aluminium-zinc plated steel sheet after processed by CNC machine and multi-bending, then is assembled with bolts. So it has strong mechanical strength and can guarantee the neatness and good appearance. It consist of relay compartment, handcart compartment, cable degree is IP2X when CB handcart is on opening and testing position.

The switchgear is metal-clad removable, main circuit adopts composite insulation processing, emergency spreading to other parts. CT and earthing switch are mounted in cable compartment and busbar compartment. The protection degree of enclosure is IP3X, the protection and large space for several cables. The structural design of new completely insulated VCB or SF6 CB and spring operating mechanism is integrated console model with such excellence of well exchange and simply change.



KYN61-40.5 Structure Drawing

KYH1-40.5 Model Removable AC Metal-clad Switchgear

Summary

KYH1-40.5 model Metalclad Centered Metal-enclosed Switchgear (hereinafter referred to as switchgear) is a new product independently designed and developed by HEAG group after absorbing international advanced technology. The product has the outstanding advantages.

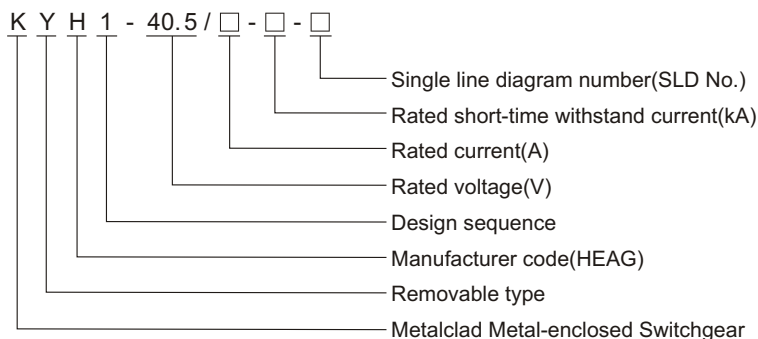
The switchgear applies to three phase power system of rated voltage 24~40.5kV AC 50Hz(or 60Hz) for receiving and distributing power energy, and also for circuit control, monitor and protection. It can be used in single-busbar system and single-busbar section system.



Ambient condition

1. Environmental ambient temperature: +40°C~-15°C, daily average not exceed 35°C;
2. Altitude above sea level: not exceed 1000m;
3. Relative humidity: daily average less than 95%, monthly average less than 90%;
4. Saturated vapor pressure: daily average less than 2.2×10^{-3} MPa, monthly average less than 1.8×10^{-3} MPa ;
5. Earthquake intensity: not exceed 8 grade;
6. The environmental air without flammable, explosive and corrosive material;
7. Site without frequent vibration.

Model



Product feature

1. The enclosure is completely formed by Al-Zn coated steel plate after multiple bending processed by CNC machine, then is assembled with the bolts, which has strong mechanical strength and effectively ensure the neatness and good appearance. The door is painted by the plastic powder and has strong anti-impact and corrosion proof ability. The protection grade of enclosure is IP4X.
2. The main circuit breaker is VHY1-40.5 model Solid-sealed Vacuum Circuit Breaker, which is independently designed and developed by HEAG group. It has the unique advantages of long life, high reliability, less maintenance and small volume, furthermore, it has perfect and reliable anti-misoperation function. Of course, the switchgear can be equipped with other similar circuit breakers.
3. The circuit breaker handcart is centred structure, which inherits the advantage of KYN28 model switchgear. This structure avoids the adverse effects for the installation foundation against the movable / fixed contacts, and is convenient for maintenance and overhaul.

Technical specification

1. Main technical parameters of switchgear

table 1

Item		Unit	Data
Rated voltage		kV	40.5
Rated insulation level	1 min P.F. withstand voltage	kV	Interphase, phase to ground 95; between gaps 118
	Lightning impulse withstand voltage	kV	Interphase, phase to ground 185; between gaps 215
Rated frequency		Hz	50 (or 60)
Rated current		A	630, 1250, 1600, 2000, 2500
Rated short-time withstand current(4s)		kA	25, 31.5
Rated peak withstand current※		kA	63, 80
IAC grade			BFLR
Kind of operation continuity			LSC2B-PM
Protection grade			IP4X(enclosure), IP2X(compartment)
Outline dimension (W×D×H)		mm	1200×2600×2400※※
Weight		kg	< 1600

※: The short-circuit capacity of CT shall be separately considered;

※※: If installed with Lightning Arrester or the aerial busbar outgoing/incoming, the cubicle depth shall be 2800mm.

2. Main technical parameters of VH Y1-40.5 model indoor vacuum circuit breaker

table 2

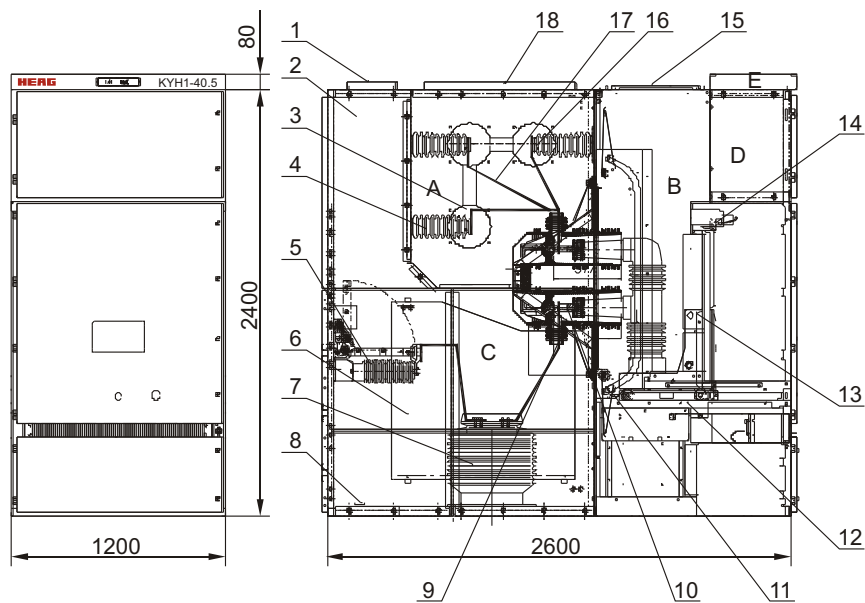
Item		Unit	Data
Rated voltage		kV	40.5
Rated insulation level	1 min P.F. withstand voltage	kV	Interphase and phase to ground 95
	Lightning impulse withstand voltage	kV	Interphase and phase to ground 185
Rated frequency		Hz	50 (or 60)
Rated current		A	630, 1250, 1600, 2000, 2500
Rated symmetrical short-circuit breaking current		kA	25, 31.5
Rated peak withstand current		kA	63, 80
Rated short-time withstand current(4s)		kA	25, 31.5
Rated operating sequence			O-0.3s-CO-180s-CO
Opening time		ms	20~50
Mechanical life		time	20000
Electrical life		grade	E2
Rated out of phase earth fault breaking current		kA	27.3
Rated cable charging breaking current		A	50
Rated voltage/current of opening operation		V/A	DC(AC)220/1.5, DC(AC)110/3
Rated voltage/current of closing operation			DC(AC)220 /1.5, DC(AC)110/3
Rated instantaneous over-current tripping current		A	5
Rated voltage of secondary circuit		V	DC(AC)220, DC(AC)110
Rated voltage of motor for energy storage			DC(AC)220, DC(AC)110
Rated output power of motor for energy storage		W	70
Time of energy storage		s	≤12

3. Main technical parameters of JN15-40.5 model earth switch

table 3

Item	Unit	Data
Rated voltage	kV	40.5
Rated P.F. withstand voltage(1 min)		95
Rated lightning impulse withstand voltage(peak value)		185
Interphase centre distance	mm	280
Rated short-time withstand current(4s)	kA	31.5
Rated short-circuit making current		80
Rated peak withstand current		80

Structure schematic drawing



A. Busbar compartment
D. Instrument compartment

B. CB compartment
E. Small busbar compartment

C. Cable compartment

- | | | |
|--------------------------------|------------------------|--|
| 1. Pressure releasing plate | 7. Current transformer | 13. Circuit breaker |
| 2. Cubicle body | 8. Earth bar | 14. Secondary plug |
| 3. Busbar bushing | 9. Contact box | 15. Pressure releasing plate of CB compartment |
| 4. Insulator | 10. Fixed contact arm | 16. Main busbar |
| 5. Earth switch | 11. Shutter mechanism | 17. Branch busbar |
| 6. Interphase insulation plate | 12. Guide rail | 18. Pressure releasing plate of busbar compartment |

KYH1-24 Removable AC Metal-clad Switchgear

Summary

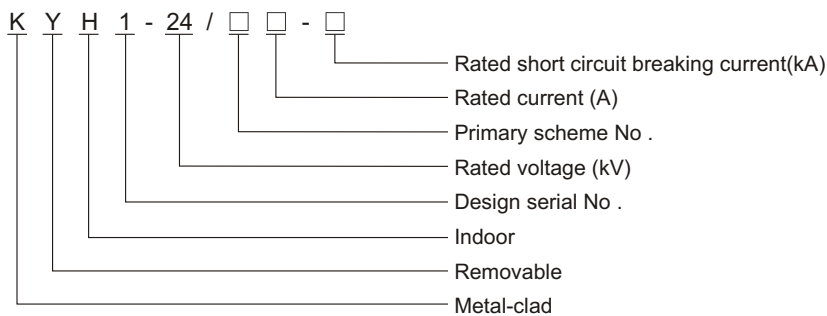
KYH1-24 removable AC metal-clad switchgear(short for panel as below) is a new product, designed and developed by HEAG Group, based on the introduction of advanced foreign design and manufacturing technology. The panel applies to 13.8~24kV, 3phase AC 50Hz or 60Hz network for receiving and distributing power energy and also for control, monitor and protection. It can be arranged for single busbar, single busbar sectionalizing system. It accords to IEC62271-200 AC Metal Enclosed Switch and Control Equipment above 1kV and below 52kV IEC60694 Standard Common Clauses for HV Switchgear, GB3906 3~35kV AC Metal Enclosed Switchgear, DL404 Order Specification for Indoor AC HV Switchgear, DIN. VDE0670 AC Switchgear at Rated Voltage Over 1kV and so on. It has perfect and reliable prevention function against false operation.



Ambient condition

1. Ambient temperature: -10°C~40°C; daily average $\leq 35^\circ\text{C}$;
2. Altitude: $\leq 1000\text{m}$;
3. Relative humidity: daily average: $\leq 95\%$, monthly average: $\leq 90\%$;
4. Earthquake intensity: ≤ 8 degree;
5. Applicable occasions should be free from inflammables, explosives, corrosives and severe vibration.

Model



Structure feature

The enclosure is complete made of aluminium-zinc plated steel sheet by CNC machine and multi-bending, high precise dimension, short production cycle, good mechanical strength and nice appearance. The handcart frame can sort into CB handcart, PT handcart, measuring handcart and so on. The handcart has isolating/testing position and working position in cubicle, each position is equipped with a locating device to ensure that the handcart will not move at random when in specified position. A special guide rail is installed in CB compartment for the handcart to move between isolating/testing position and working position. The movable curtain plate made of insulating sheet is installed on the back wall of handcart compartment. The busbar is led from one cubicle into another cubicle under the supporting of insulation bushing, and connects with the fixed contact box through the branch bus. The main busbar and inter busbar are round copper bars with rectangular section. Current transformer and the earthing switch can be mounted on the back wall of cable compartment. Potential transformer and the lightning arrester can be mounted inside it. The meter compartment includes relay components, meters electrified indicator and specified secondary equipments. The control circuits are laid in the neck grave with sufficient space and metal cover plate.

Main technical parameters

1. Main technical parameters of switchgear

Item		Unit	Data
Rated voltage		kV	24
Rated insulation level	1 min P.F. withstand voltage	kV	Interphase, phase to ground 65; between gaps 79
	Lightning impulse withstand voltage	kV	Interphase, phase to ground 125; between gaps 145
Rated frequency		Hz	50, 60
Rated current		A	630, 1250, 1600, 2000, 2500
Rated short-time withstand current(4s)		kA	25, 31.5
Rated peak withstand current※		kA	63, 80
IAC grade			BFLR
Kind of operation continuity			LSC2B-PM
Protection grade			IP4X(enclosure), IP2X(compartment)
Outline dimension (W×D×H)		mm	800(1000)×1800×2300※ ※
Weight		kg	about 800

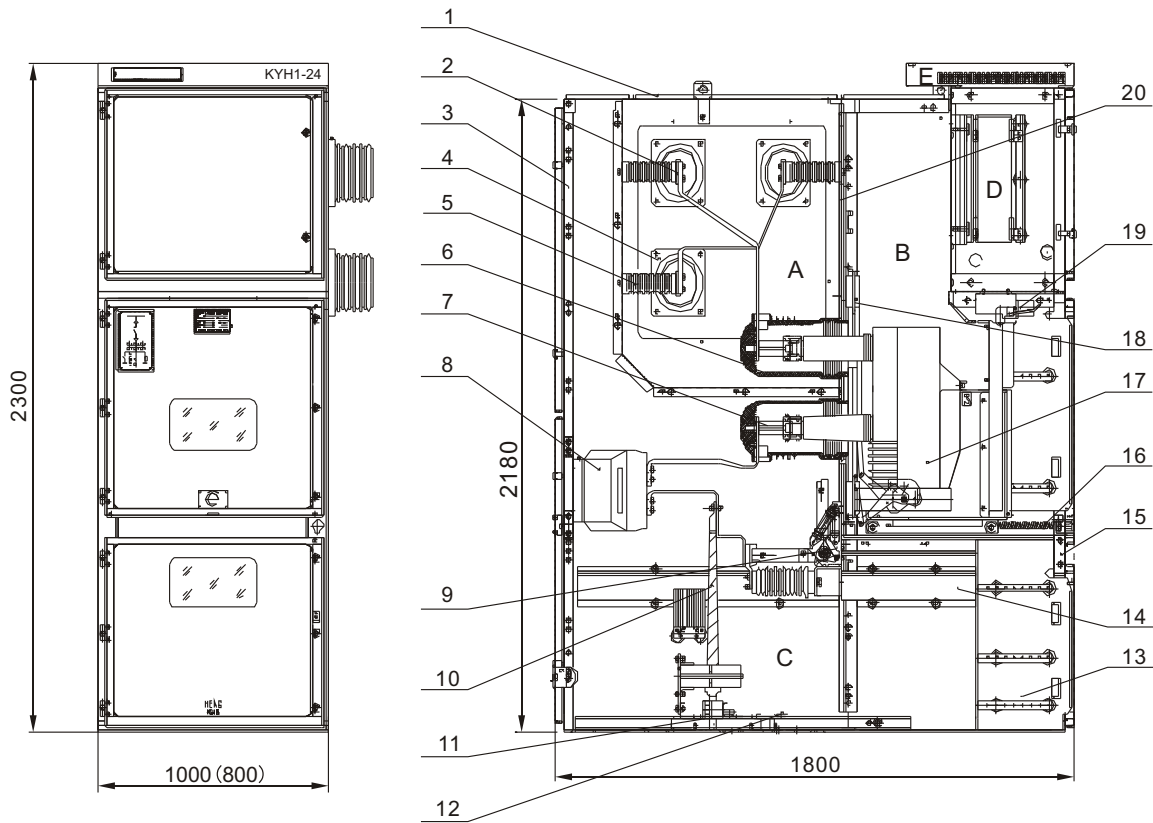
※: The short-circuit capacity of CT shall be separately considered;

※※: The back aerial outgoing scheme shall add an attached cabinet, and the user shall consult the manufacturer about its depth. The cubicle of width 800mm applies to the rated current up to 1250A.

2. Main technical parameters of VHY1-24 model indoor vacuum circuit breaker

Item		Unit	Data
Rated voltage		kV	24
Rated insulation level	1 min P.F. withstand voltage	kV	Interphase and phase to ground 65
	Lightning impulse withstand voltage	kV	Interphase and phase to ground 125
Rated frequency		Hz	50
Rated current		A	630, 1250, 1600, 2000, 2500
Rated symmetrical short-circuit breaking current		kA	25, 31.5
Rated peak withstand current		kA	63, 80
Rated short-time withstand current(4s)		kA	25, 31.5
Rated operating sequence			O-0.3s-CO-180s-CO
Opening time		ms	≤50
Mechanical life		time	20000
Electrical life		grade	E2
Rated out of phase earth fault breaking current		kA	27.3
Rated instantaneous cable charging breaking current		A	31.5
Rated over-current tripping current		A	3.5/5
Rated voltage of secondary circuit		V	DC(AC)220, DC(AC)110
Rated voltage of motor for energy storage			DC(AC)220, DC(AC)110
Rated output power of motor for energy storage		W	50

Structure schematic drawing



KYH1-24 section drawing of feeder panel

A. Busbar compartment
D. Instrument compartment

B. CB compartment
E. Small busbar compartment

C. Cable compartment

- | | | |
|-----------------------------|---|----------------------------------|
| 1. Pressure releasing plate | 8. Current transformer | 15. Removable level baffle plate |
| 2. Main busbar | 9. Earth switch | 16. Guide screw mechanism |
| 3. Enclosure | 10. Cable | 17. CB handcart |
| 4. Busbar bushing | 11. Bottom pate | 18. Safety shutter |
| 5. Insulator | 12. Earthing copper bar | 19. Secondary plug |
| 6. Contact box | 13. Control cable cover-plate | 20. Removable baffle plate |
| 7. Fixed contact arm | 14. Operating mechanism of earth switch | |

KYN28-12 Removable AC Metal-clad Switchgear

Summary

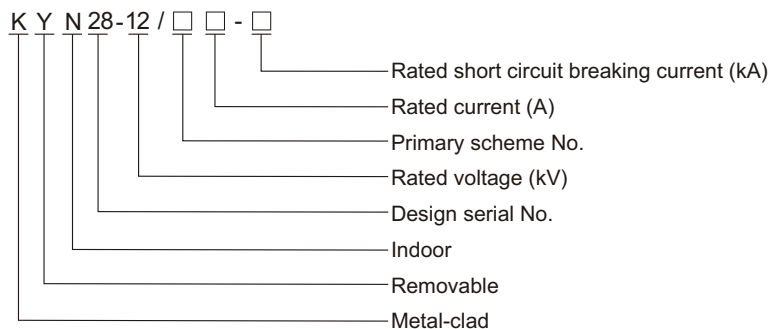
KYN28-12 removable AC metal-clad switchgear (short for panel as below) is a new product, designed and developed by HEAG Group, based on the introduction of advanced foreign design and manufacturing technology. It will be a substitute for old fashioned metal-enclosed switchgear, such as KYN-12, JYN-12, GFC-12, etc. The panel applies to 3.6~12kV 3 phase AC 50Hz network for receiving and distributing power energy and also for control, monitor and protection. It can be arranged for single busbar, single busbar sectionizing system or double busbar. It accords with IEC62271-200 AC Metal Enclosed Switch and Control Equipment above 1kV and below 52kV IEC60694 Standard Common Clauses for HV Switchgear, DIN. VDE AC Switchgear at Rated Voltage Above 1kV, GB3906 3~35kV AC Metal Enclosed Switchgear and so on. It has perfect and reliable prevention function against misoperation.



Ambient condition

1. Ambient temperature: $-10^{\circ}\text{C}\sim 40^{\circ}\text{C}$; daily average $\leq 35^{\circ}\text{C}$;
2. Altitude: $\leq 1000\text{m}$;
3. Relative humidity: daily average $\leq 95\%$, monthly average $\leq 90\%$;
4. Earthquake intensity: ≤ 8 degree;
5. Applicable occasions should be free from inflammables, explosives, corrosives and severe vibration.

Model



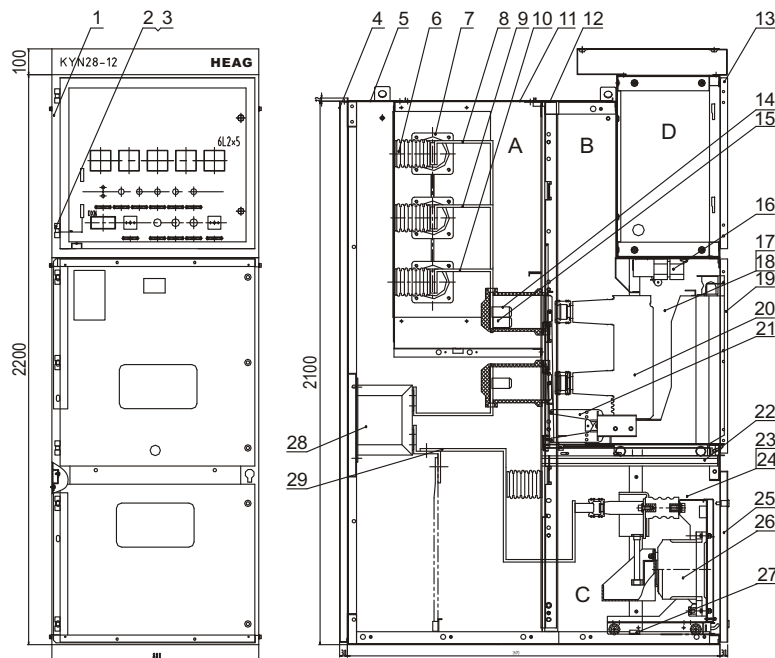
Structure feature

The enclosure is made of aluminium-zinc plated steel sheet by CNC machine, high precise dimension, short production cycle, excellent mechanical strength and nice appearance. The busbar compartment, VCB handcart compartment, cable compartment and relay compartment are separated by metal sheet. Flexible operation for handcart movement, clear position instruction, the earthing switch allow to making short circuit current and creditable mechanical interlock. It fit with many kinds of handcart circuit breaker such as VD4, VS1 and VHY1-12 etc, and also select FK(R)N32-12 fixed load breaker switch or VC series vacuum contactor. The panel adopts air insulated, the door of circuit breaker have the function of anti- explosion, tested by internal electric arcing fault, without any welding contacts on the panel, mechanical and electrical locking design, the product conforms to GB 3906, GB/T11022, IEC 62271-200, DL/T404 standards, and passed domestic and Netherlandish KEMA test.

Technical specification

Item		Unit	Data
Rated insulation level	1min power frequency (phase to earth / across open contacts)	kV	42/48
	Lightning impulse withstand voltage (phase to earth/across open contacts)	kV	75/85
Rated voltage		kV	12
Rated frequency		Hz	50/60
Rated current		A	630~4000
Main busbar rated current		A	1250,1600,2000,2500,4000
Branch busbar rated current		A	630,1250,1600,2000,2500,3150
Rated short time withstand current(4s)		kA	16,20,25,31.5,40,50
Rated peak withstand current		kA	40,50,63,80,100,125
Protection degree			Enclosure IP4X, IP2X(VCB door opened)
Outline dimension(width × depth × height)		mm	650(800,1000) × 1500(1300,1670,2000) × 2200
Weight		kg	800~1200

Structure drawing



A.Busbar compartment B.Circuit breaker compartment C.Cable compartment D.Metering compartment

- | | | |
|-----------------------------------|-------------------------------------|--------------------------------------|
| 1. Framework | 11. Top Cover of Busbar Compartment | 21. Interlock & Shutter System |
| 2. Hinge | 12. Top Cover of VCB Compartment | 22. Earthing Switch Interlock |
| 3. Middle Hinge | 13. Door of Instrument Compartment | 23. Left Plate of Cable Compartment |
| 4. Rear Plate | 14. Contact Box | 24. Right Plate of Cable Compartment |
| 5. Top Cover of Cable Compartment | 15. Fixed Contact | 25. Door of Cable Compartment |
| 6. Post Insulator | 16. Fixing Plate of Aerial Socket | 26. PT handcart |
| 7. Busbar Bushings | 17. Left Plate of VCB Compartment | 27. Earthing Busbar |
| 8. A-phase Busbar | 18. Right Plate of VCB Compartment | 28. Branch Busbar |
| 9. B-phase Busbar | 19. Door of VCB | 29. Current Transformer |
| 10. C-phase Busbar | 20. Vacuum Circuit Breaker | |

KYN28C-7.2/12(J.R)/31.5-40 Armoured Removed AC Metal-clad Switchgear

Summary

KYN28C-7.2/12(J.R)/31.5-40 armoured movable AC metal-clad switchgear (short for F-C circuit panel) is refer to distribution device applies to 3.6~12kV, rated frequency 50/60Hz power system. Large rated short circuit breaking current under rated current, Widely used for electrical power, chemical and generate electricity department, etc. Flexible configure, convenient operation, security and reliability, the performance conforms to GB3906-91, IEC62271-200 standard. It applies to 1200 kW and below power factor motor or 1600 kVA or below transformer for control and protection.



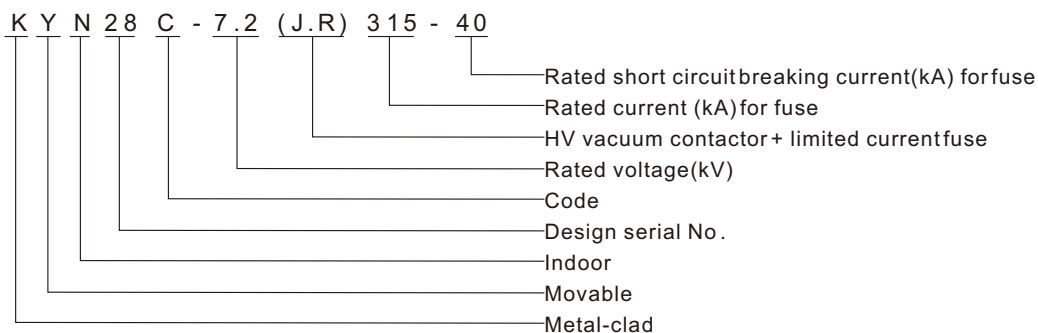
Standard

GB/T11022	The Common Technical Clauses of HV Switchgear and Controlgear Standard
IEC62271 & GB3906	3~35kV AC Metal Enclosed Switchgear
GB 3309	The Mechanical Test of HV Switchgear at Normal Temperature
GB 311.1	Insulation Configuration of HV Distribution Equipment
GB/T16927.1	First Part in HV Test Technology: General Test
GB 15166.2	AC HV Fuse, Limited Current Fuse
GB/T14808	AC HV Contactor and Motor Starter

Ambient condition

1. Ambient temperature: -15°C~+40°C, daily average: ≤35°C;
2. Altitude: ≤1000m;
3. Relative humidity: daily average ≤95%, monthly average ≤90%;
4. Earthquake intensity: ≤8 degree;
5. Occasions without flammable and explosive matter, without corrosive chemical and frequent severe vibration.

Model



Structure feature

1. The enclosure and each compartment are separated by metal sheet. The enclosure and dummy plate are made of aluminium-zinc plated steel. Associate with KYN28-12 abreast to design many kinds of schemes for distribution device according to usage. It can use with KYN96-12 parallel according to requirement.
2. Assembly structure: The enclosure is completely made of aluminium-zinc plate steel sheet after processed by CNC machine and multi-bending, then is assembled with bolts. So it has strong mechanical strength and guarantee the neatness and good appearance. Cubicle door is through plastic spray treatment to ensure good anti-impact and corrosion-proof ability.

3. Vacuum contactor and fuse are mounted on handcart, central drawout type, action of pulling and pushing depend on lead screw, low operation strength, convenient to exchange, there is guideway in the handcart compartment.
4. Busbar compartment are used for installation busbar. Main busbar gets across busbar insulating bushing to isolate the neighboring panel busbar compartment. Main virtue for design is limiting the accident and prevent from spreading to other area when break out emergency in busbar compartment.
5. Allowed CT, earthing switch, lightning arrester, heater and cable to mount in cable compartment. Equip with slotting and knock-down non metal sealed board and stainless steel.
6. Allowed relays, instruments, signal light and operating switch to mount in relay compartment. It can install small busbar compartment on the top of relay compartment according to user requirement, capacity for covering fifteen control busbar.
7. The protection of enclosure is IP4X, even if open the door, the protection class also reach IP2X, It can prevent human and outside solid from approaching living part and moving components.
8. It is normal operation when repair any compartment except main busbar compartment.
9. There is a channel on the top of circuit breaker compartment, busbar compartment, cable compartment. When occur emergency relative to circuit breaker, main busbar and cable compartment and appear arc, the gas pressure in panel will not go up until reach utmost, then metal board open automatically to release gas pressure and assure of security for human and equipments.
10. There is a secure and reliable mechanical interlock device to meet five protection in the panel.
 - 1.1.Prevent from drawing out and plugging in primary isolating contact with electric charges.
 - 1.2.Prevent from making contactor (or circuit breaker) when close earthing switch.
 - 1.3.Prevent from making earthing switch with electricity when handcart is on working position.
 - 1.4.Prevent from entering into living separation.
 - 1.5.Prevent from fault open and close contactor(or circuit breaker).
11. Equip with earthing conductor inside panel to connect whole line panel. Panel frame, door, cover board, moving curtain board and circuit breaker handcart frame all connect with earthing conductor.
12. The air clearance between electrified body or electrified to earth is not less than 100 mm, The air clearance between electrified body and insulating components inside composite insulation is not less than 30mm.
13. It need not exchange main busbar when this product combine with KYN28 series circuit breaker panel, isolating panel, PT panel and measurement panel, it can run through directly.
14. SMC or DMC insulating material.

Technical specification

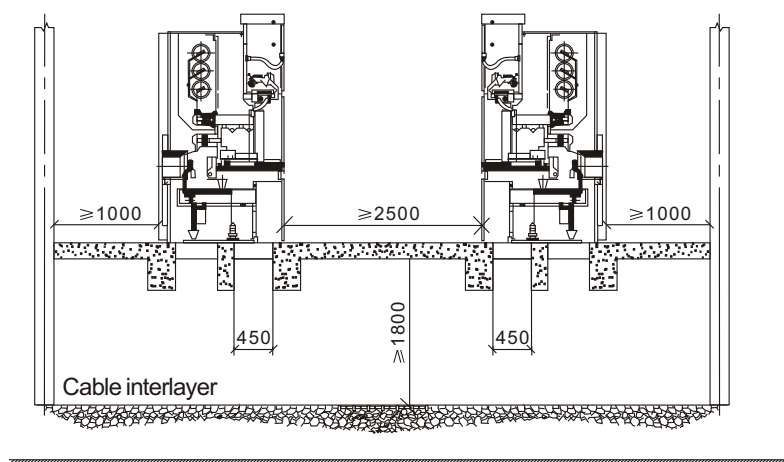
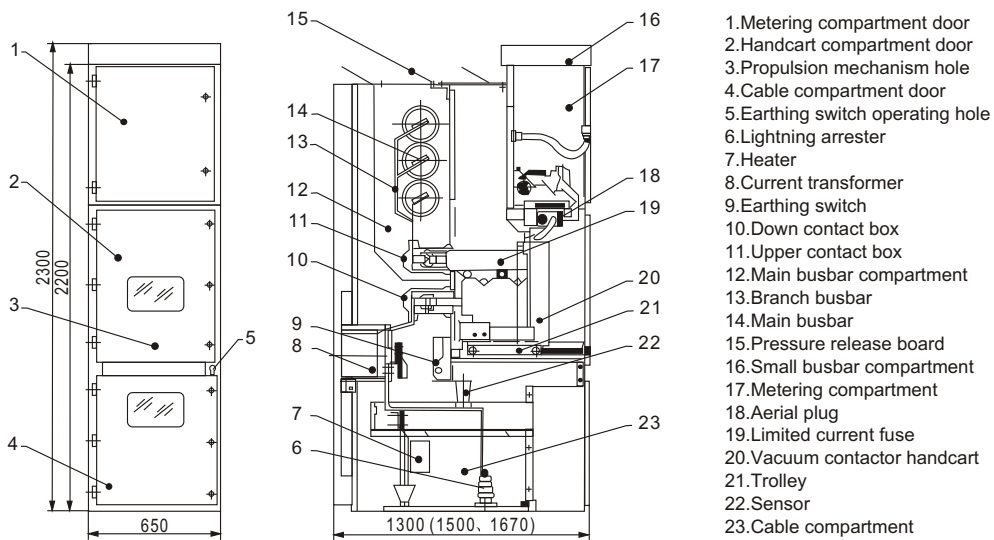
F-C Panel technical specification

Item		Unit	Data	
Rated voltage		kV	7.2	12
Rated frequency		Hz	50/60	50/60
1 min P.F. Withstand voltage	Phase to phase, phase to earth	kV	32	42
	Across open contacts	kV	36	48
Lightning impulse withstand voltage	Phase to phase, phase to earth	kV	60(peak)	75(peak)
	Across open contacts	kV	70(peak)	85(peak)
Main busbar	Rated current	A	630~4000	
	4s rated short time withstand current	kA	40	
	Rated peak withstand current	kA	100(peak)	
F-C	Rated current	A	315	
	Rated short time withstand current	kA	40	
	Rated peak withstand current	kA	100	
	Max join current	kA	3.2	
	Rated short circuit breaking current	kA	40	
	Rated short circuit making current	kA	100	
Outline dimension(W × D × H)		mm	650 × 1500(1300,1670) × 2300	
Protection degree			IP4X(open handcart compartment door: IP2X)	

Technical Specification for AC Vacuum Contactor

Item	Unit	Data	
		V7C(ABB)	JCZ□
Rated voltage	kV	7.2/12	7.2/12
Rated current	A	400	400
Max rated breaking current	A	5000	3200
Rated short time withstand current 4s	A	5000	5000
Max peak withstand current	kA	55(1/21 cycle)	
Rated making current	A	5000(100 time)	5000
Mechanical endurance	Mechanical holding	10,000 time	25
	Electric holding		100
Natural closing time	ms	60~90	100 ± 30
Natural opening time	ms	15~30	35 ± 10
Rated operating voltage	V	≅110 ≅220	≅110 ≅220

Outline dimension



KYN96-12 (AMS) Metal-clad Switchgear

Summary

KYN96-12(AMS) model metal enclosed switchgear is developed by Xi'An HV Apparatus Research Institute. The complete type test have been approved at National Center for Quality Supervision & Testing of HV Apparatus, and provide integrated control and protection measurement for electric power plant, motor, power transformer, capacitor and distribution circuit etc.

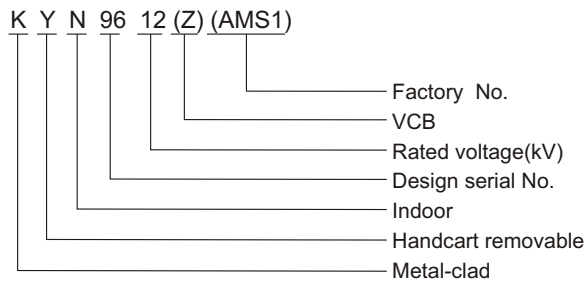
The rated voltage is 12kV, rated current is 630~3150A. AMS is equipped with VHY1-12 or VS1-12 circuit breaker, AMS is a indoor equipment used in distribution station such as industrial enterprise, high building, airport, harbour, and bus station etc. It conforms to IEC62271-200 & GB3906 3~35kV AC Metal Enclosed Switchgear, DL/T404 The Order Technical Terms of Indoor AC HV Switchgear and VDE, IEC standards.



Ambient condition

1. Ambient temperature: -15°C~40°C;
2. Altitude: ≤1000m;
3. Relative humidity: daily average ≤95%, monthly average ≤90%;
4. Earthquake intensity: ≤8 degree;
5. Applicable occasions should be free from inflammable, explosives severe vibration.

Model



Structure feature

1. High reliability

HV compartment and LV compartment are separated to limit the emergency at local part. Selection of rapidly closed earthing switch, busbar is wrapped by shrinkable material. Section of high reliability VHY1-12 or VS1-12 circuit breaker and designed with working position, testing position and drawout position. Operate to circuit breaker and earthing switch normally when the door is closed.

2. High security

The switchgear has many kinds of protective measures, such as mechanical interlock and five protection. Prevent from pulling and pushing hand cart with load and closing the earthing switch with electricity, prevent from making circuit breaking on occasion of opening and closing, prevent from entering into live isolation. Equipped with fixed position and interlock device at working and testing position inner panel, the circuit breaker is able to remove only on open position. The earthing switch adopts manual operation with open-closed position indicator. Install mechanical interlock on link rod of operation mechanism, to interlock with circuit breaker and cable compartment door, additional of equipping with locking electromagnet. Adopt metal safety shutter to keep security even if draw out circuit breaker. Protective grade is IP 4X, there is a window on the plate of circuit breaker and cable compartment.

3. High adaptability

The cable compartment is able to contain two pairs of cables. It can be equipped with standard CT, relay and meters.

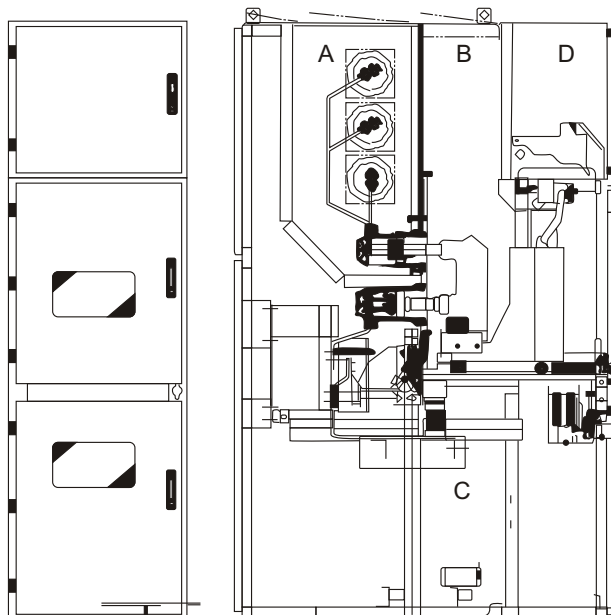
Technical specification

Item		Unit	Data
Rated voltage		kV	12
Rated frequency		Hz	50
Rated insulation level	1min power frequency withstand voltage	kV	42
	Lightning impulse withstand voltage(peak)	kV	75
Main busbar rated current		A	630,1250/1600,2000/2500,3150
Branch busbar rated current		A	630,1250,1600,2000,2500,3150
4S thermal-stable current		kV	20,25,315,40
Rated dynamic stable current(peak)		kV	50,63,80,100
Main circuit resistance		$\mu\Omega$	≤ 140
Protection degree			Enclosure: IP4X,Compartment: IP2X

Outline dimension

Height		mm	2250
Width	Branch busbar rated current below 1250A	mm	650
	Thermal stable current below 31.5kA		800
	Branch busbar rated current below 1600A	mm	800
	Thermal stable current below 40 kA		
	Branch busbar rated current below 1600A		
	Thermal stable current below 31.5 kA		
	Branch busbar rated current below 2000A		1000
Depth		mm	1400
Weight		kg	800~1200

Structure drawing



KYN96(AMS) Structure drawing
 A.Busbar compartment
 B.Circuit breaker compartment
 C.Cable compartment
 D.LV compartment

KYN18-12 Removable AC Metal-clad Switchgear

Summary

KYN18-12 removable AC metal-clad switchgear is a new product designed and developed by HEAG group based on advanced foreign design and technology. Its outstanding advantages as follows:

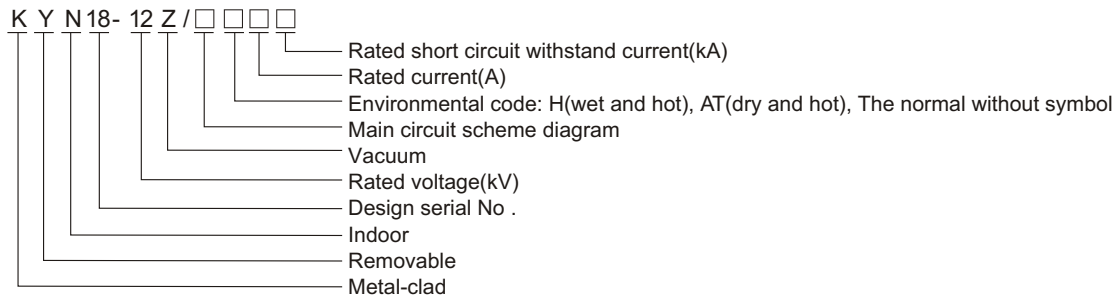
1. The enclosure is completely made of aluminium-zinc plated steel sheet which processed by CNC machine, then assembled with bolts. The structure is free from corrosives and deformation.
2. LV compartment and HV compartment are completely separated by metal sheet. It prevents from spreading to other parts due to IP4X of protection degree.
3. Effective anti-fault interlock assure that each operation step is according to specified procedure.
4. Integrated and reliable performance assure that it is free from maintenance.
5. The handcart is flexible to draw out and change.
6. Earthing switch with rapid open-close operation function has such capacity on short circuit current.
7. Secondary wiring will be buried in metal channel to prevent damages from internal failures.



Ambient condition

1. Ambient temperature: $-10^{\circ}\text{C}\sim+40^{\circ}\text{C}$;
2. Altitude: $\leq 1000\text{m}$;
3. Relative humidity: monthly average $\leq 90\%$, daily average $\leq 95\%$;
4. Applicable occasions should be free from inflammable, explosives and severe vibration.

Model



Structure feature

1. The enclosure is made of aluminium-zinc plated steel sheet or cold rolled iron sheet after processed by CNC machine and multi-bending, so guarantee advantages of high precision and strong corrosion preventions.
2. The complete panel is divided into four separate compartments, those are busbar compartments, handcart compartment, cable compartments and relay compartment. It is equipped with five protection lock device.
3. There is a exhaust channel spreads to the top in every compartment. The coping will open automatically to release pressure and guarantee the security of operator.
4. There is a valve mechanism among handcart compartment, busbar compartment and cable compartment. The valve closes automatically when the handcart is drawn out, then cover the main static contact to guarantee the security of maintenance man.

Technical specification

Rated voltage	kV	12
Rated current	A	630,1250,1600,2000,3150
Rated short time withstand short circuit current	kA	25,31.5,40(4s)
Rated short circuit breaking current	kA	25,31.5,40
Rated peak withstand short circuit current	kA	63,80,100

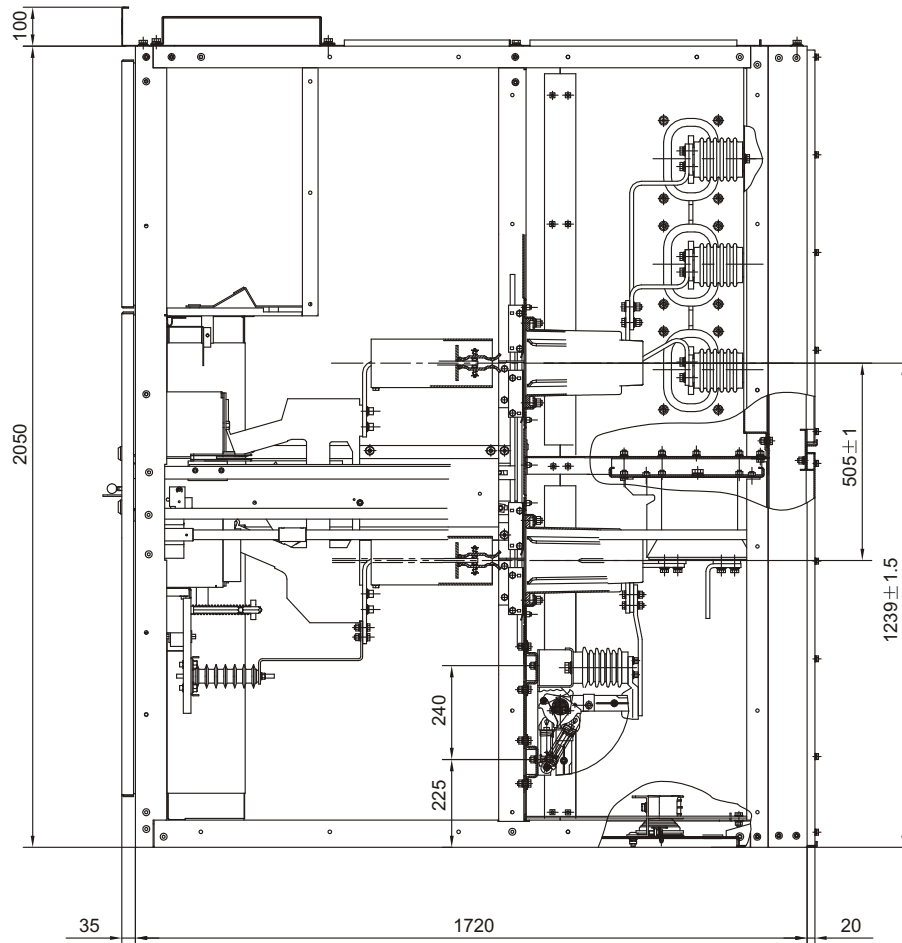
Rated lightning impulse withstand voltage	kV	75
Rated power frequency withstand voltage	kV	42(1min)
Enclosure protection degree		IP4X

Note: Take account of capability of CT withstand short circuit separately.

Technical specification of ZN12-12 VCB

Item	Unit	Data	
Rated current	A	630, 1000, 1250, 1600, 2000	1600~4000
4s short-time withstand current	kA	20, 25, 31.5	31.5, 40, 50
Rated short circuit breaking current	kA	20, 25, 31.5	31.5, 40, 50
Rated peak withstand current	kA	50, 63, 80	80, 100, 125
Rated short-circuit breaking times	Times	50	30
Mechanical life	Times	10000	10000
Operating mechanism		Spring operating mechanism	
Control circuit voltage	V	AC/DC 110/220	
Motor power	W	245	

Outline and installation dimension



KYN18 Metal-clad Switchgear

Mvnex-12 Removable AC Metal-clad Switchgear

Summary

Mvnex-12 removable AC metal-clad switchgear(short for switchgear as below) is developed by Schneider technology, it can instead KYN28-12, KYN18-12, JYN2-12 series products. The switchgear applies to 3.6~12KV, 3 phase AC 50Hz network for receiving and distributing power energy and also for control, monitor and protection. It can be accords to IEC62271-200, GB3906 and so on requirement. It has reliable prevention function against false operation.



Ambient condition

1. Ambient temperature: -5°C~40°C; daily average: 35°C;
2. Altitude: ≤1000m
3. Relative humidity: daly average: ≤95% monthly average: ≤90%;

Electric features

No.	Item	Unit	Data
1	Rated voltage	kVrms	12
2	Rated insulation		
3	1 P.F withstand voltage(50Hz)	kVrms	42
4	Lightning impulse withstand voltage(1./50s)	kV peak	75
5	Rated current		
6	Busbar	A rms	630, 1250, 2500, 3150
7	Circuit breaker	A rms	630, 1250, 2500, 3150
8	Rated thermal stability withstand current(4s)	kA rms	25, 31.5, 40
9	Rated peak withstand current	kA peak	63, 80, 100
10	Protection degree		IP4X
11	Compartment protection degree		IP2X

Intorduction

Mvnex is used in the HV/MV and MV/MV substation
 MV part is indoor type metal-clad switchgear
 Switchgear is removable metal-clad type

Structure

Enclosure: Aluminum-zinc plate
 Painting: High-temperature painting epoxy power
 Insulation components: Flammable resistant

Technical specification

Switchgear

Rated voltage	Ur	KV rms	12
Rated insulation			
1 P.F. withstand voltage(50Hz)	Ud	kV rms	42
Lightning impulse withstand voltage(1./50s)	Up	kV peak	75
Rated short-time withstand current(4s, Virtual value)	Is	kA rms(4s)	31.5
Rated peak withstand current	Ip	kA peak	80
Protection degree	Enclosure(FU)		IP4X
	Compartment		IP2X

Busbar

Rated maximum working current	In	A rms	3150
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Outline dimension

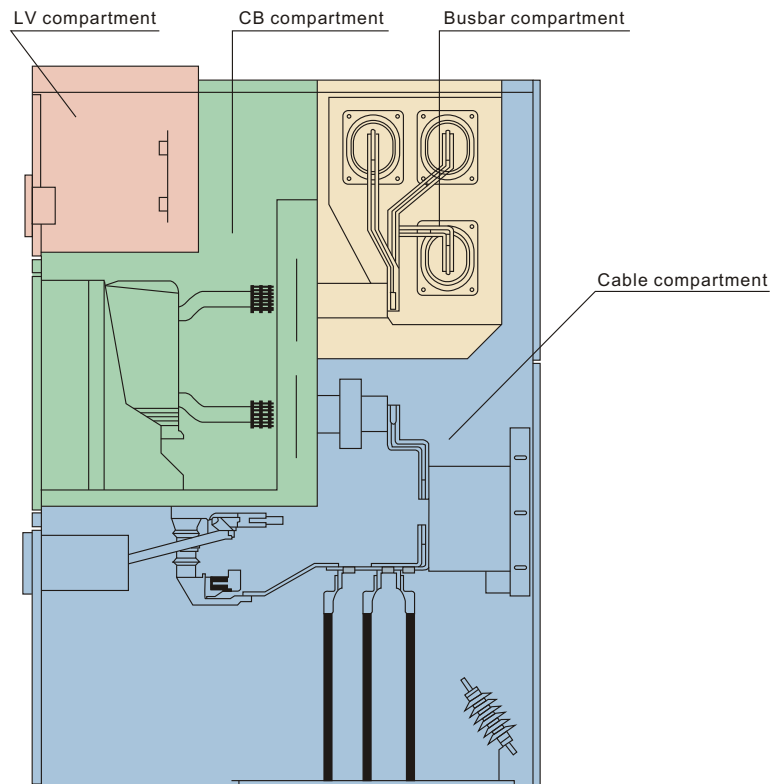
Rated parameter	Outline dimension(mm)				
	Height	Width	Depth		
			Up incoming	Bottom incoming	
			Usual type	Anti-combustion arc counters	
630/1250A	2320	800	2195*	1595	1780
2500A	2320	900	2295**	1595	1780
3150A	2320	900	2245***	1745	1780

*Maximum backpack is 600mm, cable incoming

** Maximum backpack is 700mm, cable incoming

***backpack is for busbar incoming, 500mm

Outline dimension



KG N□-12 Fixed Metal-clad Switchgear

Summary

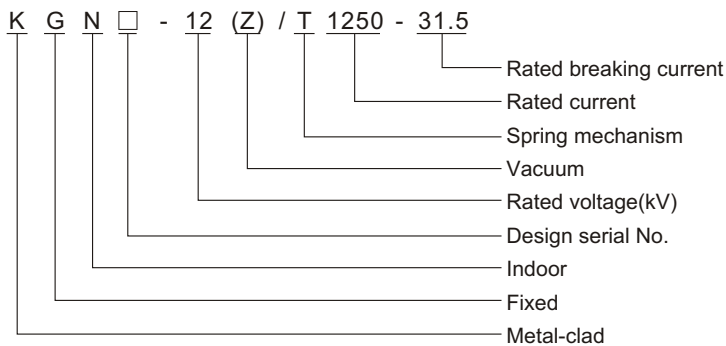
KG N□-12 fixed metal-clad switchgear(short for switchgear as below) applies to 3.6~12KV, 3 phase AC 50/60Hz network for receiving and distributing power energy and also for control, monitor and protection. It can be used in single busbar, single busbar section system. It is manufactured according to IEC62271-200 & GB3906 3~35KV AC Metal Enclosed Switchgear, DL404 Order Specification for Indoor AC HV Switchgear and so on. It has reliable prevention function against false operation.



Ambient condition

1. Ambient temperature: -10°C~40°C; daily average: 35°C;
2. Altitude: ≤1000m
3. Relative humidity:daily average: ≤95%,monthly average: ≤90%
4. Earthquake intensity: ≤8 degree;
5. Applicable occasions should be free from inflammables, explosives, corrosives and severe vibration.

Model



Technical specification

4.1 Technical specification of switchgear

Table 1 Technical specification

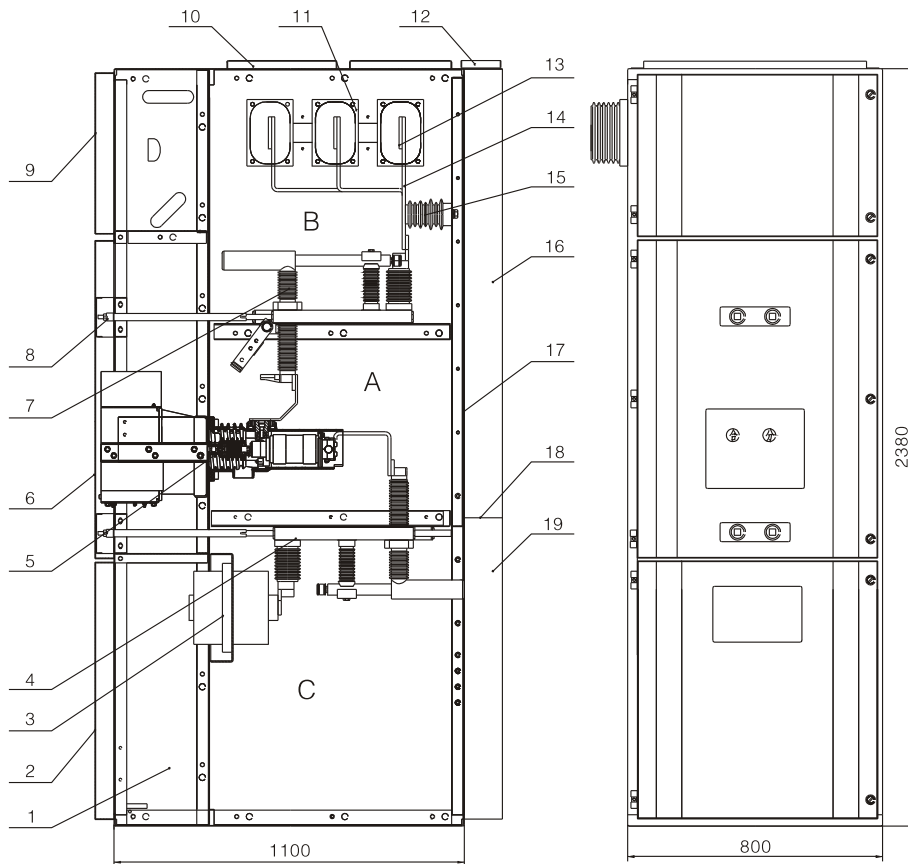
No.	Item	Unit	Data
1	Rated voltage	kV	12
2	Rated current	A	630, 1250
3	Rated peak withstand current	kA	50, 63, 80
4	Rated short time withstand current	kA	20, 25, 31.5
5	Rated short circuit breaking current breaking time	Times	30
6	Mechanical life	Times	30000
7	Rated short circuit continuous time	S	4
8	Rated short circuit breaking current	kA	20, 25, 31.5
9	1 min P.F. withstand voltage	kV	42(phase to earth)48 (across open contacts)
10	Lightning impulse withstand voltage		75(phase to earth)80(across open contacts)
11	Dimension(WxDxH)	mm	800x1100x2380
12	Protection degree		IP4X

- The capacity of the current transformer will be considered separately

4.2 Technical specification of ZN□-12 VCB

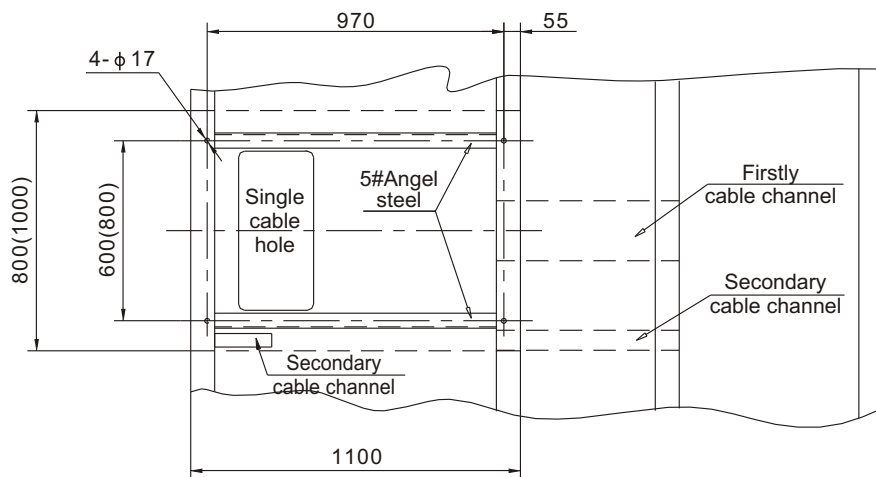
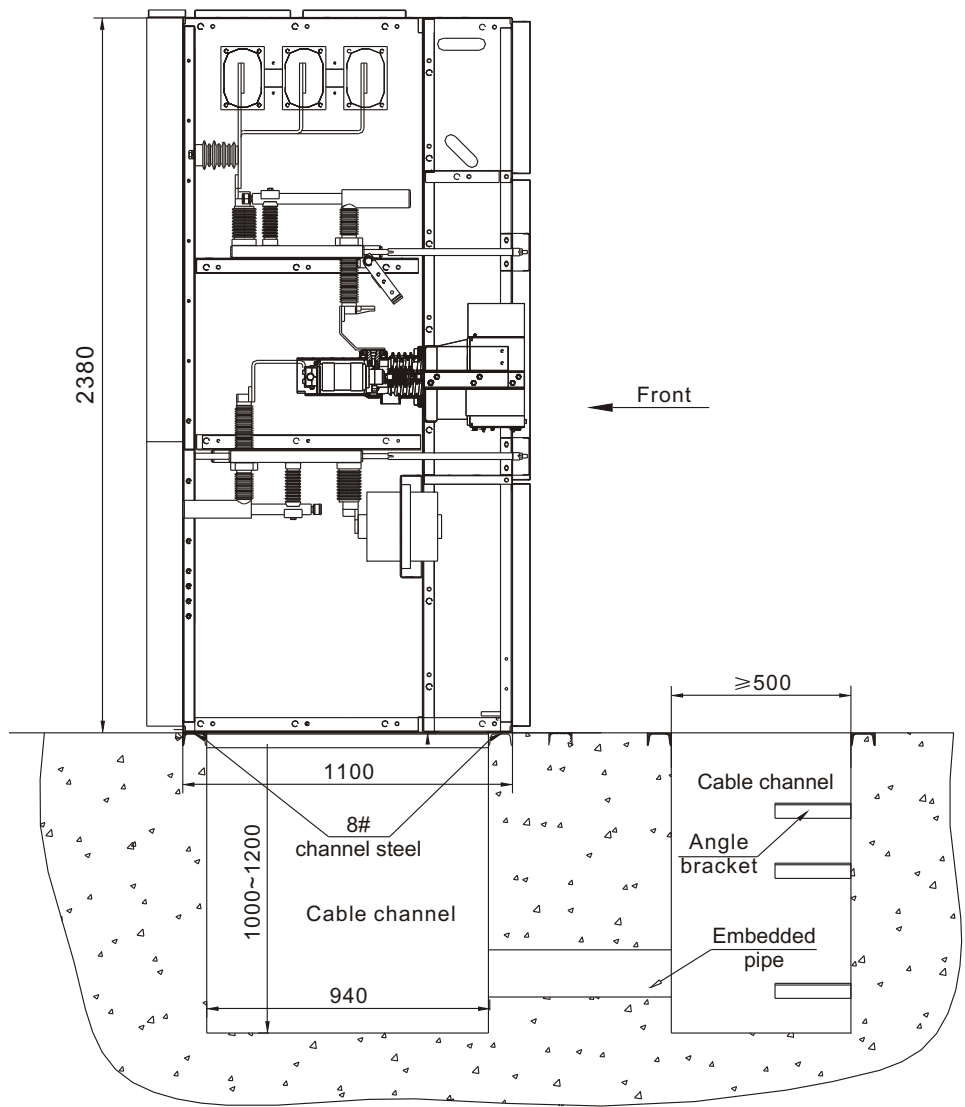
No.	Item	Unit	Data
1	Rated voltage	kV	12
2	Rated current	A	630, 1250
3	Rated short circuit breaking current	kA	31.5
4	Rated short circuit making current	kA	80, 100
5	Rated peak withstand current	kA	80, 100
6	Rated short time withstand current(4s)	kA	31.5
7	Rated short circuit breaking current breaking time	times	30
8	Breaking time	ms	≤ 100
9	Rated operation sequence		O-03s-CO-180s-CO
10	1 min P.F. withstand voltage	kV	42
11	Lightning impulse withstand voltage	kV	75
12	Mechanical life	times	30000
13	Closing time	ms	≤ 90
14	Opening time	ms	≤ 60

Outline and Installation dimension



A: CB compartment B: Busbar compartment C: Cable compartment D: Instrument compartment

1. Encloser 2. Cable compartment door 3. Current transformer 4. Bottom disconnect 5. CB 6. CB compartment door
7. Up disconnect 8. Operation mechanism of disconnect 9. Instrument compartment door 10. Pressure releasing of busbar compartment
11. Busbar bushing 12. Pressure releasing of back encloser 13. Main busbar 14. Branch busbar 15. Support insulator
16. Rear door 17. Pressure releasing of CB compartment 18. Pressure releasing of cable compartment 19. Bottom door



KGN□-12 Fixed type switchgear sketch of foundation installation

KGN8-12 Fixed Metal-clad Switchgear

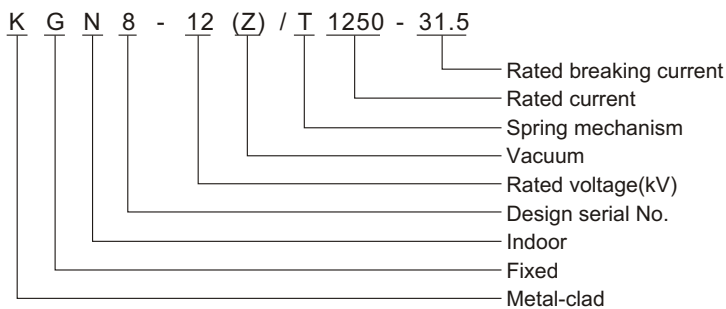
Summary

KGN8-12 fixed metal-clad switchgear (short for KGN8 switchgear as below) applies to below 12kV, 3 phase AC 50/60Hz power system. It can be widely used for electric force, metallurgy, petrification and urban construction.

Ambient condition

1. Ambient temperature: -15°C~40°C; daily average: 35°C;
2. Altitude: ≤1000m
3. Relative humidity:daily average: ≤95%,monthly average: ≤90%
4. Applicable occasions should be free from inflammables, explosives, corrosives and severe vibration.

Model



Technical specification

Technical specification of KGN8 switchgear, see Table 1

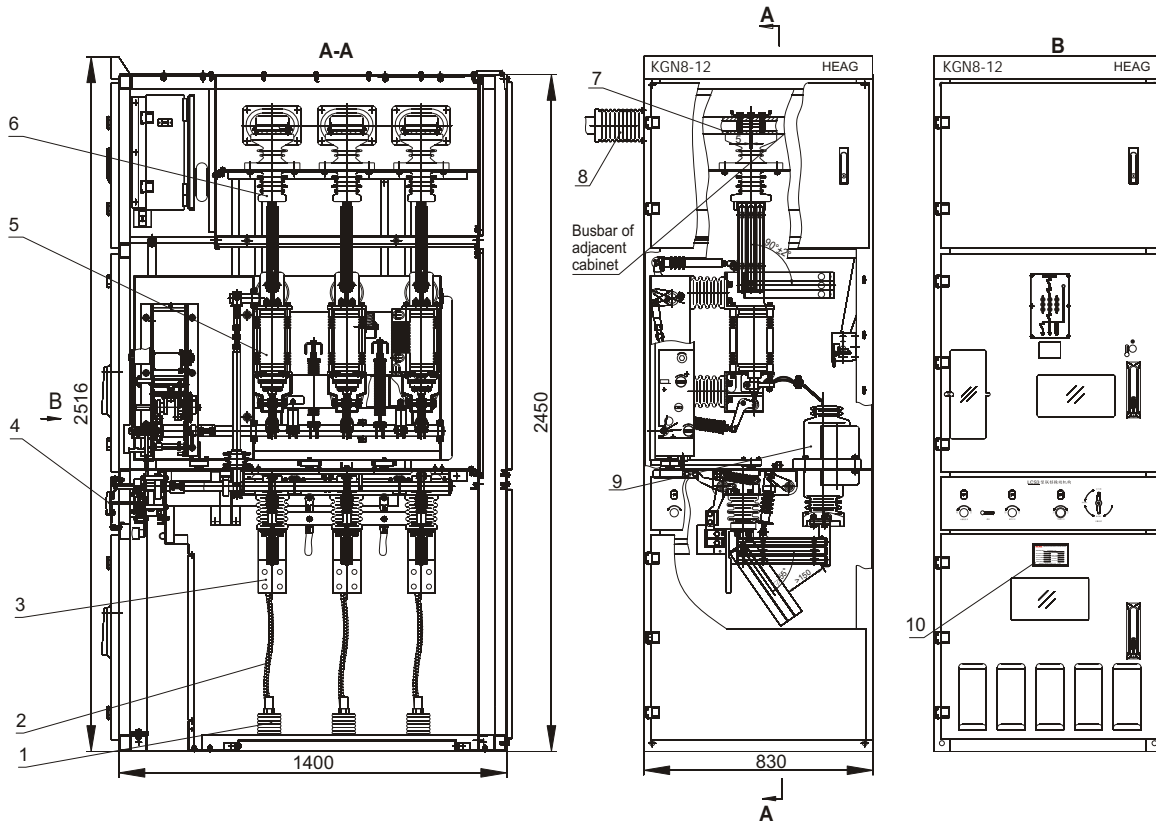
Table 1 Technical specification of KGN8

Item	Unit	Data
Rated voltage	kV	12
P.F. withstand voltage (Phase to phase, phase to earth)	kV	42
P.F. withstand voltage (Across open contacts)	kV	49
Lightning impulse withstand voltage(Phase to phase, phase to earth)	kV	75
Lightning impulse withstand voltage(Across open contacts)	kV	85
Rated frequency	Hz	50
Main busbar rated current	A	1250、1600、2000、2500、3150、4000、5000(Air-cooled)
Branch rated current	A	630、1250、1600、2000、2500、3150、4000、5000(Air-cooled)
Rated short time withstand current	kA	31.5、40、50
Rated peak withstand current	kA	82、104、130
Rated short circuit continuous time(50kA)	s	4(2)
Protection degree(Enclosure/Compartment)		IP40/IP30
Continuity of Operations Categories		LSC2B-PM
IAC grade		BFLR
Static load	kg	≈1000
Dynamic load	kg	≈1500
Dimension(W*H*D)	mm	840 × 2450 × 1400(Rear Aerial Busbar 1770)

Structure

KGN8-12 type switchgear is fixed metal-clad switchgear. The dimension of the cubicle should be: 840(W)×2450(H)×1400(D) (Rear Aerial Busbar 1770). The classic scheme consist of busbar compartment, CB compartment, cable compartment, relay instrument compartment and etc.

Outline dimension



1. Lightning arrester HY5W2-17/50 2. Conducting wire 3. Disconnect switch GN58-12D
 4. Interlock mechanism 5. VCB ZN108-12 6. Modular wall bushing ZCS3-12
 7. Busbar 8. Busbar wall bushing 9. CT component 10. Nameplate

Table 2 Technical specification of ZN108-12

Item	Unit	Data
Rated voltage	kV	12
P.F. withstand voltage (Phase to phase, phase to earth)	kV	42
P.F. withstand voltage (Across open contacts)	kV	48/49
Lightning impulse withstand voltage (Phase to phase, phase to earth)	kV	75
Lightning impulse withstand voltage (Across open contacts)	kV	85
Rated frequency	Hz	50
Rated current	A	630、1250、1600、2000、2500、3150、4000、5000 (Air-cooled)
Rated short circuit breaking current	kA	25、31.5、40、50
Rated short circuit making current (Peak)	kA	82、104、130
Rated short-circuit breaking current of the DC component	%	61
Rated short circuit duration (50kA)	s	4 (2)
Rated cable charging breaking current	A	25
Rated operation sequence		O-0.3s-CO-180s-CO
Closing time	ms	30~70
Opening time	ms	15~50
Arcing time	ms	≤15
Mechanical Life		M2(10000)

Table 3 Main mechanical parameters of the circuit breaker and actuator

With Spring operation mechanism

Item	Unit	Data			
Rated power of storage motor	W	110			
Rated voltage of storage motor	V	≥110、220 (85~110%)			
Power storage time	S	≤12			
Rated voltage of opening/closing coil	V	≈ 110	≈ 220	≈ 110	≈ 220
Rated current of opening/closing coil	A	3.6	2.6	2.3	1.4
Rated voltage of auxiliary switch	A	10(≈220V)、2(=220V T≥20ms)			
Distance of open contact	mm	10~12			
Super travel of contact	mm	3.5~5			
Tripping time of closing time	ms	2			
Interval of three pole on-off	ms	2			
Average closing speed	m/s	1.0 ± 0.2			
Average opening speed	m/s	0.6 ± 0.2			
Main loop resistance	μ Ω	≤60/35/25*			
Pressure on closing contact	N	3000 ± 100/5000 ± 200/6000 ± 400**			
Distance between the center pole	mm	270 ± 2			

Permanent magnetic

Item	Unit	Data
External control voltage	V	≥110(1 ± 20%) ≥220(1 ± 20%)
External control current	A	< 2
Control signal voltage	V	≥220(1 ± 20%)
Control signal current	A	< 0.1

*Corresponding to rated current 1600/3150/4000A

**Corresponding to breaking current 31.5/40/50kA

Table 4 Main technical parameters of GN58-12D Isolation switch

Item	Unit	Data
Rated voltage	kV	12
P.F. withstand voltage (Phase to phase, phase to earth)	kV	42
P.F. withstand voltage (Across open contacts)	kV	49
Lightning impulse withstand voltage(Phase to phase, phase to earth)	kV	75
Lightning impulse withstand voltage(Across open contacts)	kV	85
Rated frequency	Hz	50
Rated current	A	630、1250、1600、2000、2500、3150、4000、5000(Air-cooled)
Rated short-time withstand voltage	kA	25、31.5、40、50
Rated peak withstand voltage	kA	82、104、130
Rated short circuit duration (50kA)	s	4 (2)
Rated short-circuit making current of earthing switch (Peak)	kA	80

Table 5 Main technical parameter of CT

Item	Unit	Data
Rated voltage	kV	12
Rated single current	A	5~5000
Rated secondary current	A	1、5
Accuracy Class		0.2s/0.5/10P10(0.2s/10P15)
Minimum rated output capacity	VA	10/10/15(15/15)

XGN66A-12 AC Fixed Type Metal-clad Switchgear

Summary

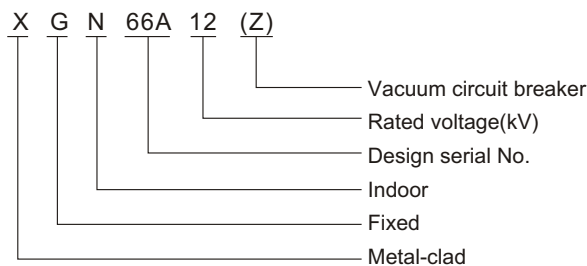
XGN66A-12 applies to 3.6~12kV three phase AC 50Hz system to receive and distribute power energy, suitable for sites with frequent operation and used to improve switchgear with oil switch. It can be arranged for single bus system and single bus sectionalizing system. The panel accords with IEC62271-200 AC Metal-enclosed Switchgear and Control Equipment above 1kV and below 52kV AC, GB3906 3~3.5kV AC Metal-enclosed Switchgear. It is novel in appearance and small in volume, and also has prevention function of mal-operation. The main switch inside the panel is VHY1-12, VS1-12 /ZN73-12 model VCB produced by Huayi Group, GN30-12, GN19-12 model disconnect switch and JN15-12 model earthing switch are used in panel.



Ambient condition

1. Ambient temperature: $-10^{\circ}\text{C}\sim+40^{\circ}\text{C}$;
2. Altitude: $\leq 1000\text{m}$;
3. Relative humidity: daily average $\leq 95\%$, monthly average $\leq 90\%$;
4. Earthquake intensity: ≤ 8 degree;
5. Applicable occasions should be free from inflammable, explosives and severe vibration.

Model



Technical specification

No.	Item	Unit	Data
1	Rated voltage	kV	3.6~12
2	Rated current	A	630,1250
3	Rated short circuit breaking current	kA	20, 25, 31.5
4	Rated short circuit making current(peak)	kA	50, 63, 80
5	Rated short time withstand current(4s virtual value)	kA	20,25,31.5
6	Rated peak withstand current(peak)	kA	50,63,80
7	1min. PF Withstand voltage	kV	42/48
8	Lightning impulse withstand voltage	kV	75/85
9	Auxiliary loop 1min. PF withstand voltage	kV	2
10	Protection degree		IP3X
11	Outline dimension(cable outgoing, W×D×H)	mm	900(840)×1200×2400

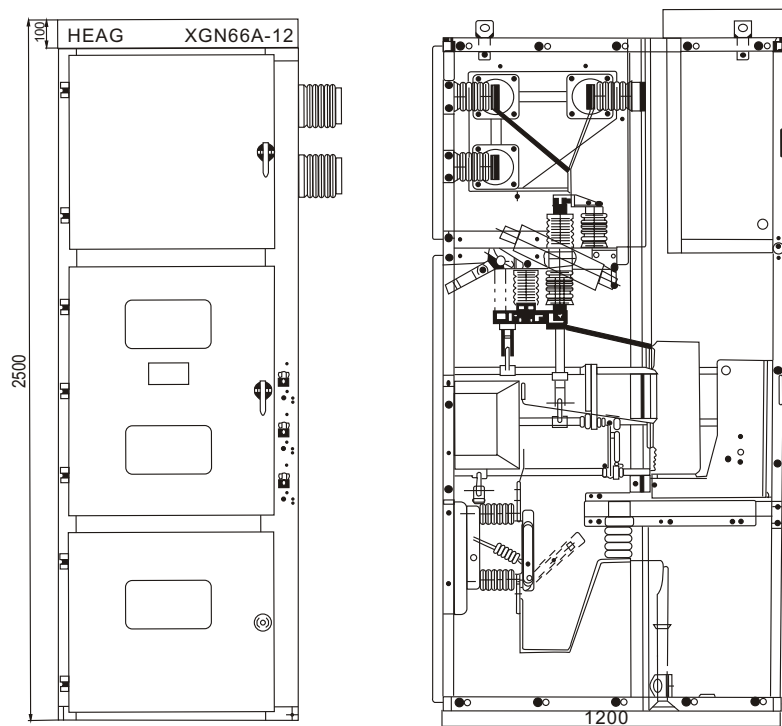
Main technical parameters for VHY1-12/VS1-12/ZN73-12 type VCB

No.	Item	Unit	Data
1	Rated voltage	kV	12
2	Rated current	A	630, 1250
3	Rated short circuit breaking current	kA	20, 25, 31.5
4	Rated short circuit making current(peak)	kA	50, 63, 80
5	Rated short time withstand current(4s virtual value)	kA	20, 25, 31.5
6	Rated peak withstand current(peak)	kA	50, 63, 80
7	Mechanical endurance	Times	10000
8	Rated short circuit breaking current breaking time	Times	50
9	Rated operation sequence		O-0.3s-CO-180s-CO

Product structure

The panel is case fixed type, whose body is made of aluminium-zinc plated steel sheet after multi-bending. Its rear-upper part is main bus compartment, and a pressure releasing device locates on the top. The front-upper part is low voltage compartment, secondary bus can be connected by cables from the bottom, or a bronze tube or stick can be installed on the top. Busbar compartment can keep electric connection with the middle/lower part of the cubicle through GN 30 model rotating disconnect switch. The VCB is installed in the middle of cubicle, earthing switch and disconnect switch of the outgoing cable side are installed in the lower part of panel. CT, PT and lightning arrester can be installed in the rear of panel, primary cable can go out from the back-lower part of panel. Earthing busbar installed on the bottom of panel are through all cubicles. Disconnect switch and earthing switch will be operated on the front-right part of panel.

Outline dimension



Drawing 1 Schematic Drawing

XGN36-12 (DXG-12) AC Fixed Type Metal-clad Switchgear

Summary

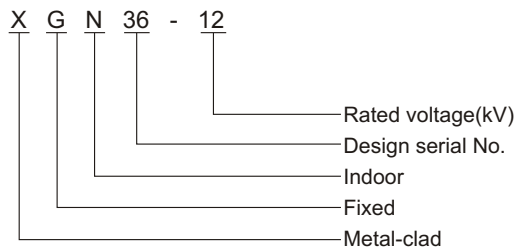
XGN36-12(DXG-12) switchgear is a new miniaturization power network equipment which introduced advanced technology and combine with our company real condition. With excellence of high grade, complete parameter, low price, few maintenance. It applies to 3.6~12kV three phase AC 50/60Hz single busbar or busbar sectional system for receiving and distribution power energy. It can widely used for electric power, metallurgy, petrification and urban construction.



Ambient condition

1. Ambient temperature: -10°C~+40°C;
2. Altitude: ≤1000m;
3. Relative humidity: daily average ≤ 95%, monthly average ≤ 90%;
4. Earthquake intensity: ≤8 degree;
5. Applicable occasions should be free from inflammable, explosives and severe vibration.

Model



Structure feature

1. The panel is novel and complete function, not only with fixed panel isolate live busbar feature, but also convenient for maintenance, easily to exchange circuit breaker, thereby assure of maintaining safely and conveniently, meanwhile, choose primary plug in contact.
2. Main switch is miniaturization vacuum circuit breaker(introduce advanced technology). Choose large creeping distance porcelain enclosure vacuum arc extinction chamber, adopt air insulation. It suitable for rural network reconstruction and industrial enterprise specially, equipped with miniaturization disconnect switch, double functions for main knife switch and earthing switch, gear drive type.
3. Panel is combination type, without welding, without deformation, miniaturization volume. With reliable "five protection" in interlock function, compulsive mechanical interlock on rear and front door.

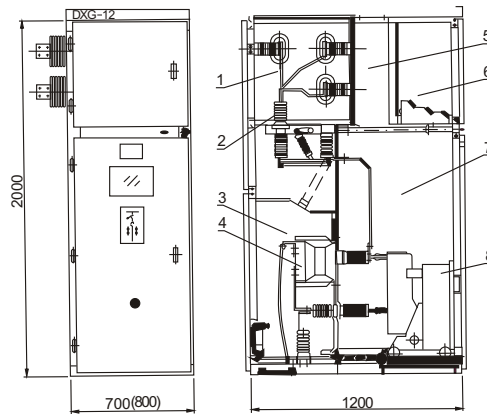
Technical specification

No.	Item	Unit	Parameter
1	Rated voltage	kV	12
2	Rated current	A	400, 630, 1250, 1600, 2000, 3150
3	Rated peak withstand current	kA	31.5, 40, 50, 63, 80, 100
4	Rated short time withstand current(4s)	kA	12.5, 16, 20, 25, 31.5, 40
5	Rated short time current breaking time	Times	50
6	Mechanical life	Times	20000
7	Rated short time duration	s	4
8	Rated breaking current	kA	12.5, 16, 20, 25, 31.5, 40

9	Rated insulation level	1min P.F. Withstand voltage	kV	(Phase to phase, phase to earth)42, (Across open contacts)48
		Lightning impulse withstand voltage		(Phase to phase, phase to earth)75, (Across open contacts)85
10	Outline dimension (W × D × H)	General case type	mm	700(800) × 1200 × 2000
		Armoured type(without down isolate)		700(800) × 1400 × 2000
		Armoured type(with down isolate)		700(800) × 1400 × 2000
		Heavy current panel(2500-3150)		1000 × 1400 × 2200
11	Enclosure protection degree			IP3X

*Outline dimension: Width: VHY1-12 , ZN73-12 or ZN28-12 type circuit breaker 1250A and below is 800mm, DZN-12 type circuit breaker 630A is 700mm, 1250A is 800mm.

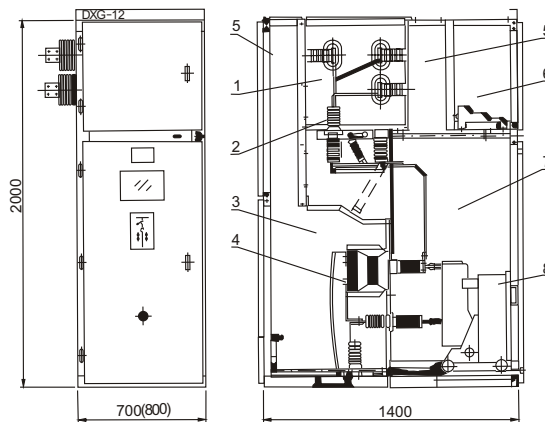
Outline dimension



- 1.Busbar compartment 2.Disconnect switch 3.Cable compartment
4.CT 5.Pressure release channel 6.Relay compartment
7.Circuit breaker compartment 8.Vacuum circuit breaker

Diagram 1 DXG-12 General Case Fixed Switchgear

Structure Diagram



- 1.Busbar compartment 2.Disconnect switch 3.Cable compartment
4.CT 5.Pressure release channel 6.Relay compartment
7.Circuit breaker compartment 8.Vacuum circuit breaker

Diagram 2 DXG-12 Armoured Fixed Switchgear

Structure Diagram

XGN2-12(G) Fixed Type Metal-clad Switchgear

Summary

XGN2-12 High voltage AC switchgear fixed type metal-enclosed switchgear applied to the 3.6kV~12kV three phase AC 50/60Hz system to receive and distribution power energy, and suitable for continually operation and rebuilding the switchgear which install oil switch. The busbar is single busbar system and double busbar subsection system.

XGN2-12(G) is suitable for high altitude area which is developed on base of general switch.

The switchgear conforms to GB3906 "3~35kV AC Metal-enclosed Switchgear" and IEC62271-200 standard, and with function of five protections locking.

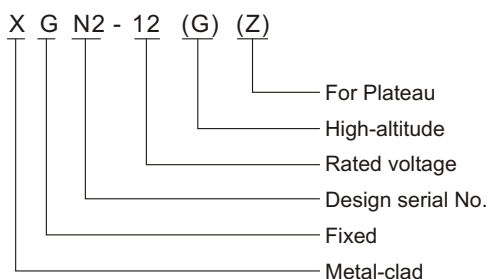
The main switch of panel is ZN28A-12 series vacuum circuit breaker, equip with CD10 series and CD17 electromagnetism, CT8, CT17/CT19 series spring operating mechanism.



Ambient condition

1. Ambient temperature: -25°C~+40°C;
2. Altitude: ≤1000m, high altitude type: ≤3000m;
3. Relative humidity: daily average ≤95%, monthly average ≤ 90%;
4. Vapour pressure: daily average ≤2.2X10Mpa, monthly average ≤1.8X10Mpa;
5. Earthquake intensity: ≤8 degree;
6. Applicable occasions should be free from inflammable, explosives and severe vibration.

Model



Product feature

XGN2-12 series fixed AC metal enclosed switchgear (short for panel as below) is a new product designed and developed by HEAG, based on the introduction of advanced foreign design and manufacturing technology. It applies to 3.6~12kV three phase AC 50Hz single busbar or single busbar sectional transport, transmission & distribution system, as for receiving and distributing power energy, and realize to control, monitor and protect power circuit. It is widely used for power plant, substation, petroleum, metallurgy, chemical, natural gas and other civil field.

Structure feature:

1. XGN2-12 series is metal enclosed fixed switchgear, the body is welded with angle steel and steel board, inner and outer coating is solid by static spray plastic powder.

2. This panel conforms to GB3906 3-35kV AC Metal enclosed switchgear and international standard IEC62271-200 besides, prevent from opening and closing connecting switch with load, prevent from opening and closing circuit breaker, prevent from entering into interval with electricity, prevent from closing earthing switch with electricity (five protections adopt simple, reliable mechanical interlock device). The power indicator is installed in front of panel which reflect voltage in the side of circuit. When circuit side with electricity, lock the enclosed board and panel door.
3. Same type product and structure component can exchange each other.
4. Enclosure
 - 4.1 The inner structure of panel is divided into circuit breaker compartment, busbar compartment, cable compartment, relay compartment, use steel plate to separate panels. Use eddy current steel plate and epoxy resin busbar bushing to separate panel.
 - 4.2 The panel adopts cold roll steel sheet and angle steel to weld together, without reticulation fabric, non-flame-resisting materials. Outer insulating creeping distance of components and supporting insulator, pure porcelain insulation $\geq 1.8\text{cm/kV}$, organic insulation $\geq 2.0\text{cm/kV}$. The air distance of phase to phase, phase to earth $\geq 125\text{mm}$. There is an intelligent hygroscope to start or stop heater according to the humidity condition of circuit breaker compartment and cable compartment in panel, Prevent from forming moist and high temperature.
 - 4.3 There is a viewing port for observing of closed and open position of upper, down connecting switch without open the door. The panel is double maintenance, inspect relay compartment equipments, operating mechanism, mechanical interlock and transmission part in front, inspect main busbar, shunt circuit busbar, cable terminal, connecting switch and earthing switch.
 - 4.5 Circuit breaker: The circuit breaker is located in the middle part, disconnecting switch and earthing switch and interlock mechanism are above it, and with indicator device, describe open and closed position.
 - 4.6 Transformer: CT is mounted on the underpart of front side, connect with circuit breaker and connecting switch, main loop without electricity. It can carry out preventive test, inspection and exchange, the secondary wire of CT to earth reliably.
 - 4.7 Disconnect switch and earthing switch: connecting switch, disconnect switch and earthing switch can be seen through viewing port, controlled by a set of manual operating mechanism to assure of program and reliable locking for circuit breaker, disconnect switch and earthing switch, meet the requirement of five protection.
 - 4.8 Measuring instrument, relay protection, monitor device and auxiliary circuit.
 - 4.9 Earthing: It takes a consideration of $4 \times 40\text{mm}^2$ copper busbar as earthing body along with whole width of all panel extending.

Technical specification

1. Primary wiring scheme to see table 1, primary wiring scheme combination to see table 2;
2. If used for high altitude, choose high altitude components, such as ZN28A-12GD;
3. Technical specification of panel to see table 3;
4. Technical specification of circuit breaker and operating mechanism:

No.	Item	Unit	Data						
1	Rated voltage	kV	11						
2	Highest voltage	kV	12						
3	Rated current	A	630	1000	1000	1250	2000	2500	3150
4	Rated short circuit breaking current	kA	20		31.5			40	
5	Rated short time withstand current(4s)	kA	20		31.5			40	

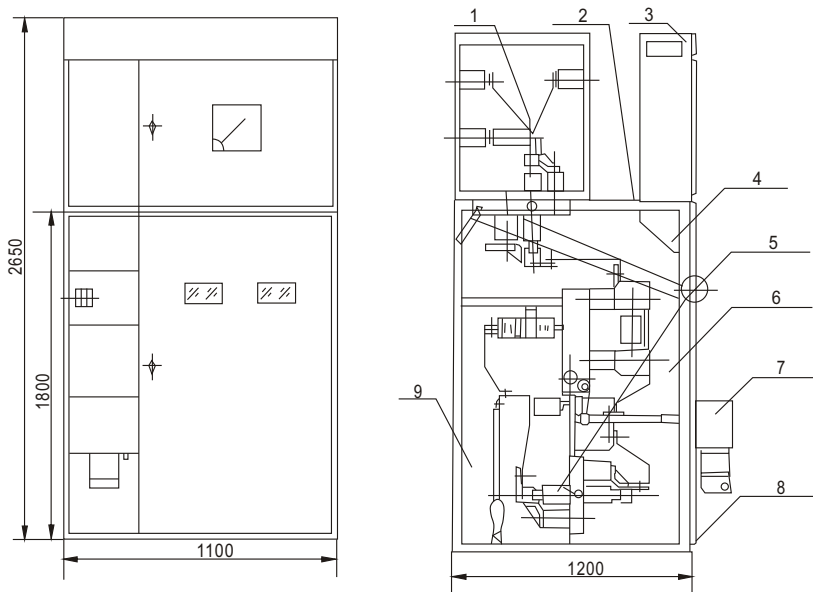
6	Rated peak withstand current	kA	50	80	100
7	Rated short circuit making current(peak)	kA	50	80	100
8	Protection degree		IP2X		
9	Operating type		Electromagnet type, spring charging type		
10	Outline dimension(width × depth × height)	mm	1100 × 1200 × 2650		

1. Rated current of plateau altitude switchgear: 630/1000/1250A

2. Outline dimension of plateau altitude switchgear: 1200 × 1350 × 2900mm

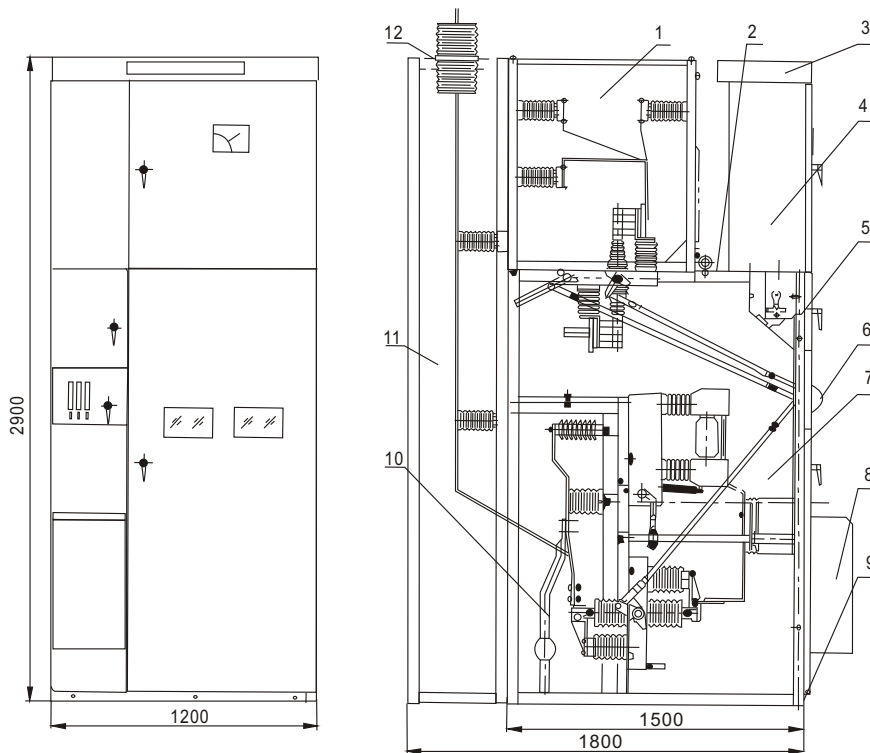
Item	Unit	ZN28A-12/1000-20	ZN28A-12/1250-31.5 2000-31.5	ZN28A-12/2500-40 3150-40	
Rated voltage	kV	10			
Highest voltage	kV	12			
Rated frequency	Hz	50			
Rated current	A	1000	1250,2000	2500,3150	
Rated short circuit breaking current	kA	20	31.5	40	
Rated short circuit making peak current	kA	50	80	100	
Rated short time withstand current	kA	20	31.5	40	
Rated peak withstand current	kA	50	80	100	
Rated short time withstand current duration	s	4			
Mechanical endurance	Times	1000			
Rated STC breaking times	Times	30(50)			
Vacuum Interrupter vacuum degree	Pa	$\leq 6.6 \times 10^{-2}$			
Arcing time	ms	≤ 20			
	Type	CD10 I	CD10 II	CD10 III	
	Working voltage (V)	Open coil	110, 220		
		Open coil	24,48,110,220		
Working current (A)	Close	110	196	240	294
		220	98	120	147
	Close	24	37		
		48	18.5		
		110	5		
220	2.5				
		CT8- I	CTB- II		
Working voltage (V)	Storage motor	$\cong 110, \cong 220$			
	Shunt trip	-48, $\cong 110, \cong 220$			
	No-voltage trip	~110(110), ~220			
Storage time	s	$\cong 5$			
Over current trip	A	5			
Opening time	s	DC electromagnetism $\cong 0.20$ spring storage $\cong 0.15$			
Opening time		$\cong 0.06$			

Outline dimension



Drawing 1a XGN2-12-07D Outline Drawing

- 1. Busbar compartment 2. Pressure release channel 3. Metering compartment
- 4. Combination switch compartment 5. Manual operating and interlock mechanism
- 6. Main switch compartment 7. Electromagnet or spring mechanism
- 8. Earthing busbar 9. Cable compartment



Drawing 1b XGN2-12(G) Basic Reference Drawing

- 1. Busbar compartment 2. Pressure release channel 3. Small busbar compartment
- 4. Metering compartment 5. Transfer switch compartment
- 6. Disconnect switch operating and interlock mechanism
- 7. Circuit breaker compartment 8. Circuit breaker operating mechanism
- 9. Earthing busbar 10. Cable compartment 11. Overhead inlet-outlet extra panel 12. Busbar bushing

XGN(W)74-12 HV Switchgear Metal-clad AC Ring Main Unit

Summary

XGN(W)74-12 Series metal enclosed compact switchgear unit module. Each unit has its independent function. It can be extendible to each side, and supplied in different configurations suitable for actually requirement.

XGN(W)74-12 Series metal enclosed compact switchgear is completely SF6 system with a stainless steel tank containing Main Switch(LBS or VCB), Earthing Switch, Fuse insulation and busbar. A sealed steel tank with constant atmospheric conditions ensures a high level of reliability as well as personnel safety and a virtually maintenance-free system.

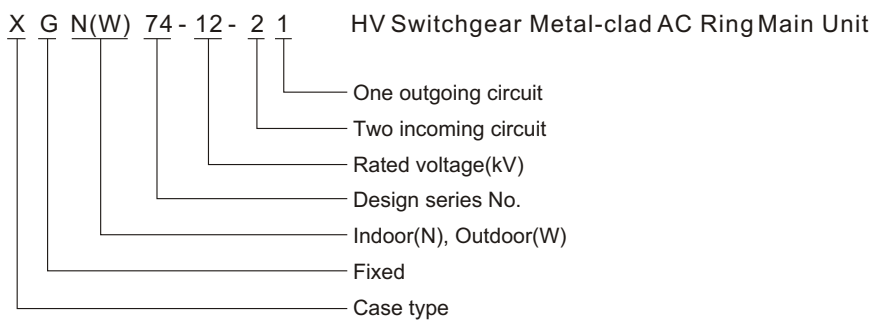
XGN(W)74-12 Series metal enclosed compact switchgear, Main Switch is SF6 Load Break Switch(VCB). The switchgear have different merits due to its clear configurations, flexibility, safety interlock, extendible. The switchgear suitable for rated frequency 50/60Hz, rated voltage 12kV distribution network. It is designed for use in the following applications: compact secondary substations, small industries, wind power plants, hotel, shopping centers, office buildings, business centers, lighting mining applications, airport, hospitals, tunnels and underground railway etc. IEC62271-201 & IEC62271-304.



Ambient condition

1. Ambient temperature: +40°C~-25°C;
2. Wind speed: ≤34m/s;
3. Altitude: ≤1000m;
4. Earthquake intensity: 8 degree;
5. Ambient temperature: Monthly average≤90%;daily average≤95%;
6. Applicable occasions should free from inflammables, explosives corrosives and servere vibration;
7. Pollution degree:IV

Model



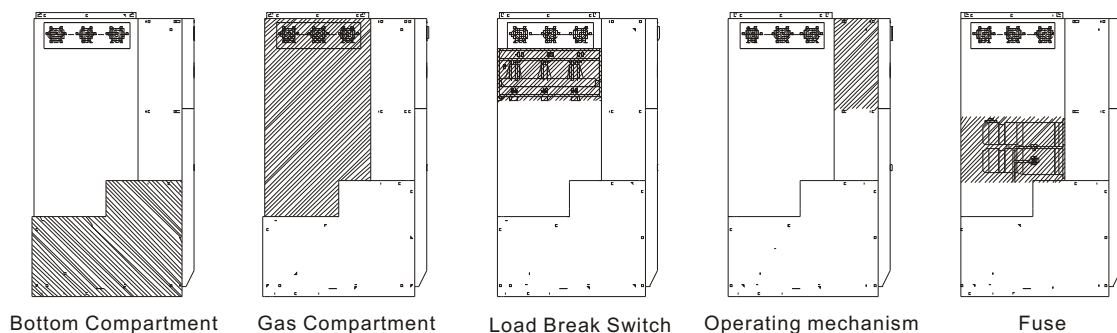
Technical specification

No.	Item	Unit	Data
1	Rated voltage	kV	12
2	Rated frequency	Hz	50
3	Rated current(LBS/ Combination Apparatus)	A	630/100
4	1min P.F withstand voltage	kV	Phase to phase, Phase to earth
	Disconnect gap		42
			49

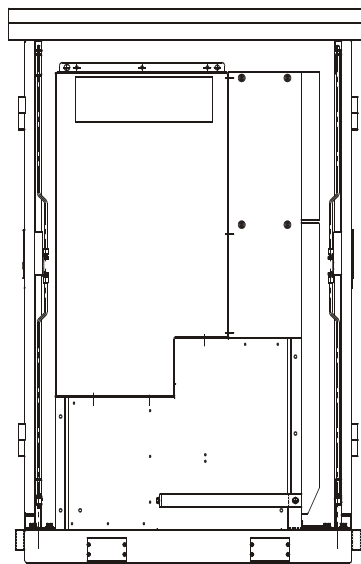
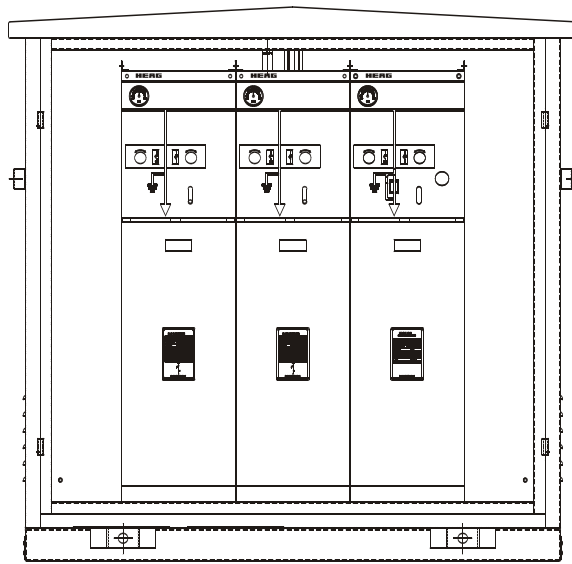
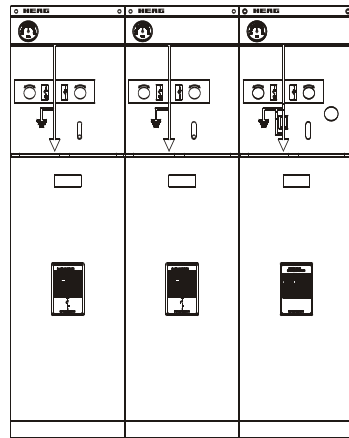
No.	Item		Unit	Data	
5	Lightning impulse withstand voltage	Phase to phase, Phase to earth	kV	75	
		Between gaps		85	
6	Rated short-time withstand current	LBS 4s	kA	20	
		ES 2s			
7	Rated peak withstand current	LBS	kA	50	
		ES			
		Earthing connection circuit		40	
8	Rated short-circuit making current(peak)	LBS	kA	50	Making 3 times
		ES			Making 2 times
9	LBS rated active load breaking current.		A	630	Breaking 100 times
10	LBS rated closing ring breaking current.			630	Breaking 20 times
11	LBS 5% rated active load breaking current.			31.5	Breaking 20 times
12	LBS rated cable charging breaking current.			10	Breaking 10 times
13	Combination Apparatus rated short circuit breaking current.		kA	31.5	
14	Combination Apparatus rated transfer current.		A	1500	
15	Rated line charging breaking current			1	Breaking 10 times
16	Earthing fault current breaking			30	Breaking 10 times
17	Line and cable charging current breaking under earthing fault condition			17.3	Breaking 10 times
18	Mechanical life	LBS	Times	5000	
		ES		2000	
19	SF6 Gas rated press(20°C, Gage pressure)		MPa	0.03	
20	SF6 Gas leakage ratio		Annual	≤1%	
21	Opening, Closing devices and auxiliary circuit rated voltage (Ua)		V	DC110, DC220, AC220	
22	Operating mechanism			Spring (Manual/Motor)	
23	Outline dimension(WxDxH)		mm	1740×1100×1600	
24	Gross weight		kg	1100	

General configuration

XGN(W)74-12 series consisting of bottom compartment, gas compartment, operating mechanism, interlock mechanism and LV control compartment. Each compartment disconnected by copper plate. Gas compartment have pressure release device. Lower compartment have pressure release guide in order to avoid accident. Degree of protection is IP3X.



Drawing 1 Compartment and main element equipment installation location in gas box



XGW74-12 Outdoor Ring Main Unit Structure Drawing

HXGN11-12 HV Switchgear Metal-clad AC Ring Main Unit

Summary

HXGN11-12 HV Switchgear Metal-clad AC Ring Main Unit(RMU) is a new HV apparatus which is introduced from abroad and accords with the requirements of rural and city power distribution & transmission system. This product has passed the type test report and all the performances have already satisfied the requirements of IEC 62271-200 Standard <<1KV-52KV AC HV Metal-clad Switchgear and its Controlling Equipments>>. It has reliable anti-misoperation function, and the protection degree is IP3X. It applies to the 12KV, three phases, 50/60Hz power distribution systems in such occasions: Enterprises, Mining places, High buildings, Residence community, School, Park, etc.



Ambient condition

1. Ambient temperature: -10°C~+40°C
2. Altitude: ≤1000 m;
3. Relative humidity: ≤90%(Month mean value); ≤95%(+25°C)(Daily mean value);
4. Earthquake intensity: ≤Degree 8(Horizontal acceleration 0.3g)
5. Occasions without flammable and explosive matter, without corrosive chemical and frequent severe vibration, without strong shake.

Product feature

The meter's compartment is insulated by metal partitions board from the main busbar compartment and others, so it is safely for usage.

Set metal partitions board with in the disconnect gaps, and it is integrated with earthing switch: when the earthing switch is closed, it is disconnecting the isolating gaps, so it is very reliable, safety and easily for maintenance;

Spring energy storage operating: when the HV fuses blew, all the three phases will shed automatically;

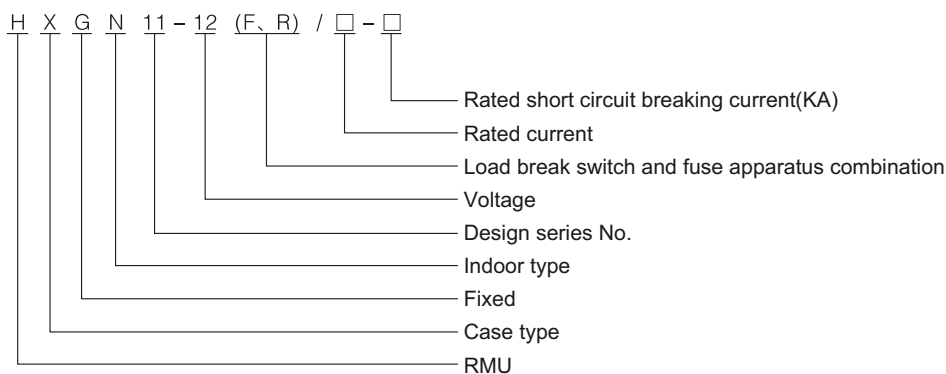
The mechanical interlock satisfy the '5 protection' requirements.

The switchgear can be as RMU power supply unit or other connection types very easily, and it is also can be extended very easily;

Use the vacuum load break for breaking and closing, so it is reliable and safety.

The structure of the switchgear is simple, it has beautiful appearance, and can be operated easily by both manual and motor.

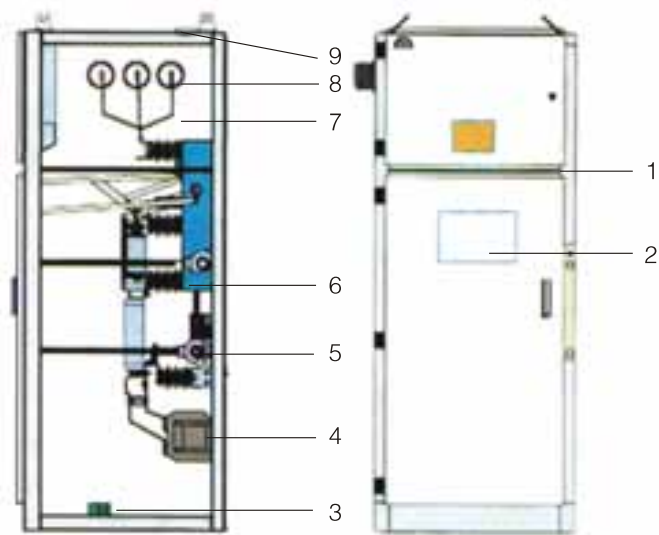
Model



Technical specification

No.	Item	Unit	Parameter
1	Rated voltage	kV	12
2	Rated frequency	Hz	50
3	Main busbar rated current	A	630
4	Rated short-time withstand current(Functional unit)	kA/S	20/3
5	Earthing circuit rated short time withstand current	kA	20/2
6	Rated peak withstand current	kA	50
7	Earthing circuit rated peak withstand current	kA	50
8	Main/earthing circuit rated short circuit making current(Peak)	kA	50
9	Fuse breaking current	kA	31.5
10	Mechanical life	Times	5000
11	1 min P.F withstand voltage	kA	42/48
	P to E, P to P/ Across open contacts (Valid value)		
12	Lightning impulse withstand voltage	kA	75/85
	P to E, P to P/ Across open contacts (Peak value)		
13	Secondary circuit 1 min P.F withstand voltage	kA	2
14	Outline dimension(WxDxH)	mm	650x850x1900
15	Net weight	Kg	160
16	Package outline dimension(WxDxH)	mm	800x1000x2000
17	Gross weight	Kg	220

Outline dimension diagram



HXGN11-12 HV Switchgear Metal-clad AC Ring Main Unit(Feeder)

1. Insulation insert board
2. Anti-explosion observation window
3. Primary cable buck
4. Dry type CT
5. Operation mechanism
6. LBS and fuse combination apparatus
7. Main busbar compartment
8. Busbar bushing
9. Press releasing device.

HXGN15-12L HV Switchgear Metal-clad AC Ring Main Unit

Summary

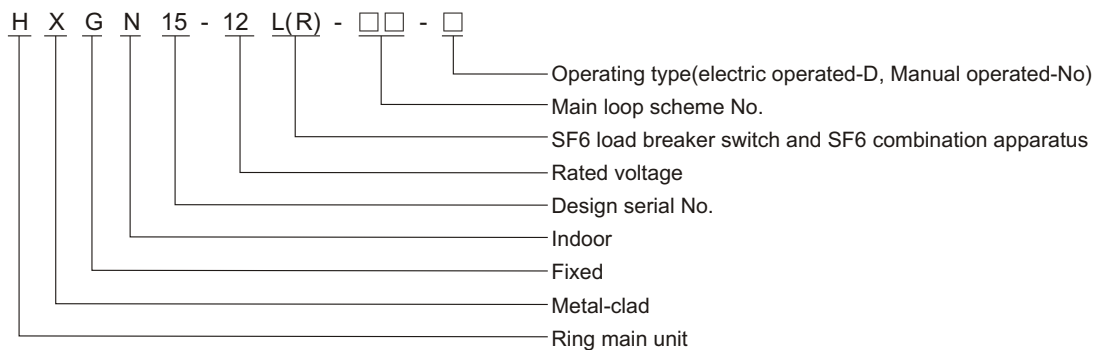
HXGN15-12L HV switchgear metal enclosed AC ring main unit is a new HV apparatus which introduced from abroad and accord with the requirement of rural distribution and city distribution in nation. Main switch, operation mechanism and component use the SFL-12 model SF6 switch equipment produced by ABB company or FLN36-12D model SF6 switch equipment produced by our company. Also can use the HAD/US model SF6 circuit breaker or VD4-S model vacuum circuit breaker produced by company ABB according to requirement of customer operation type is manual and motor.



Ambient condition

1. Ambient temperature: -25°C~+40°C;
2. Altitude: ≤1000m;
3. Relative humidity: daily average ≤95%, monthly average ≤90%;
4. Occasions without flammable and explosive matter, without corrosive chemical and frequent severe vibration, without strong shake.

Model



Product feature

Panel structure: The panel body is enclosed by 2 mm aluminium-zinc plated steel plate after multi-bending. It is simple, firm, delicate and peculiar.

1. Busbar compartment

The busbar compartment is located in the top and connect with neighboring panel.

2. Load break switch is a separated unit with SF6 gas.

3. Cable compartment

Approximate 75% room for connecting cable and installing fuse, earthing switch and PT.

4. Mechanism chamber and interlock

The chamber consists of operating mechanism, mechanism interlock, position indicator, auxiliary contact trip coil, power indicator and interlock.

5. LV chamber

LV compartment is located in the top. It mainly user for installing instrument, relay and motor.

6. Circuit breaker compartment

The circuit breaker (SF6 or Vacuum) is located below load break switch.

Pressure release:

A. Upper pressure release

It is mainly used for releasing gas pressure which produced by arc accident in busbar load break switch compartment.

B. Down pressure release

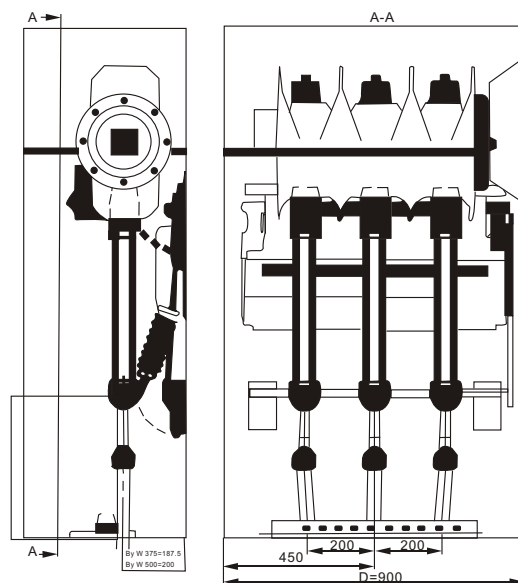
It is mainly used for releasing gas pressure which produced by arc accident in cable small compartment.

Technical specification

Item	Unit	Parameter
Rated voltage	kV	10
Highest working voltage	kV	12
Rated frequency	Hz	50/60
Main busbar rated current	A	630
Main loop, earthing loop rated short time withstand current	kA/s	20/3
Main loop, earthing loop rated peak withstand current	kA	50
Main loop, earthing loop rated short circuit making current	kA	50
Load break switch full capacity breaking time	Times	100
Fuse breaking current	kA	31.5-50
Mechanical life	Times	2000
Rated transfer current	A	1700
1min P.F. Withstand(virtral value),phase to phase, earth/across open contacts	kV	42/48
Lightning impulse withstand voltage(peak) phase to phase, earth/across open contacts	kV	75/85
Secondary loop 1min P.F. Withstand	kV	2
Protection degree		IP3X

Outline and dimension

Width of circuit breaker panel	mm	750
Other width of panel	mm	375/500
Height	mm	1600/1850
Depth	mm	980
Height of LV case	mm	450



MNS Low Voltage Withdrawable Switchgear

Summary

MNS model LV switchgear is suitable for AC 50~60Hz, 660V and below power system. It is applied into power plant, substation, oil field, chemistry industry, metallurgy, mineral enterprise etc. To receive and distribute power with the function of control, protection and monitor. Different types of switch is used inside the cabinet.

The LV Switchgear conforms to IEC60439 VDE0660, part five, GB7251 " LV Switchgear and controlgear " standard and JB/T9661 " LV draw out switchgear " standard.



Ambient condition

1. Ambient temperature: $\leq +40^{\circ}\text{C}$, daily temperature $\leq +35^{\circ}\text{C}$, lowest temperature $\geq -5^{\circ}\text{C}$;
2. Relative humidity at highest temperature $+40^{\circ}\text{C}$, $\leq 50\%$, allowed max. relative humidity at low temperature, for example, $+20^{\circ}\text{C}$ is 90%, it will occur moderate moist due to temperature change;
3. Altitude: $\leq 2000\text{m}$;
4. The device is suitable for transportation and storage as the following temperature: $-25^{\circ}\text{C} \sim 55^{\circ}\text{C}$. The device should not be suffered from non-recovery damage.

Technical specification

Primary circuit technical parameter (as per DW45)

Type	Rated current (A)	Rated current of over current release (A)	Rated insulation voltage (V)	Rated breaking capacity				Short time withstand current (1s)
				Rated making capacity				
				Instantaneous		Delay 0.42s		
660V	380V	660V	380V					
DW45-600	600	250,400,630	660		42/88.2		22/46.2	30
DW45-1000	1000	250,400,630,1000	660		50/105		30/63or40/84	40
DW45-1600	1600	1000,1250,1600	660	30/63	65/143	22/46.2	35/80.5	50
DW45-2000	2000	1250,2000	660	30/63	65/143	30/63	35/80.5	50
DW45-3200	2000	1250,2000	660	30/63	70/154	30/63	70/154	70
DW45-2000G	3200	2000,3200	660	50/105	65/143	42/88.2	42/88.2	65
DW45-2000G	3200	2000,3200	660	50/105	85/187	42/88.2	42/88.2	85
DW45-5000	5000	5000	660	50/105	120/264	42/88.2	42/88.2	100

Outline and installation dimension

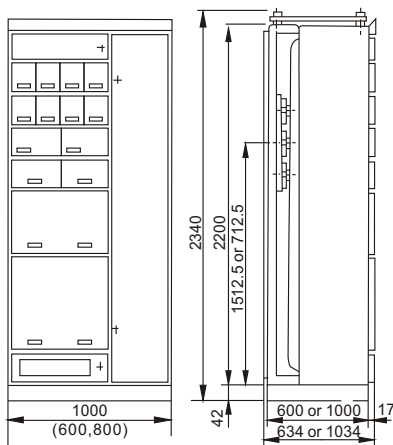


Fig.1 Draw out type MCC panel

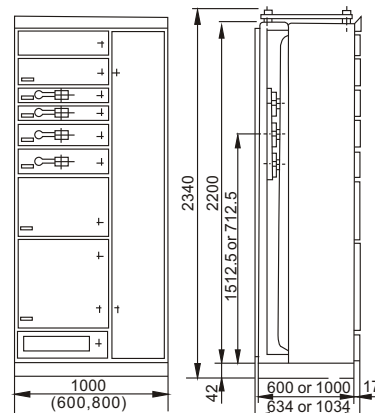


Fig.2 Removable type MCC panel

GCS Low Voltage Withdrawable Switchgear

Summary

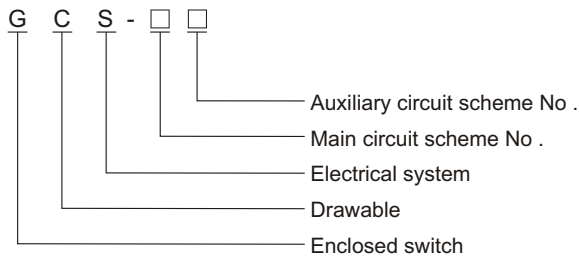
LV withdrawable switchgear is suitable for distribution system of power plant, high building and some lines, such as petroleum chemistry and industry, metallurgy, textile, etc. It is applicable for distribution, motor centralized control, reactive power compensation in power generation and power supply system of three phase AC 50/60Hz, rated voltage 380V(400V,600V), rated current 4000A and below, where require high automation and interfaces with computers.



Ambient condition

1. Ambient temperature: $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$, daily average $\leq +35^{\circ}\text{C}$. It should reduce capacity according to real condition when out of stipulation;
2. Indoor, Altitude $\leq 2000\text{m}$;
3. The change of ambient relative temperature will cause a little moist by accident;
4. The slant between device installation position and vertical section $\leq 5\%$;
5. Occasions without flammable and explosive matter, without corrosive chemical and frequent severe vibration.

Model



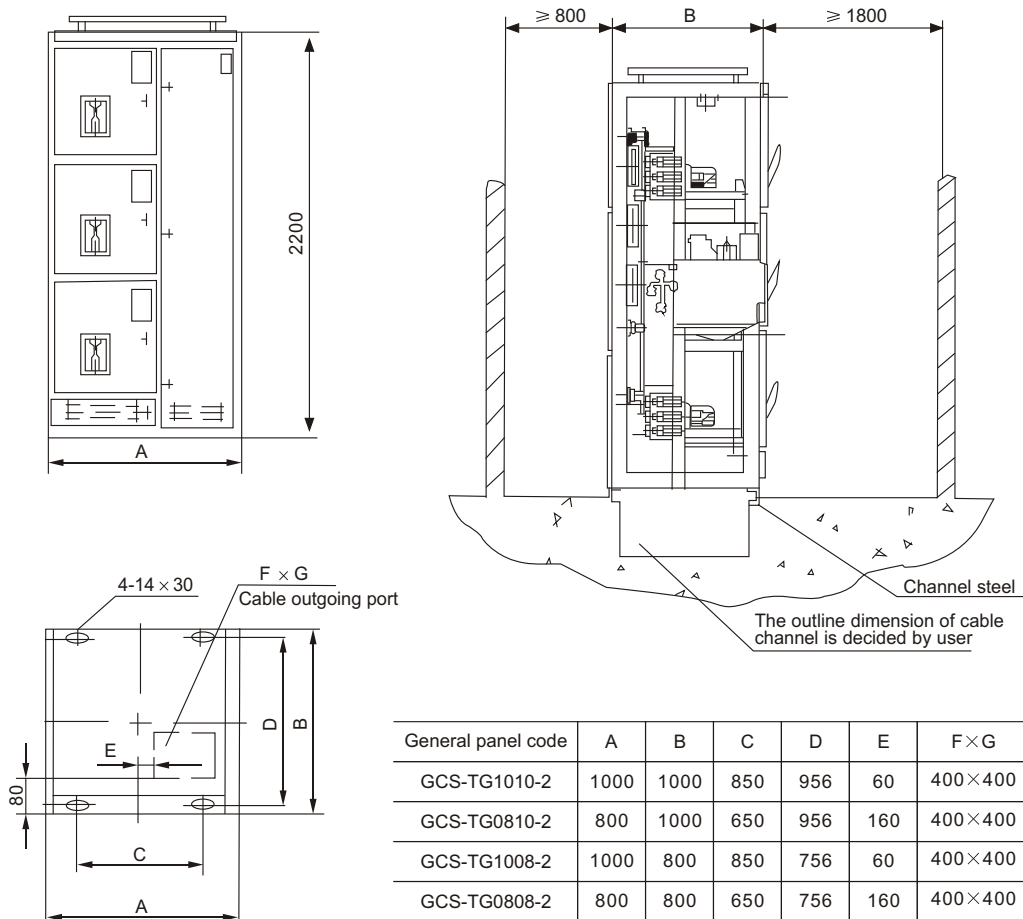
Structure feature

1. Main frame adopts 8MF open type steel which bended by 2.5mm cold rolled steel sheet. There are modulus with 20mm, 100mm, 9.2 mm installation hole located on three side, high strength for modelling installation conveniently.
2. The drawer divided into 1/2 unit, 1 unit, 2 unit, 3 unit, loop rated current is 400A and below.
3. Flexible assembly, compact structure, strong versatility, perfect secure performance, convenient assembly.
4. Improve thermal capacity of patchboard, reduce additional temperature rise of plug in, cable terminal, isolating board due to temperature rise of transition element.
5. It can not influence others unit when any unit appears to fault between function unit and isolating unit, limit the emergency in a small scope.
6. Busbar horizontal is good for dynamic and thermal stable performance.
7. The maximum 22 loops for MCC single panel, take consideration of requirement of auto motor door group about large unit capacity power plant, petroleum chemistry system line.
8. It finish connection of device and outer cable in cable compartment, upper and down inlet and outlet is available. The zero sequence current transformer is installed in the cable isolating compartment.
9. It can limit short circuit current depend on limited reactor in the same power distribution system, to stabilize busbar voltage, reduce short circuit intensity requirement.

Technical specification

Main circuit rated voltage(V)		AC 380(400), (600)
Auxiliary circuit rated voltage(V)		AC 220, 380(400) DC 110, 220
Rated frequency(Hz)		50(60)
Rated insulation voltage(V)		660(1000)
Rated current(A)	Horizontal busbar	≤4000
	Vertical busbar(mcc)	1000
Busbar rated short time withstand current(kA/1s)		50,80
Busbar rated peak withstand current(kA/0.1s)		105,176
P.F test voltage(V/min)	Main circuit	2500
	Auxiliary circuit	2500
Busbar	Three phase four wire	A.B.C.PEN
	Three phase five wire	A.B.C.PEN
Protection degree		IP40

Outline dimension



GCK Low Voltage Withdrawable Switchgear

Summary

The product is suitable for power plant, substation, industrial enterprise, etc. It takes a role of power distribution, motor control in 50/60Hz, Max. working voltage 660V, Max. working current 3150A distribution system.

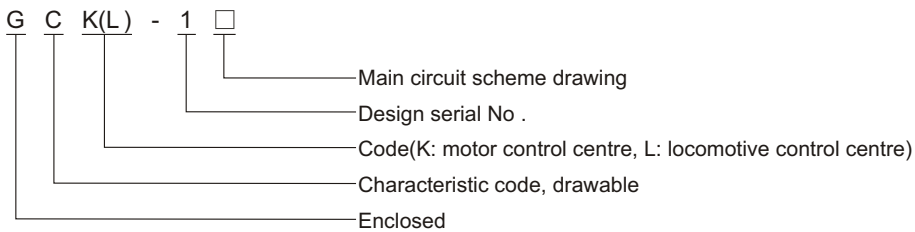
The product is high breaking capacity, perfect dynamic stable, reasonable structure, effective electric scheme, strong versatility, multi bops, save acreage, excellent appearance, high protection degree, convenient maintenance, secure and reliable.



Ambient condition

1. Ambient temperature: $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$;
2. Relative humidity: daily average $\leq 95\%$, monthly average $\leq 90\%$;
3. Indoor type, altitude $\leq 2000\text{m}$;
4. Earthquake intensity ≤ 8 degree;
5. Occasions without flammable and explosive matter, without corrosive chemical and frequent severe vibration.

Model



Structure feature

GCK panel is combination structure with bolt. The complete panel is composed of door, terminal board, baffle plate, supporting frame and drawer, busbar, etc.

Basic frame adopts FA 28 type or KB type (C type) to combine with together. Total structural components of frame are connected by self-tapping screw. It should add to door, faceplate, baffle plate, supporting frame and drawer to finish complete panel by requirements.

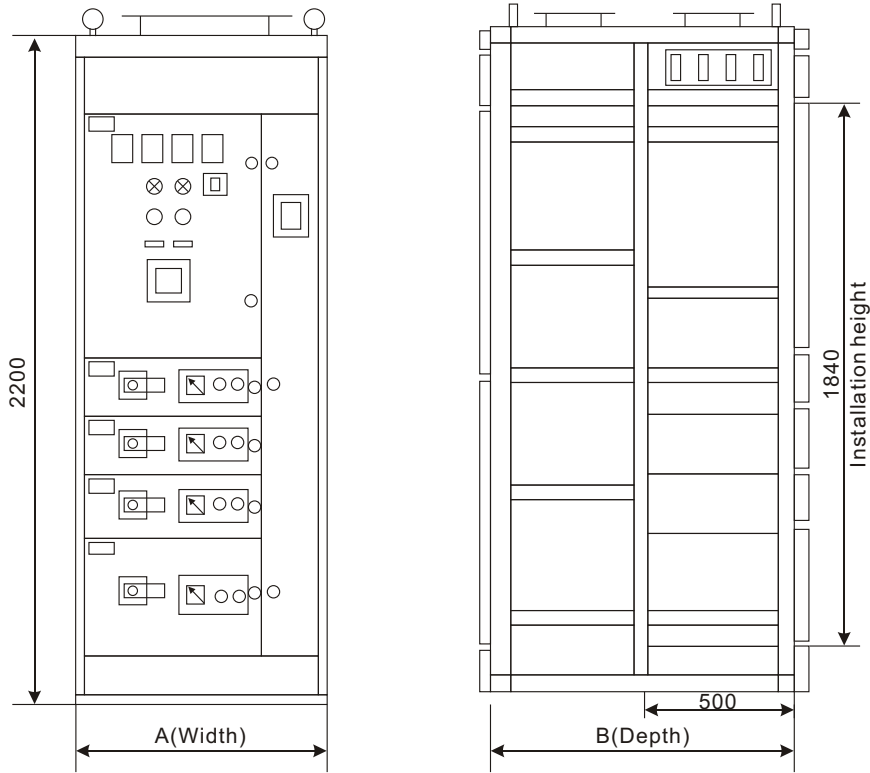
The installation hole of body and components modulus $E=25\text{mm}$ change, flexible and convenient to install.

Drawer unit height divide into 1/2 unit, 200mm, 300mm, 400mm, 500mm and 600mm series. The loop current decide the drawer height, virtual installation height is 1800mm.

GCK panel withdrawable function unit adopts special push (pull) mechanism, light structure, perfect interchange. It indicate of working position, test position and isolating position mechanical locking condition. Install additional padlock for operating handle.

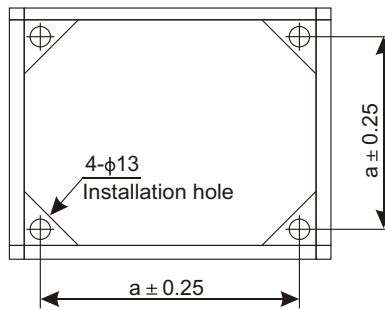
The frame and inner metal components are galvanized to assure reliable earthing.

Outline and dimension



Installation dimension:

Dimension A	Dimension B	Dimension a	Dimension b
600	800	490	690
	1000	490	890
800	800	685	690
	1000	685	890
1000	800	890	690
	1000	890	890



GGD Low Voltage Switchgear

Summary

GGD model AC LV Withdrawable applies to power plant, substation industrial enterprise, as motive force in AC 50/60Hz, rated working voltage 380/415V, rated current 3150A and below distribution system. For transferring power energy, distributing and controlling of lightning and distribution. High breaking capacity, rated short time current will reach 50kA. Flexible circuit scheme, convenient combination, novel structure.

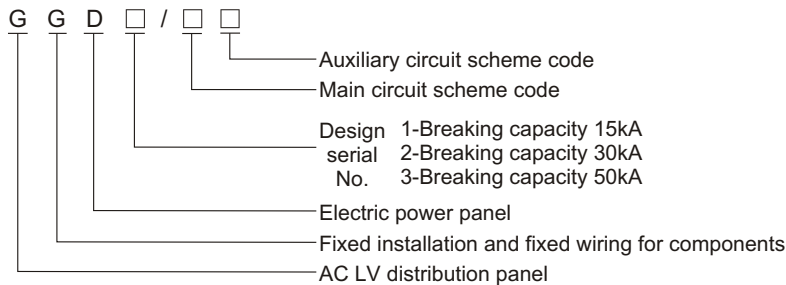
This product conforms to IEC60439 LV Switchgear and controlgear, GB7251 LV Switchgear and controlgear etc.



Ambient condition

1. Ambient temperature: $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$, daily average temperature $\leq+35^{\circ}\text{C}$;
2. Altitude: $\leq 2000\text{m}$, indoor type;
3. Ambient relative humidity at highest temperature $+40^{\circ}\text{C}$ not exceed 50%;
4. Allowed max relative humidity at low temperature, example for $+20^{\circ}\text{C}$ is 90%, it will occur moderate moist due to temperature change;
5. Vertical installation, gradient: $\leq 5\%$;
6. Occasions without flammable and explosive matter, without corrosive chemical and frequent severe vibration.

Model



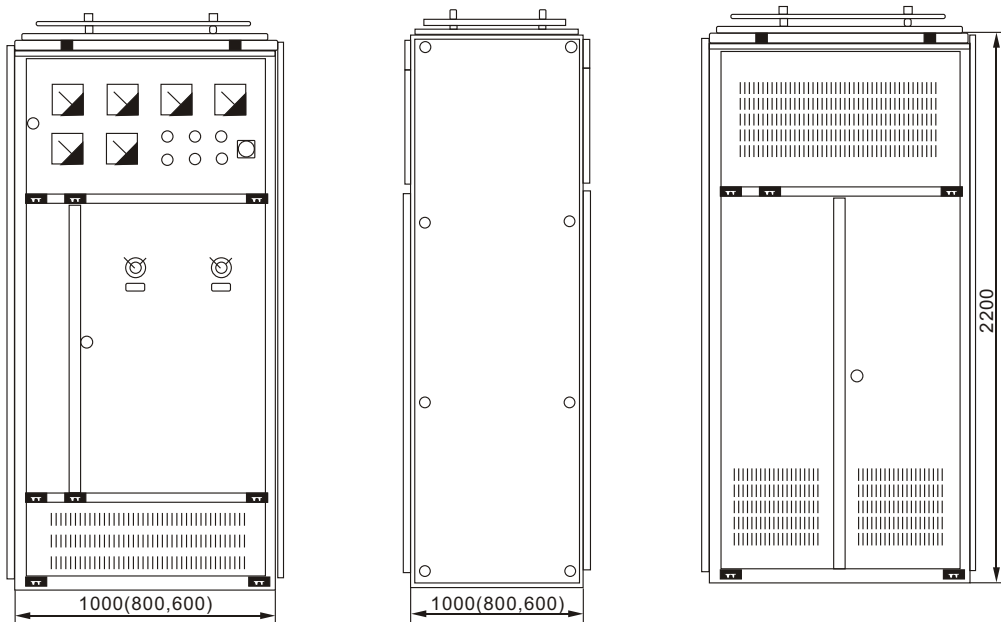
Product feature

1. GGD AC LV distribution panel adopts commonly type, the frame are welded or assembled by 8MF cold bend steel, the components and special fitting of frame are supplied by our company. To keep perfect precision and quality.
2. Commonly panel components are designed reference to module principle, 20 modular, high commonly factor, shorten production cycle and improve production efficiency.
3. We have taken account of heat radiation during operating when got ready to design. There are many heat radiation slotted eye from top to bottom on the body. Heat quantity will displace to direction of upper slotted eye, then the cold wind will be compensated from bottom slotted eye, when the components is heating and increase heat quantity, then form to a natural air channel.
4. GGD panel adopts modern industrial style design, adopts golden section method to design panel outline and section dimension of every parts.
5. The panel door are connected by transfer axle type moving link chain and frame, convenient to install and disassemble.
6. There is a rubber plastic bar in the place of edge and a compress travel between door and frame in closing.
7. Panel finishing coat of instrument door chooses multi strand soft copper line to connect with frame.
8. The installation components and frame are connected by knurled washer to complete earthing protection system.
9. The body finishing coat is choice polyester orange type bake lacquer, also can choose spouting moulding technology, strong adhesive force.
11. The body protection degree is IP 30, allowed scope is from IP 20 to IP 40 according to ambient condition.

Technical specification

Type	Rated voltage (V)	Rated current (A)		Rated short circuit breaking current (kA)	Rated short time withstand current (1s)(kA)	Rated peak withstand current (kA)
GGD1	400	A	1000	15	15	30
		B	600(630)			
		C	400			
GGD2	400	A	1500(1600)	30	30	63
		B	1000			
		C	600(630)			
GGD3	400	A	3200	50	50	105
		B	2500			
		C	2000			

Outline drawing



MCS Intelligent LV Withdrawable Switchgear

Summary

MCS intelligent LV withdrawable switchgear applies to power plant, petrifaction, telecom, light industry, textile, construction and other civil and industrial & mineral enterprise distribution system. It regards to distribution, electromotor centralized control, reactive power factor compensation LV distribution device in the large power plant, telecom system, it combines computer interface to match it. The product conforms to: IEC60439 LV switchgear and controlgear, JB/T9661 LV drawable switchgear, GB7251 LV switchgear and controlgear.



Structure feature

1. The body adopts "c" type to combine it, uniform appearance, high precision, perfect interchange for drawer.
2. MCC panel width is 600mm, wide using capacity, save space.
3. It can equip with different type switch according to different requirement.
4. The device is obligate automatic interface, also install intelligent module on the panel to realize remote message, remote measurement remote control.

Ambient condition

1. Ambient temperature: $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$, daily average temperature $\leq+35^{\circ}\text{C}$;
2. Altitude: $\leq 2000\text{m}$;
3. Relative humidity: $\leq 90\%$ (20°C);
4. Vertical installation, slant: ≤ 5 degree;
5. Occasions without flammable and explosive matter, without corrosive chemical and frequent severe vibration.

Basic parameter

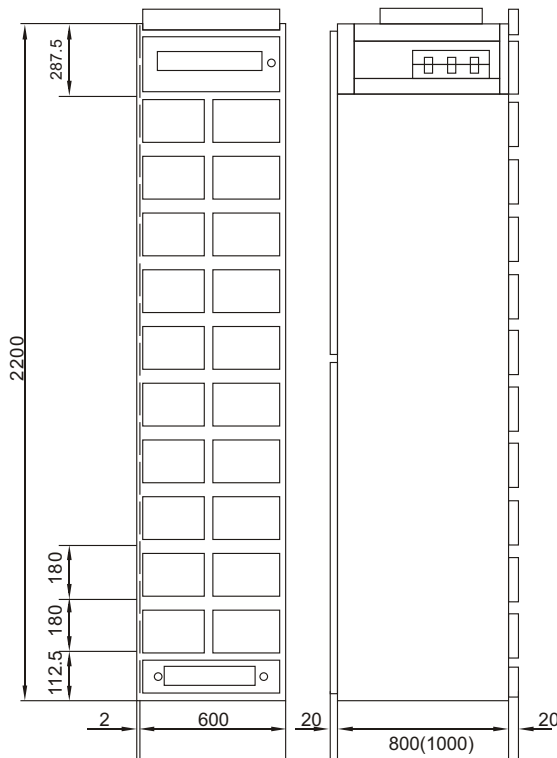
1. Electrical performance:
 - Rated working voltage: AC380V, AC660V;
 - Rated frequency: 50(60)Hz;
 - Rated insulation voltage: AC660;
 - Max working current of main busbar: 5000A;
 - Main busbar short time withstand current(1s): 100kA;
 - Main busbar peak withstand current: 220kA;
 - Max working current of vertical busbar: 1600A.
2. Protection grade:
 - IP30(incoming, PC panel)
 - IP40(MCC panel)

Drawer function unit

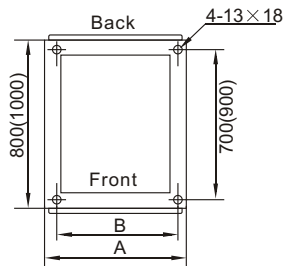
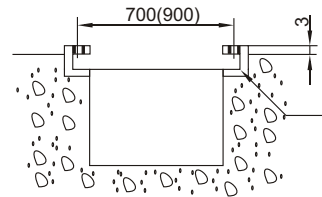
The drawer function unit is divided into MCC I , MCC II , MCC III .

1. MCC I type
 - Width of drawer is 600mm, height is 180mm, 360mm, 540mm. Allowed installation height is 1800mm, 10 units are the top quantity according to the dimension of drawer. It is suitable for heavy current motor control centre and feeder loop.
2. MCC II type
 - Width of drawer is 600/2mm, height is 200mm. Allowed installation height is 1800mm, 18 units are the top quantity according to requirement. It is suitable for 100 A or below unit.
3. MCC III type
 - Width of drawer is 600/2mm, height is 180mm, 360mm, 540mm. Allowed installation height is 1800mm, 20 units are the top quantity. It is suitable for 630A or below.
4. Operating mechanism
 - An operating mechanism is used for opening and closing switch in every drawer. Additional of mechanical interlock for prevent from fault operation. MCC II , MCC III drawer is push and pull type, fixed device and protection measure.

Outline dimension



Width A	Installation dimension B
600	500
800	700
1000	900
1200	1100



- Note:
1. Distance for maintenance in back of panel $\geq 800\text{mm}$;
 2. Distance for maintenance in front of panel $\geq 1500\text{mm}$;
Opposite double row $\geq 2000\text{mm}$;
 3. The panel depth is 800,1000mm, the depth of MCC panel contactor and cable up outlet panel is 1000mm.

Intelligent monitor applications software

1. MCS LV withdrawable switchgear and intelligent and monitor applications software communication

You only equip with a Switzerland DAE Company network electric power instrument or other same performance industrial modem with RS485 change to RS232 if you equip with our company monitor application software. It can pass through RS232 short range or pass through public telephone network to remote control the intelligent unit in MCS LV withdrawable switchgear directly. (It consists of mains power and diesel generator sets switchover). We will equip with compatible monitor application software to match IBM PC. The operation system is Microsoft WINDOWS XP/2000.

2. Interface and right

Every operation order is ico or direct numerical operation, Operation parameters is digital quantity display. Layered right operation and modify parameters should input correct password, the operator can modify self password.

3. Remote control

- 1) You should input correct password if you want to carry out intelligent unit opening and closing.
- 2) The intelligent unit will send out alarming signal or dial to working telephone or send mobilephone short message when meet abnormal open system.

Prisma

Summary

In order to satisfy the L.V. distribution market's requirement of high performance & reliability, easy maintenance and intelligentized products, we cooperate with Schneider and exploit Prisma series products with whole series standard connection scheme. All the standard schemes of Prisma have passed the type testing, which makes sure all the products in this series operating in good reliability and safety. This product is according to GB7251.1 <<Part 1 of L.V. Switchgear equipments and Controlling Equipments: Type test and Partial Type Test of Completed set Equipments >>, IEC60439-1 <<Part 1 of L.V. Switchgear Equipments and Controlling Equipments' modules: The Modules which have been tested or partial tested by type test >>, NFEN60439.1, EN60439-1 <<Part 1 of L.V. Switchgear Controlling Equipments' Modules regulation: Combined Device which have been tested or partial tested by type test>>.

Prisma P Switchgear Equipments apply to three phases AC 50/60Hz, Max. Voltage is 690V, Max. Current is 4000A distribution system works as power receiving and distribution device, control, protect and test the power circuit. The shell of this switchgear is made of Zinc alluminized sheet, the door board and sealing board are protected by epoxy resin powder print, so its outward appearance is nice and well integrated with the ambient. It is widely used in commercial building, industrial building, civil building, Industrial & mining enterprises, power substation, etc.



Product feature

1. Reliable Electrical Equipments:

Perfect intergration between power equipments made by Schneider and prisma system are the core element to make sure this product has high reliability.

The design of this system has passed the TTA test, and has been proved by many years experience.

According to GB7251.1, IEC 439-1, EN60439-1, NF EN60439-1 etc.

Passed the EMC test, it can fully satisfy the requirements of intelligentized controlling system's installation and usage, and it is suitable for all the indoor occasions.

2. Open ended Electrical Equipments:

The modularized designation make the Prisma Function System can extend the new functions conveniently according to the requirements.

High standardized product, all the components are standardized, so they can be repaired and ammended very conveniently.

3. Make sure the operating workers' safety:

All the equipments are installed behind the front dismountable board, and only the operating handle is bared, avoiding the operating workers touch the live parts directly, so it is very convenient for examining and repairing. Fully make sure the operation staff and their operating safety.

4. Elegant appearance

With net printed glass door or solid slab.

Prisma ture color and electrostatic powder flame printing.

Corner 45°, elegant appearance.

Prisma P switchgear's main function designation:

Bus bar system designation

Special structural section make the heat cooling in max. degree, and the current in maximum grade.

Convenient installtion.

Achieves connection without any holes, so it can be repaired and changed conveniently.

It can contact all the connection points in front.

It can distribute the power to both sides through the non-conventional busbar.

Reliable prefabricate connection connected with horizontal bus bar.

Modular designation

The Prisma P switchgear has 35 Nos. modular, each modular:

Absolute independence.

Installed in prefabricate installation board.

Protected by the front board.

The vertical height is 50 mm modular is a unit which contains: up & down wiring and auxiliary wiring.

Intelligentized designation

Complete power grid

Allocated power grid

With communication function:

Ambient condition

Altitude \leq 2000m, indoor installtion;

Ambient temperature:-0.5°C to + 40°C, Average temperature \leq 35°C;

Ambient humidity: when the temperature is 40°C, it can be 50%, when the temperature is lower than 40°C, it can bear higher relative humidity;

Pollution degree is grade 3.

The installtion ground evenness should be less than 2mm/m.

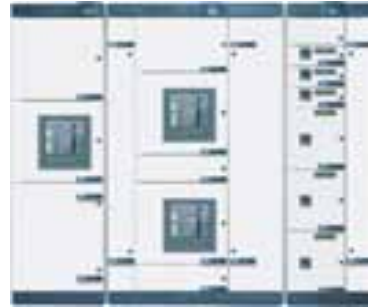
Technical specification

		Prisma P
Relative standard		
Type test parts	IEC 60439-1, EN 60439-1, NF EN 60439-1, DIN 41-488, BS 5486, GB 7251-1	
Inner arcing withstand	NO.68042	
Protection degree	IEC 60529	
Impact resistance	EN 50102	
Electric characteristic		
Rated insulation voltage(V)	1000	
Rated operation voltage(V)	690	
Rated impluse withstand voltage	12	
Over voltage type	IV	
Pollution degree	3	
Frequency	50/60	
Main busbar	Rated current	630~4000
	Rated short time withstand current	85
	Rated peak withstand current	187
Branch busbar	Rated current	630~4000
	Rated short time withstand current	85
	Rated peak withstand current	187
Mechanism characteristic		
Height	2025	
Modular	35	
Width	700/900/1100/1200	
Depth	400/600/800/1000	
Division type protection degree IP	20/30/31/54	
Outward impact resistance IK	08	

Blokset

Summary

BLOKSET Switchgear adopts Schneider company's technology, it can put up all the good performances of Schneider electric components. The switchgear has two types: Fixed grid type and drawable types. The horizontal main bus bar stays in the top of switchgear while the vertical bus bar stays in the side or rear parts of the switchgear, so the end users cable can connect from the side or rear. All the performance unit adopts modular construction.



Outline dimension of the switchgear

Incoming cubicle: 1200x2200x1000 mm (WxHxD)

Feeder cubicle: 900x2200x1000 mm (WxHxD)

Controlling cubicle: 900x2200x1000 mm (WxHxD)

Operation, Installation, Connection, Earthing Protection and Antiseptic.

Operation type: Motor operating or rotating manual

Installation type: Indoor horizontal fixed installation

Connection type: Bus bar or Cable connection

Earthing Protection type: Earthing busbar

Antiseptic: Printed by epoxy resin.

Main electric data

Rated current: 4000A, 3150A

Short-time withstand current of the horizontal bus bar: 100KA/220KA

Short-time withstand current of the vertical bus bar: 85KA/187KA

The height of the drawer: 9M, 12M

According to the short circuit withstand intention certification, the current and bus bar's specification of the switchgear is as following:

Current	4000A	3150A	1600A
Spec of bus bar	5x(100x5)	4x(100x4)	1x(1x1000)
Bus bar clamp	Insulating supporter (POLYCARBONATE LEXAN R500) + Aluminum alloy(ENAW-5754 H111)	Insulating supporter (POLYCARBONATE LEXAN R500) + Aluminum alloy(ENAW-5754 H111)	Insulating supporter (POLYCARBONATE LEXAN R500) + Aluminum alloy(ENAW-5754 H111)
Switchgear dimension	900mm	900mm	900mm

Ambient condition

- Ambient temperature: -0.5°C to + 40°C, Average temperature ≤ 35°C;
- Altitude ≤ 2000m, indoor installation;
- Ambient humidity: when the temperature is 40°C, it can be 50%, when the temperature is lower than 40°C, it can bear higher relative humidity;
- The gradient between the vertical board should be less than 5%, and the integrate switchgear group is in level.
- Applicable occasions should be free from inflammables, explosives, corrosives and severe vibration.

Technical specification

Protection degree		IP 30 IP54
Rated insulation voltage		AC660(1000)
Rated running voltage	Main circuit	AC380(660)
	Auxiliary circuit	AC380,220,24 DC220,110
Rated frequency (Hz)		50(60)
Rated current of horizontal bus bar (A)		≤6300
Rated current of vertical bus bar(A)		Mw ≤ 1000A D ≤ 3200A
Rated current of cabinet unit (A)		≤400
Rated peak withstand current (KA)		63/105/187/220
Rated short time withstand current(KA)		30/50/85/100
P.F. withstand voltage (V)	Main circuit	2500(3500)
	Auxiliary circuit	2500
Protection circuit resistance(Ω)		≤0.01

Arrangement of the switchgear

Modular design of BLOKSET allows the layout of switchgears and electrical rooms to match in good configuration.

a. The switchgears can be parallel connection or back to back connection:

According to the available space of the installation room, the back to back connection can reduce the total length in half.

b. It is allowed to enter into the switchgear's connection area from front or back side:

If the wiring terminals are in the side grid of the switchgear, it can enter into from the front, so the switchgear can be placed close to the wall.

c. If the wiring terminals are in the back side of the switchgear, it can be entered from back.

d. The incoming or outgoing cable can enter from top or bottom of the switchgear:

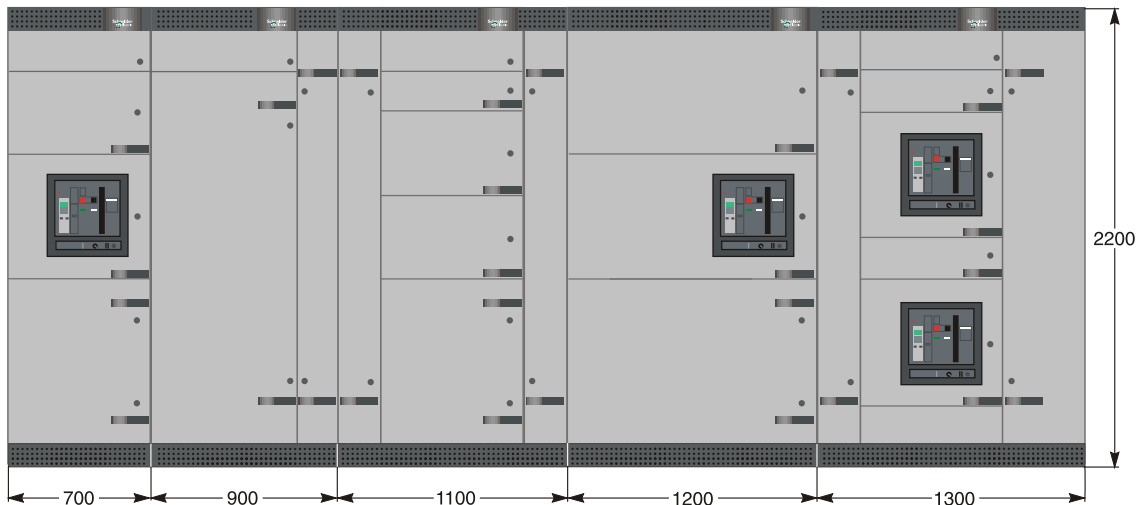
If the switchgears are installed in above of auxiliary board or cable channel, the cable is better enter from the bottom.

e. If the switchgears are installed in above of auxiliary board or cable channel, the cable is better enter from the bottom.

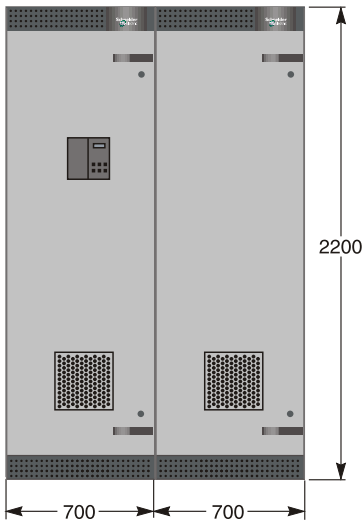
f. The power supply also can be from the top and enter into bus bar duct.

Outline drawing

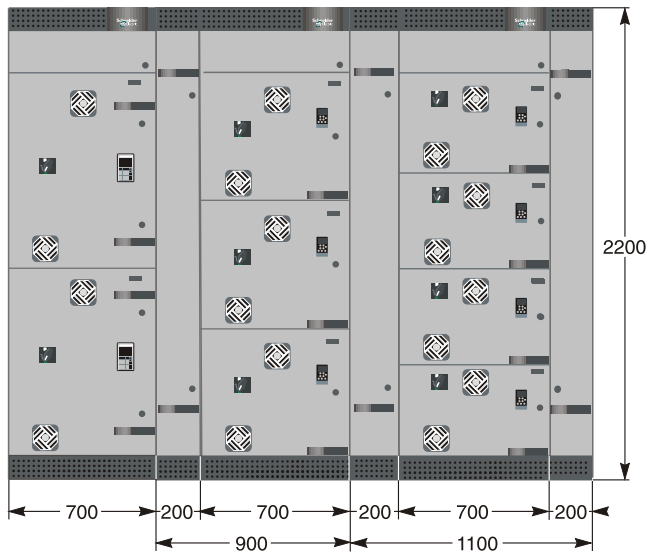
Blokset D



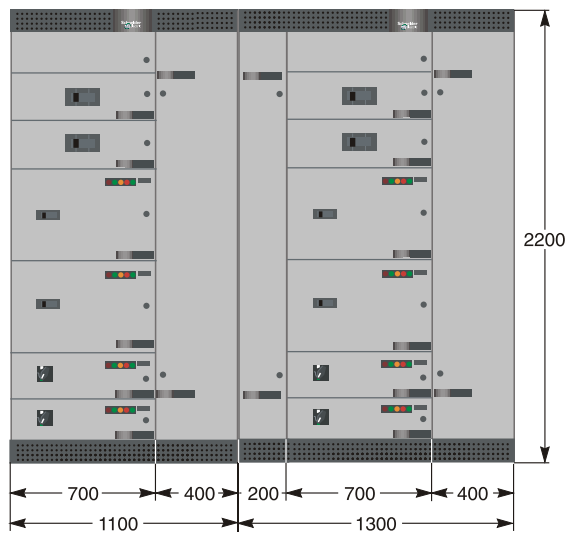
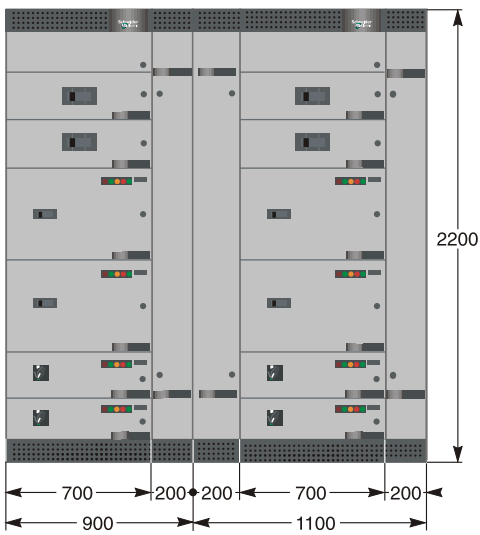
Blokset Dc



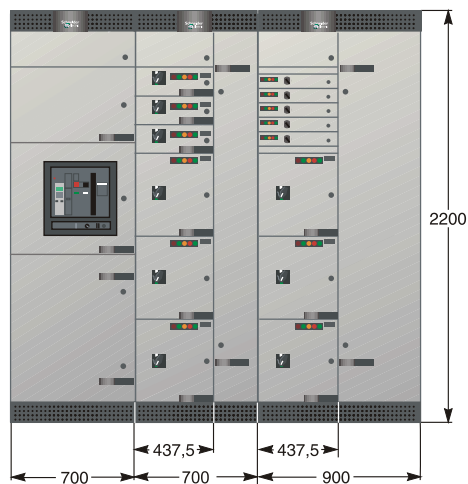
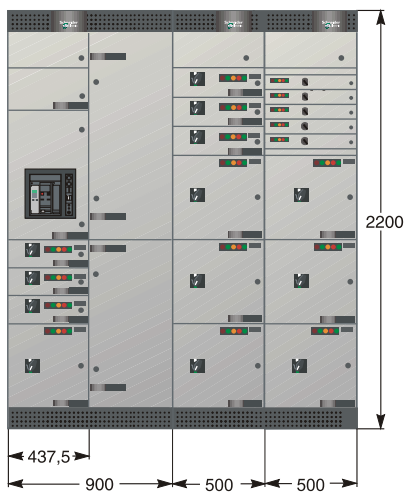
Blokset Ms



Blokset Mf



Blokset Mw



HGBD Fixed-Separated Type Low Voltage Switchgear

Summary

HGBD fixed-separated type low voltage switchgear (hereinafter referred to as switchgear) is based on market demand, combined with similar products at present the latest technical and technology characteristics of self-developed a new type of low-voltage switchgear. It can be widely applied to power plants, petrochemical industry, metallurgy rolling, post and telecommunications, light industry, textiles, subway stations and other civilian, industrial and mining enterprises of the low-voltage distribution system, as by the power unit, feeder unit, motor control unit, reactive power compensation unit, metering unit and other complete sets of the complete low-voltage power distribution equipment. Device can be accompanied by perfectly intelligence unit and computer monitoring system to realize the entire distribution system telemetry, remote adjustment, remote measurement, remote communication, remote control "Four remote" intelligent management.



Ambient condition

1. Altitude: $\leq 2000\text{m}$;
2. Ambient temperature: $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$, daily average $\leq +35^{\circ}\text{C}$;
3. Relative humidity: $\leq 90\%$ (20°C);
4. There was no outstanding vibration or shock, the vertical gradient of more than 5 degrees to install;
5. No explosive medium, corrosive dust or gases;
6. Failure to comply with the above use of the environment, can be resolved through consultation with the manufacturer.

Structure feature

The basic framework for the combination of devices fabricated structure, framework, all the structural components used in all follow-up aluminum zinc plate or galvanized plate processed, through the self-tapping locking screws or 8.8 hexagon screw fastening connected to each other formed, together with the corresponding doors, seal plates, mounting brackets, as well as buses, functional units and other components assembled into a complete unit, installation of parts and components within the size, compartment size of the implementation of module design.

1. fixed for each one separated by a small chamber separated as an independent functional unit, according to cabinet width can be divided into a combination of two basic types.
 - 1.1 Separated by a width of 600mm and 800mm cabinets, its unit cell 600mm, a high degree of sub-200mm, 400mm, 600mm three kinds, each cabinet can be installed height of 1800mm, according to separate the elements required to be combined capacity to adapt to the larger currents of the motor control center and feeder circuit.
 - 1.2 Separated by a width of 1000mm cabinet, its unit cell width 500mm, height 200mm, 400mm, 600mm 3 kinds, can be installed height of 1800mm, may need to be combined, each cabinet can be mounted up to 18 circuits. If the special program needs, functional units can be the actual size of the need for a design portfolio.
2. Upload a separate panel for each unit operating handle, for breaking and closed switch, the operating handle with a lock, circuit breaker panel in a ho-illustrates state can not be opened to ensure that anti-misuse.
3. Separation unit into the outlet under the loop current size of the different core diameter and cables, 400A and above using copper connections.
4. MCC separate cabinet unit cell can be used between rooms with cable adapter pieces of great convenience for users of cable installation and maintenance.
5. The level of bus installed in the cabinet room at the top of a separate compartment, which can have several specifications together form the same parent row, the greatest ability to pass flows up to 4000A. Vertical bus is used to separate the allocation of cabinet outlet current use, it stood after the central cabinet, is located between the two separate units to facilitate the various separate units into the line. Vertical busbar insulated by forming a transparent plexiglass plate and outlet end of segregation, to ensure that maintenance personnel. Devices, metal structural parts, except the table and closed the door panels, the rest used in all follow-up aluminum zinc plate or galvanized plate processed in the structural parts of the connections that are carefully designed to make it through the rated short-circuit current.
6. Taking into account the general use of dry-type transformers and safety and economy of oil-immersed transformers, installation of both can be easily formed with a combination of dry-type transformers, but also with oil-immersed transformers low voltage busbar easy connection.
7. Device bus system, according to three-phase five-wire system and three-phase four-wire system design, design department and user distribution system according to the needs of design selection.

Technical specification

1. Basic electric parameters

- 1.1 Rated voltage: AC 380V, AC 660V 50HZ
- 1.2 Rated insulation voltage: AC 660V or AC 1000V
- 1.3 Maximum working current main busbar: 4000A
- 1.4 Main busbar short-time withstand current (1s Rms): 80KA
- 1.5 Peak withstand current of the main busbar: 176KA
- 1.6 Vertical Bus Maximum working current: 1600A
- 1.7 The main switch key technical data shown in Table 1, Table 2 (in CW/CM series as an example)

Table 1 CW1 Series circuit breaker main technical data

Type	CW1-2000	CW1-3200	CW1-4000
Rated short-circuit breaking capacity to run (KA)	50	80	80
Rated short-circuit breaking capacity(peak)(KA)	105	176	176
Rated current (A)	630~2000	2000~3200	3200~4000
Rated short-time withstand current (KA)	50	80	80
Breaking all the time no additional delay(ms)	25~30		
Closing time(ms)	≤70		

Table 2 CM1 Automatic Air Switch Technical Data

Type	Breaking capacity		Shell Frame size rated current(A)	Rated insulation voltage(V)	Rated voltage (V)	Poles	Tripper rated current (A)	Arcing distance (mm)
	grade	RMS (kA)						
CM1-100	L	35	100	AC800	AC400	3	16,20,32 40,50,63 80,100	0(≥50)
	M	50						
	H	85						
CM1-160	L	35	160	AC800	AC400	3	100,125, 140,160	≥50
	M	50						
	H	85						
CM1-225	L	35	225	AC800	AC400	3	100,125, 160,180, 200,225	≥50
	M	50						
	H	85						
CM1-400	L	50	400	AC800	AC400	3	225,250, 315,350, 400	≥50
	M	65						
	H	100						
CM1-630	L	50	630	AC800	AC400	3	400, 500,630	≥50
	M	65						
	H	100						

Table 3 HGBD Low-voltage switchgear busbar size of types of selection

Enclosure size	Method of income line	Busbar box	Bus duct
600x1000(800)	Back and forth	600x450(400)x300	600x300x A
		600x1000(800)x300	600x300x A
800x1000(800)	Back and forth	800x1000(400)x300	800x300x A
		800x1000(800)x300	800x300x A
1000x1000(800)	Back and forth	1000x450(400)x300	1000x300x A
		1000x1000(800)x300	1000x300x A
1200x100(800)	Back and forth	1200x450(400)x300	1200x300x A
		1200x1000(800)x300	1200x300x A
600x1000(800)	Back and forth	600x1000(800)x300	Side 800x300x A
800x1000(800)	Side	800x100(800)x300	Side 800x300x A

- Note: 1. Bus width of box size and width of the same size enclosure
 2. The length of busbar size according to size and into the enclosure and space-line distance to determine

HYDJ1 Capacitor Compensate Cabinet

Summary

HYDJ1 low-voltage reactive power compensation device is HuaYi Electric Co., Ltd. designed and developed according to market needs new products. Our products are widely used in machinery, metallurgy, chemical, electric power, petrochemical, automobile, shipbuilding, construction, communications, hospitals, airports and other power places, with a parallel capacitor run asynchronous motor for continuous inductive load of reactive power compensation.

This device has the following characteristics:

1. Cabinet by the 8MF steel or C-type steel plate welded locally assembled, structural parts versatility, high mechanical strength, structural components cabinet has galvanized the surface protective layer or two kinds of electrostatic powder coating, beautiful color and reliable quality;
2. Increase supply power system and load power factor, reduce equipment capacity, reduction of reactive power loss;
3. Stability by the electric side and the grid voltage, improve the quality of power supply;
4. In the long-distance transmit electricity lines can improve the transmit electricity system stability, improve the transmit electricity capacity.

IEC60439

GB 7251.1-2005 《Low-voltage switchgear and control equipment, the first part of the type tested and partially type tested equipments》

GB/T 15576-2008 《Low-voltage reactive power compensation device》

JB/T 10695-2007 《Low-voltage dynamic reactive power compensation device》

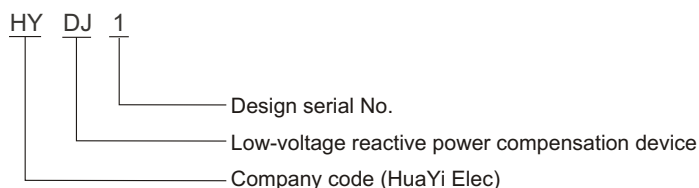


Ambient condition

The indoor device is installed, applies to the following working conditions:

1. Altitude: $\leq 2000\text{m}$;
2. Ambient temperature: $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$, daily average $\leq +35^{\circ}\text{C}$;
3. Relative humidity: $\leq 90\%$ (20°C);
4. There was no outstanding vibration or shock, the vertical gradient of more than 5 degrees to install;
5. No explosive medium, corrosive dust or gases;
6. If special requirements, can be resolved through consultation with the manufacturer.

Model



Technical specification

1. Rated voltage (U_e): AC380V, 50Hz
2. Rated insulation voltage (U_i): AC660V
3. Over-voltage category: III
4. Material composition: insulation material level III b
5. Pollution grade: 3 grade

6. Electrical clearance: Not less than 8mm
7. Creepage distance: Not less than 14mm
8. Rated compensation capacity: $\leq 300\text{kVar}$
9. Rated reactive current: $\leq 412\text{A}$
10. The main switch rated current and breaking capacity: 630A/15Ka
11. Main busbar rated current, Rated short time withstand current and Rated peak withstand current: 412A/15kA/30kA
12. Compensation method: three-phase compensation and combination of single-phase compensation
13. Controller: The power factor and reactive power integrated control of capacitor bank switching, with over-voltage protection, switching time interval self-locking and anti-interference ability, reliable, and no switching of the advantages of shock, and a manual or automatic control method.
14. Auto-switching delay time: 2s~120s Continuously adjustable
15. Junction temperature rise limits and bus: $\leq 60\text{k}$
16. Compartment space (cabinet) in the temperature rise limit: 30k
17. Enclosure protection class: IP40
18. Circuit No: According to customer needs of device
19. Installation occasions: indoor
20. Short time withstand current: 15kA
21. Electric shock protection class: I class
22. Incoming terminals and protective conductor resistance between the exposed conductive parts: NO more than 100m Ω
23. Capacitor switching control component types: mechanical and electrical switch (such as: contactor) switching semiconductor switch (such as: thyristor) switching.
24. Each output circuit capacitor capacity: According to customer needs of device
25. Each output circuit rated current: According to customer needs of device.

Installation and use of products

Products arrived in the place of receipt by the transportation, the consignee should first check whether the product is intact. If problems are identified and should be taken not only to inform the relevant departments, find out the reasons. Don't need the installation of the product immediately, the product should the provisions under the terms of use, stored in a suitable location. The installation shall be in accordance with Figure 1 of the mounting hole size, based on the stay in a good mounting screws (with the channel base and screws, self-occupied)

The installation should be provided in accordance with manufacturer's installation drawings and related specifications.

The products should be credibility the earth.

The products after installation or repair, before the electrify test should first check for the following:

- a. Connection structure and electrical parts for any damage or loose
- b. Cabinet is clean and left foreign body
- c. Whether the flexibility in operation
- d. Devices should not be less than 5M Ω the insulation resistance should analyze the reasons
- e. Protective grounding system are reasonable

The products by this examination, for the following electrify test can be put into operation.

- a. Equipment operation and function of all electrical accuracy
- b. The light meter and check the electrical load should be the normal action

Complete sets of products:

The product should be attachment packing list, product certificate, instruction manual, Ex-work test report, the electrical drawings and in accordance with an agreement to provide the spare, spare parts, etc.

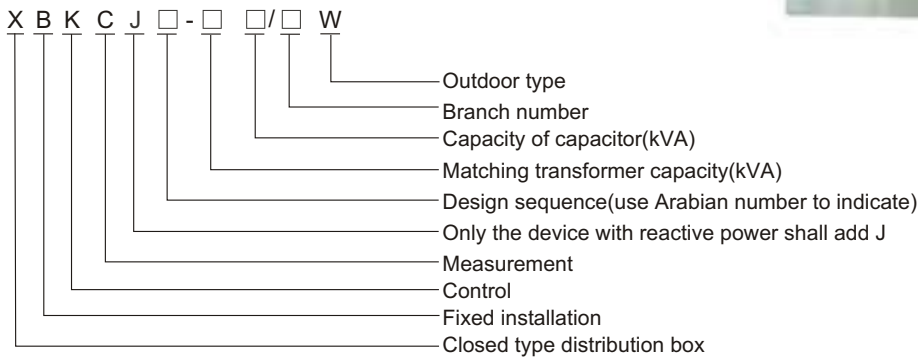
XBK CJ Low Voltage Integrated Distribution Box

Summary

XBK CJ type low voltage integrated distribution box is a kind of low voltage complete-set switch equipment developed according to requirements of national rural grid construction, development and reconstructive department, under the principle of safety, economical, reasonable and reliable. The connection scheme of its technical standard, technical criterion, measuring unit is in accordance with instructions manual to energy measurement panel development and installation, and to select measurement license, production license, enter-into-grid license safe series quality product for development. It is widely applied to AC 50/60Hz, rated voltage of 380/415V distribution system for conversion, distribution, control, measuring, compensation and protection of energy in power, lighting and distribution equipment. This product has high breaking capacity, good dynamic-thermal stability, flexible electrical scheme, new design structure, high protection class etc.



Model



Structure feature

1. The main frame of product adopts 1.5mm thickness cold-rolled plate or stainless steel to folding, the frame adopts partly-welding structure model, also can adopts heat-shielding structure of stainless steel double-layer patent. The main frame is arranged with the pole of modular hole.
2. The device is designed according to three-phase five-wire system and three-phase four-wire system.
3. To design capacitance compensation function in order to meet the requirements of power supply improving power factor.
4. In order to improve dynamic-thermal stability capability of busbar and the contact surface temperature rising, all devices adopt TMY-T2 series hard-copper busbar, the copper busbar adopts tinning disposal.
5. The protection class is IP43.

Ambient condition

1. Ambient temperature: -25°C~+40°C, average temp. in 24 hours: ≤+35°C; lower capacitance according to actual conditions when exceeding +35°C.
2. Altitude: ≤2000m;
3. Relative humidity of ambient air under 40°C highest temp: ≤50%, so it is allowable to exist larger relative humidity under low temperature, such as 90% of 20°C. There will be have dew under the condition of high temperature low down hastily.
4. The oblique mounting angle: ≤5°;
5. Applicable occasions should free from explosives, corrosives and severe vibrations.

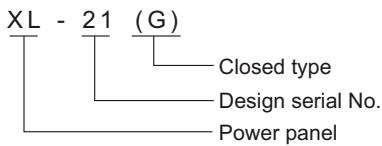
XL-21(G) Low Voltage Power Panel

Summary

XL-21(G)X LV closed type power panel can be used in AC 500V or lower system of three-phase three-wire, three-phase four-wire, three-phase five-wire for electricity-generating and mine enterprises, also for the purpose of power, lighting, distribution. XL-21(G) type low voltage power panel has flexible distribution scheme, convenient combination, good practical performance, new structure and etc.



Model



Structure feature

1. Main electrical performance shall completely comply with regulations of IEC60439-1:1992, GB7251.1-1997.
2. The auxiliary circuit has functions of local/remote, remote, automatic control and in-site/remote, remote control switch. The contactor can adopt DC protection.
3. Receiving main switch has optional protection of instant trip and pyromagnetic trip. Can cancel instant protection for matching next class main-switch, avoid skip-class tripping, and has functions of motor/manual operation and automatic switch.
4. Main switch of feeding circuit has protection of instant trip and pyromagnetic trip. Can add fault protection if customer required.
5. The motor control circuit has protection of short-circuit instant, overload, undervoltage release and phase-break.
6. Ammeter and voltage meter for incoming circuit.

Ambient condition

1. Altitude: $\leq 2000\text{m}$;
2. The indoor environment shall be non-ash, non-corrosion gas, and rainwater-proof;
3. Ambient temperature: $-25^{\circ}\text{C}\sim+40^{\circ}\text{C}$, the measured average temp. in 24 hours: $\leq 35^{\circ}\text{C}$; the temp. under storage and transportation condition: $-25^{\circ}\text{C}\sim+55^{\circ}\text{C}$, the temp. in short time $\leq 70^{\circ}\text{C}$;
4. Relative humidity under the highest temp. of 40°C : $\leq 50\%$;
5. No vibration and the oblique mounting angle: $\leq 5^{\circ}$.

Structure feature

1. XL-21(G) type low-voltage close type power cabinet, to be assembled with C type or 8MF type material. The frame and special parts will be supplied by our company in order to guarantee the accuracy and quality of cabinet. Other cabinet parts is designed according to scale principle with high generalized coefficient, and can fulfill production in advance.
2. Use removable height to connect cabinet door and frame, convenient installation and unloading.
3. The earthing of instrument door for electrical components installation adopts soft multi copper wire to connect frame. The installation parts in cabinet connect the knurled washer, the complete cabinet comprises the integrated earthing protection system.

Technical specification

No.	Item	Unit	Data
1	Main circuit rated voltage	V	AC:400
2	Auxiliary circuit rated voltage	V	AC:220,380
3	Rated frequency	Hz	50/60
4	Rated insulation voltage	V	660
5	Rated current	A	≤ 1250

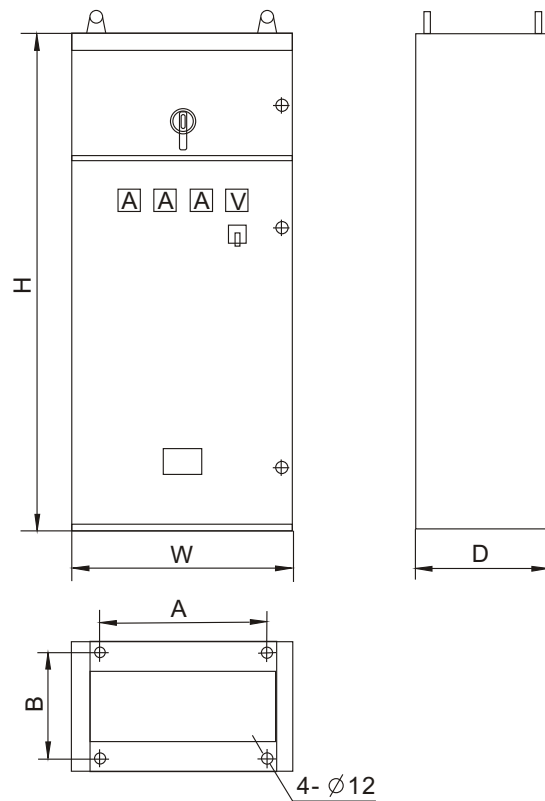
Outline and installation dimension

(mm)Table3

Height	Width	Depth	B × A Installation size(C type material)
1600	600	400	300 × 500
1600	600	600	500 × 500
1600	600	400	300 × 500
1800	600	600	500 × 500
1800	800	400	300 × 700
1800	800	600	500 × 700
2000	800	400	300 × 700
2000	800	600	500 × 700

Note: 1. The dimension of cabinet can be according to the diagram from customer.

2. The dimension showed in the diagram do not include the door and right-left board.



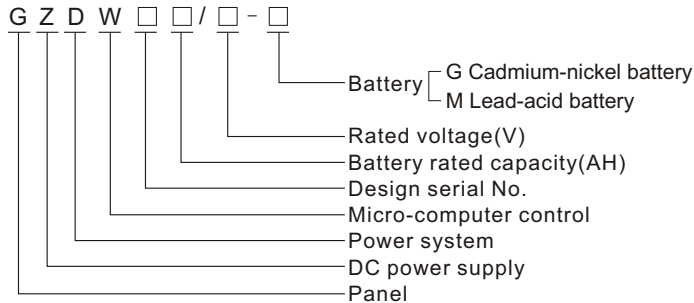
XL-21(G) Power panel outline mounting dimension

GZD(W) Micro-computer DC Power Supply Panel

Summary

GZD(W) micro-computer DC power supply panel is a new product which mainly design for nobody monitor substation. It applies to power plant and substation as a DC power supply to open and close HV switch and relay protection automatic control fault lighting.

Model



Technical specification

1. Input voltage: AC380V ± 10%;
2. Output voltage: DC220V, DC110V, DC48V;
3. Output current: 10,20,30,40,50,60,100,200A;
4. Voltage regulation precision: ≤ 1%;
5. Permanent flow precision: ≤ 1%;
6. Permanent flow factor: ≤ 1%;
7. Main transformer temperature rise: ≤ 60°C;
8. Noise: ≤ 55dB;
9. Working type: Continuous working.

Product feature

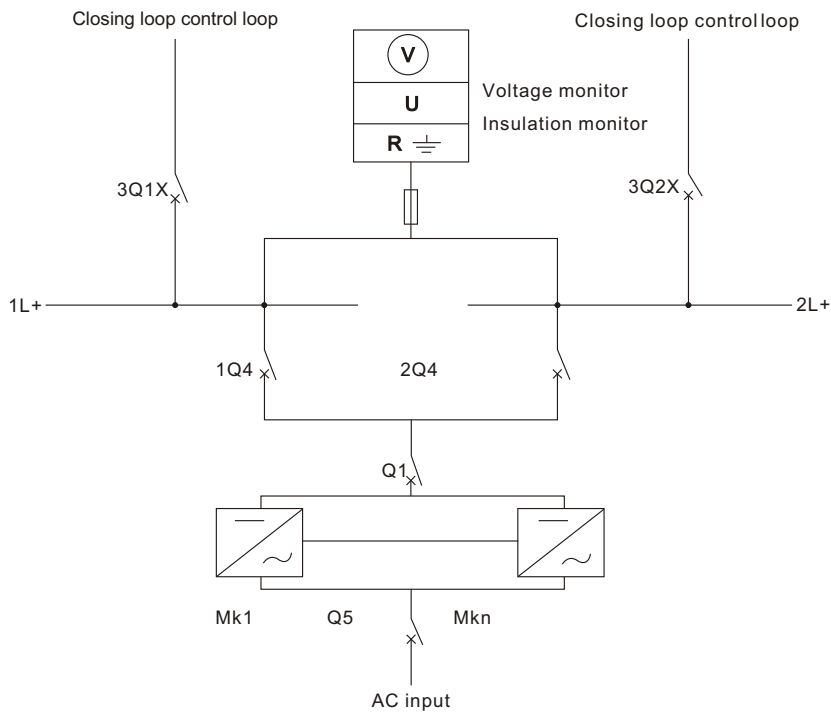
1. Equal charge and floating charging condition for choice, convenient to adjust voltage, Be with function of voltage regulation limit current and permanent flow limit voltage for choice.
2. Micro computer monitor unit adopts large LCD screen, perfect human-machine interface. Display battery capacity, battery voltage, charging current, control busbar voltage, load current and DC system parameters in English. It will be perfect equal current performance to circulate multi module. Another modules will be normal circulation when plug in or out anyone module separately. Restart to throw in after AC loss electricity, the system can choose the best charging type according battery capacity. The system will be normal if micro computer monitor unit retreat from system.

Design number

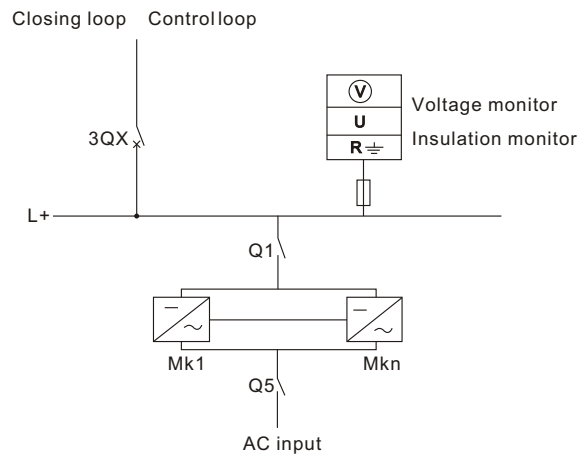
Model	Description	Spec.	Application
GZD(W)30-□/□	Single busbar section, single bank battery, two sets double line charging output, no reduction voltage loop	10	Power plant or large substation
GZD(W)31-□/□	Single busbar, single bank battery, two sets double line charging output, no reduction voltage loop	10	Power plant or large substation
GZD(W)32-□/□	Double busbar section, single bank battery, two sets double line charging output	20	10-220kV substation, small & medium scale factory
GZD(W)33-□/□	Double busbar single bank battery, two sets double line charging output	20	10-220kV substation, small & medium scale factory
GZD(W)34-□/□	Double busbar section, single bank battery, two sets triplicate line charging output	20	10-220kV substation, small & medium scale factory
GZD(W)35-□/□	Double busbar, single bank battery, two sets triplicate line charging output	20	10-220kV substation, small & medium scale factory
GZD(W)40-□/□	Single busbar section, single bank battery, two sets double line charging output, no reduction voltage loop	10	Power plant or large substation
GZD(W)41-□/□	Double busbar, double banks battery, two sets double lines charging output	12	10-220kV substation, small & medium scale factory
GZD(W)42-□/□	Double busbar section, double banks battery, triplicate sets double lines charging output	10	Power plant or large substation
GZD(W)43-□/□	Double busbar, double banks battery, two sets triplicate lines charging output	12	10-220kV substation, small & medium scale factory

Note: Press N+1 redundant principle to collocate module quantity when adopts high frequency switch power supply module as charging device.

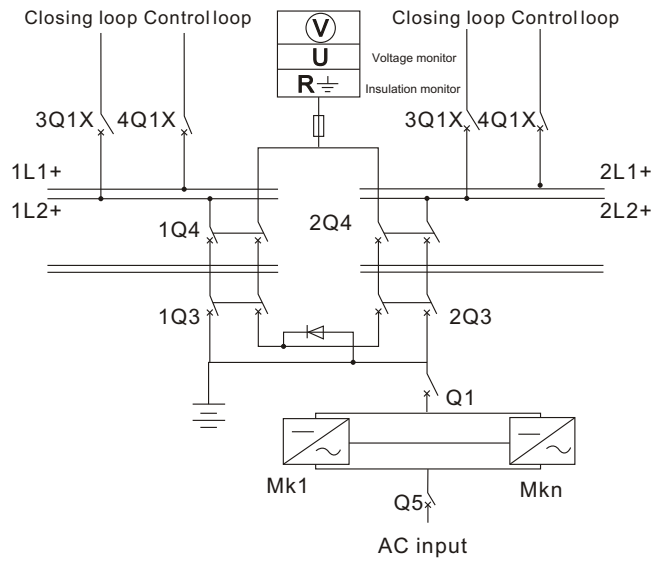
Series DC power supply system diagram



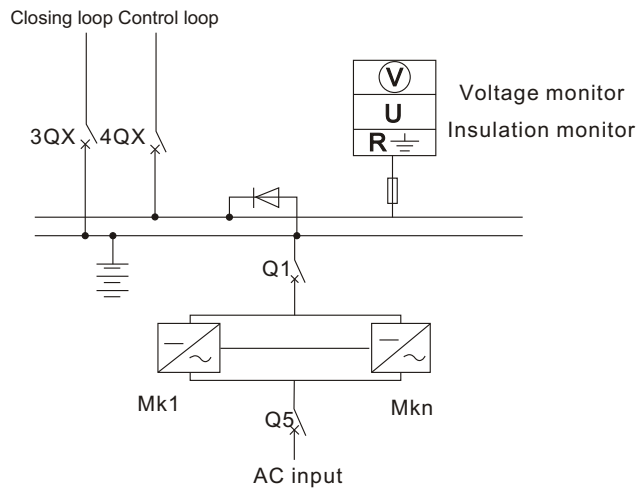
GZDW30 DC power supply system diagram



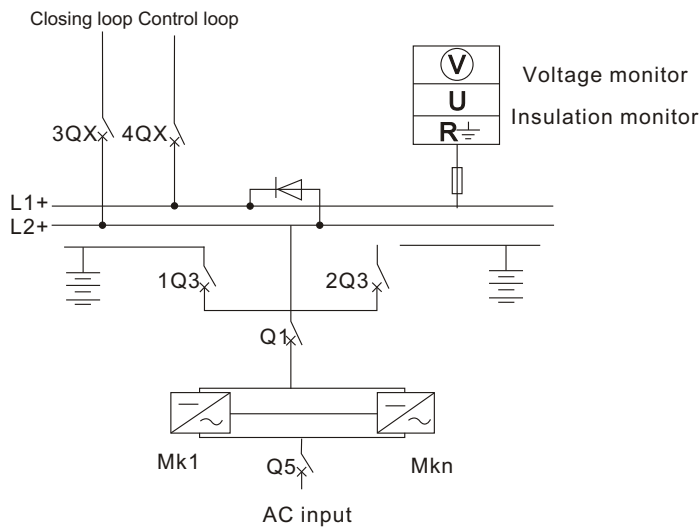
GZDW31 DC power supply system diagram



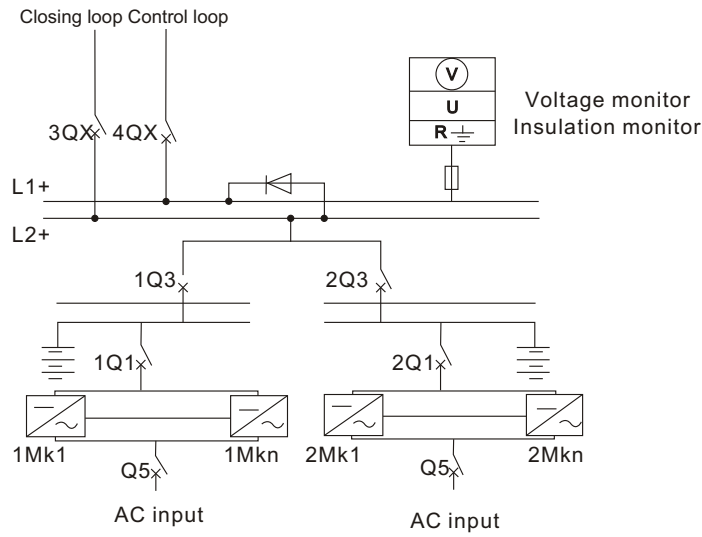
GZDW32 DC power supply diagram



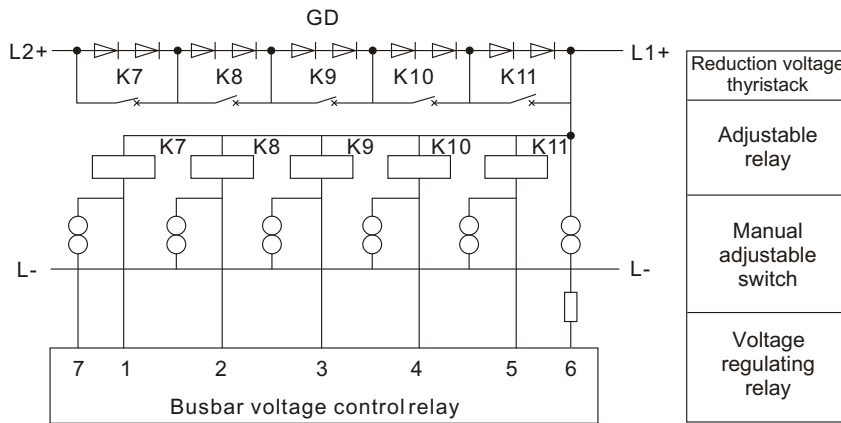
GZDW33 DC power supply system diagram



GZDW41 DC power supply system diagram



GZDW43 DC power supply diagram



Reduce voltage device working diagram

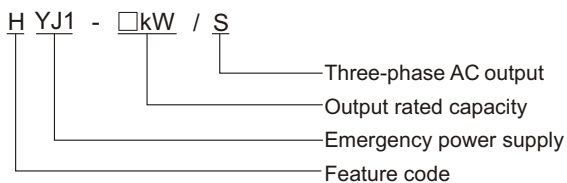
HYJ1/S Three Phase Emergency Power Supply(power and illumination)

Summary

HYJ1/S series emergency power supply product is developed and manufactured independently by our company. Adopt fully-number modularized modern technology, has higher reliability, short switch-time, good power supply quality etc., Suit able for facilities of first class loads or electrical equipments of very important loads, the fire emergency lighting, to provide second or third power supply. HYJ1/S series emergency power supply adopts mature inverter technology, and integrate inverter, charger and controller, convenient for installation and maintenance.



Model



Product feature

1. Controlled by INTEL micro processor.
2. Impulse broad modulate PWM technology, adopt the newest IGBT inverter module.
3. Can supply power to any inductance or capacitance.
4. The lead and components have fire-retardant or nonflame characteristics.
5. LED liquid crystal indication.
6. Arrange RS232/485 interface.
7. Single battery patrol inspection.
8. The main components and parts will adopt international famous brand.

Ambient condition

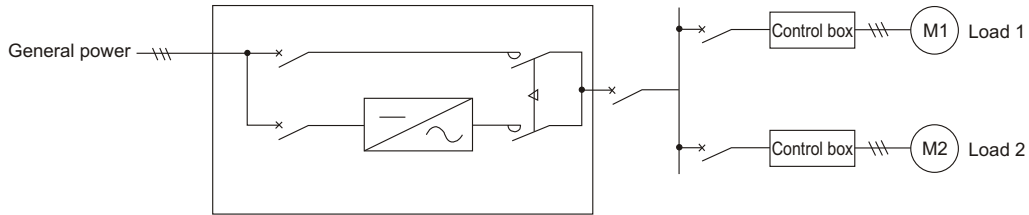
This power supply is power/lighting emergency resources, is suitable for various three-phase, single-phase and mixed electrical equipments, such as elevator, wind turbine, pump, lighting, air-condition for emergency power supply. Apply to high buildings, hospital, airport, subway, generating factory, malls, banks, securities etc. Wide application range, good loads compatibility.

Technical specification

Model	HYJ1/S
Allowed range of input AC voltage(V)	AC380/220 ± 5%
AC input frequency(Hz)	50 ± 5%
AC output rated power(kW)	2.2~400kW
AC output frequency precision(V)	Same as city power supply voltage; Emergency AC380/220 ± 5%
Emergency output frequency precision(Hz)	50 ± 0.5%
Overload capacity	120% normal operation
Inverter efficiency(80% hindering loads)	City power supply voltage ≈ 100%; Emergency power supply ≥ 90%
Protection function	Output overload, output short-circuit, overheated protection, Accumulator overcharged, overdischarged protection
Transfer time	≤ 0.25sec
Battery specify	Valve regulated lead-acid battery/maintenance free
Adoptable loads	This power supply is especially adapted to inductance loads and capacitance inductance mixed loads
Backup time	60min/90min/120min(according to customer requirements)
Noise(1m)	City power supply 0dB; Emergency power supply < 55dB
Ambient condition	-20℃~+55℃
Humidity	≤ 0~90%, non-dew
Altitude	≤ 2000m

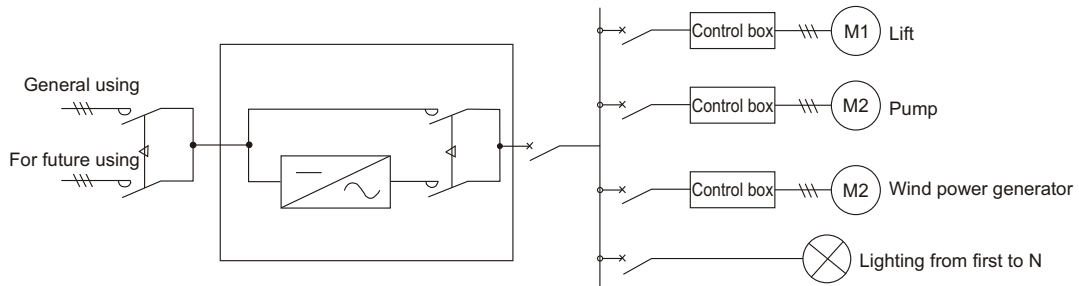
Main line scheme

Scheme code S01: Three-phase input, three-phase single circuit output

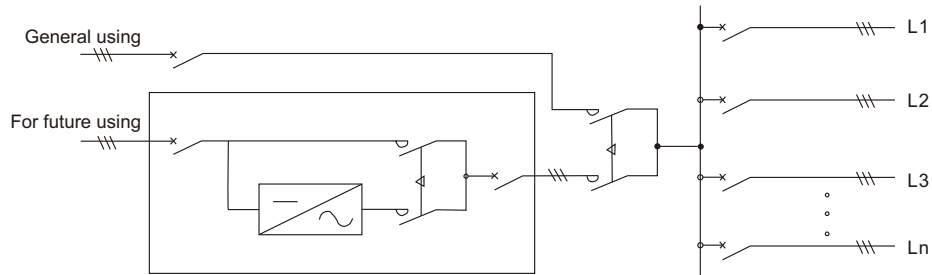


EPSYJS-01

Scheme code S02: Three-phase input, three-phase multi-circuit output (The relay device can be made in the EPS inside when especially pointing out)



Double-scheme code S03: Double-resource wiring diagram



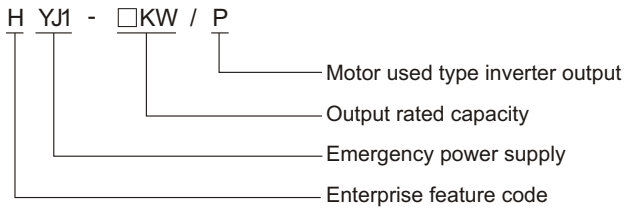
HYJ1/P Frequency-conversion Three-phase Emergency Power Supply

Summary

HYJ1/P series EPS is especially designed for motor loads, can prevent any smashing to power supply from motor loads, have been widely applied to high building, malls, hospital, highway, tunnel, airport etc.



Model



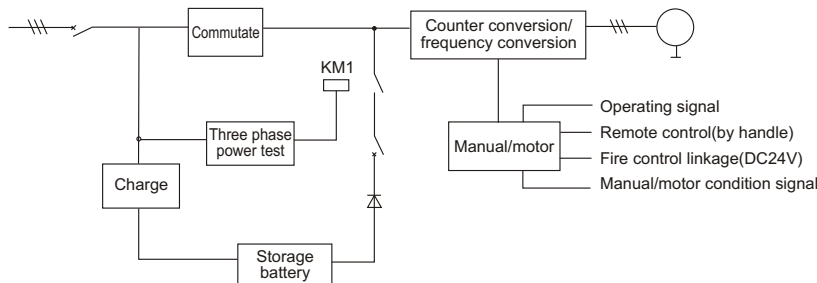
Ambient condition

This power supply is frequency-conversion three-phase dynamic model emergency, only for fire-resistance equipment of on-e-route or motor of one-stage loads, can solve smashing of power supply equipments from motor emergency power supply and its starting process. Such as pump, motor of wind turbine and other equipment.

Technical specification

Model	HYJ1/P
Allowed range of input AC voltage(V)	AC380/220 ± 5%, independent N wire and PE wire
AC input frequency(Hz)	50/60 ± 5%
AC output rated power(kW)	2.2~400kW
AC output voltage(V)	SPWM output, adjustable between 0~380
Emergency output frequency(Hz)	0~50Hz inverter start
Overload capacity	120% normal working
Inverter efficiency(80% hindering loads)	≥ 90%
Protection function	Output overload, output short-circuit, overheated protection, accumulator overcharged, overdischarged protection
Fire linkage	DC24V
Battery specify	VRLA(Valve-regulated Lead Acid) Battery/Maintenance Free
Adaptable loads	Motor loads
Backup time	60min/90min/120min(according to customer requirements)
Noise(1m)	City power supply 0dB, Emergency power supply < 55dB
Ambient condition	-20°C~+55°C
Humidity	≤ 0~90%, non-dew
Altitude	≤ 2000m

Output power (kW): 2.2, 3.7, 5.5, 7.5, 11, 15, 18.5, 22, 30, 37, 45, 55, 75, 93, 110, 132, 160, 187, 200, 220, 250, 280, 315, 400.

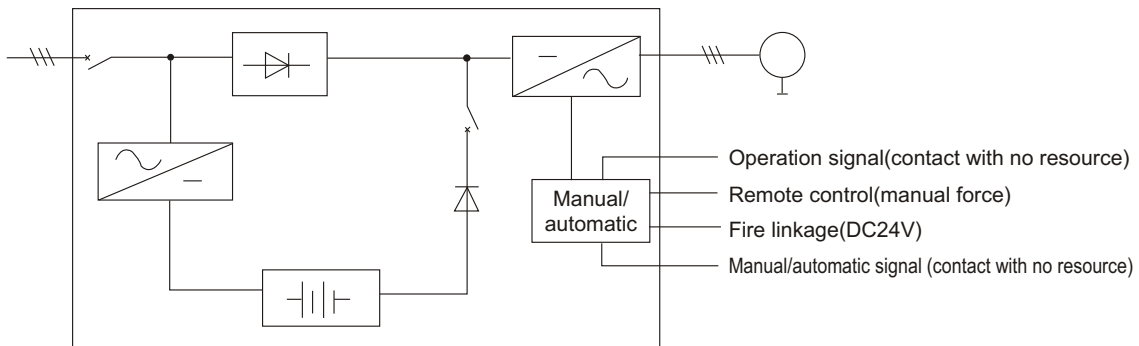


YJP type EPS battery arrangement, dimension and weight

No.	Model	Output power (kW)	Main machine dimension (D×W×H)	Battery panel dimension (D×W×H)	Battery panel number	Weight of main machine (kg)	Battery weight (kg)
1	HYJ1-2.2kW	2.2	600×600×2000	——	The battery is in the main machine	180	——
2	HYJ1-3.7kW	3.7	600×600×2000	——	The battery is in the main machine	360	——
3	HYJ1-5.5kW	5.5	600×800×2200	——	The battery is in the main machine	720	——
4	HYJ1-7.5kW	7.5	800×800×2200	——	The battery is in the main machine	860	——
5	HYJ1-11kW	11	600×800×2200	600×800×2200	The battery is in the main machine	220	900
6	HYJ1-15kW	15	800×800×2200	800×800×2200	1	230	1120
7	HYJ1-18.5kW	18.5	800×800×2200	800×800×2200	1	260	1120
8	HYJ1-22kW	22	800×800×2200	800×800×2200	1	280	1580
9	HYJ1-30kW	30	800×800×2200	800×800×2200	1	320	1580
10	HYJ1-37kW	37	800×800×2200	800×800×2200	2	380	2240
11	HYJ1-45kW	45	800×800×2200	800×800×2200	2	410	3160
12	HYJ1-55kW	55	800×800×2200	800×800×2200	2	470	3160
13	HYJ1-75kW	75	800×800×2200	800×800×2200	3	600	4740
14	HYJ1-93kW	93	800×800×2200	800×800×2200	4	900	6320
15	HYJ1-110kW	110	800×800×2200	620×856×2260	4	1000	6320

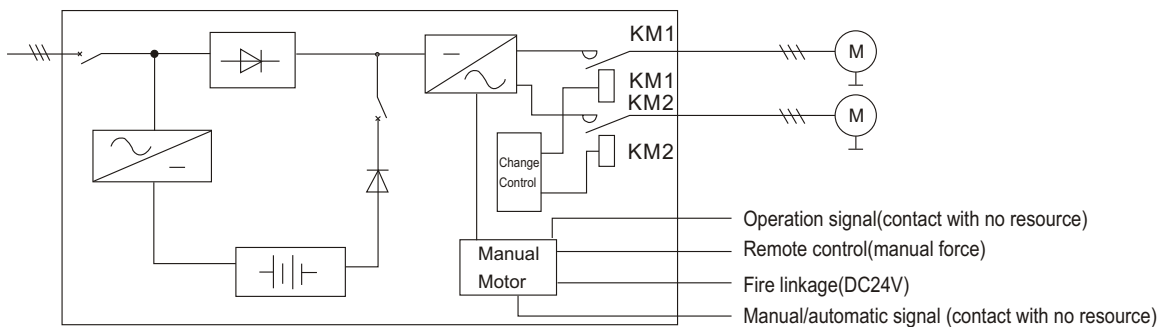
Main line scheme

Scheme code P01: load principle and wiring diagram of unit



EPSYJS/P-01

Scheme code P02: principle and wiring diagram of double



EPSYJS/P-02

HYDB1 Power Distribution Box (Single Door)

Summary

HYDB Low voltage Distribution board for pole/pad mounted transformer station is a kind of LV complete-set switch equipment of urban/rural power distribution system, it's widely applied to AC 50/60Hz, rated voltage of 380/415V distribution system for conversion distribution, control, measuring, protection of transformer in power. The connection scheme of its technical standard, technical criterion, measuring unit is in accordance with instructions manual to energy measurement panel development and installation, and to select measurement license, production license, enter-into-grid license safe series quality product for development. The moulded case circuit breaker as the main component according to capacity of different transformer which be putted into one SMC fiber glass box. The box has nice appearance, the configuration reasonable and reliable. Also the product has high breaking capacity, good dynamic-thermal stability, flexible electrical scheme, new design structure, high protection class etc. This product accord with standard of IEC60439 & GB/T7251 《Low-voltage Switchgear Apparatus and Control Apparatus》.



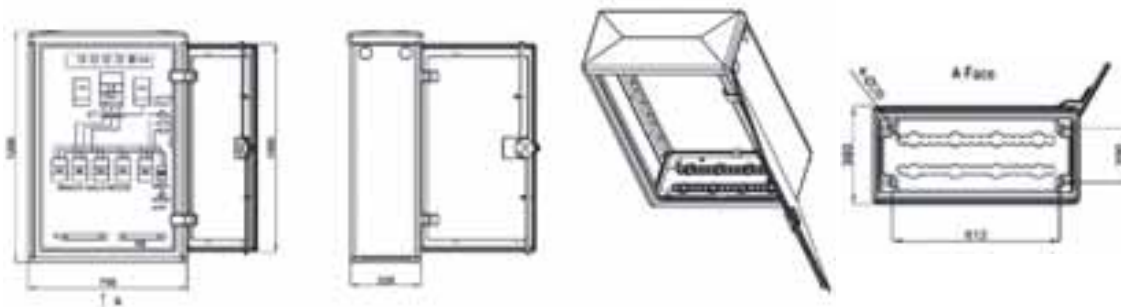
Structure feature

1. The enclosure of product made of high quality SMC (Sheet Moulding Compounds) fiber glass, which has perfect performance: antiseptis capability, absolute sealed waterproof, reliable insulation, anti-tampering, safe protection of lead-seal and lock, life-span of more than 30 years, (indoor life-span will be more than 60 years) and resistance to impulse (impulse the each weakness of the shell with 1Nm for three times, no damage will appear.)
2. There are some small holes at top of inner box, prevent to dew occurred in case of being moisture.
3. There is one lighting lamp and one socket in side of inner box.
4. There is some energy meters for measuring.
5. The main MCCB used to protect transformer and the other small MCCB used to branch circuit.
6. The protection class is IP54 (Some special requirement should be negotiated with the manufacturer).

Ambient condition

1. Ambient temperature: $-25^{\circ}\text{C} \sim 40^{\circ}\text{C}$.
2. Altitude: $\leq 3000\text{m}$.
3. The relative humidity of month average: $\leq 90\%$.
4. Applicable occasions should free from explosive, corrosives and severe vibrations.

Outline dimension



YB□ -40.5(12)/0.69 Wind Power Special Compact Substation

Summary

Nowadays, the wind energy source becomes one of the most important energy sources, and it is one of 'Green energy sources' which has great potential exploiting and applied perspective.

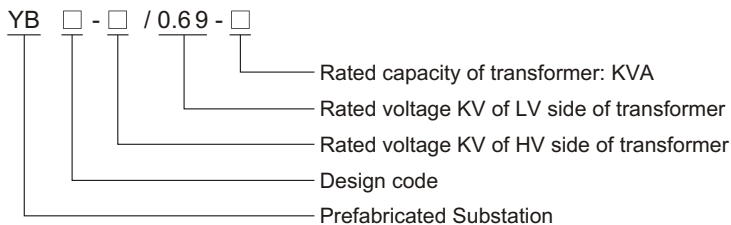
In normal time, the wind turbine output voltage is 690V, so it must be boosted to transmit far away. The wind farm usually use the cable to connect wind generator to wind power special prefabricated substation, boosting the voltage from 690V to 40.5kV, then transmit the power to wind farm's core substation, the core substation will boost the voltage again then connect to state power grid. The wind generator and packaged boosting transformer integration adopt one generator-one transformer unit wiring. This type prefabricated substation is designed and exploited according to this requirement.



Ambient condition

1. Altitude: $\leq 1000\text{m}$
2. Ambient temperature: $-25^{\circ}\text{C} \sim +50^{\circ}\text{C}$
3. Relative humidity: Dalily meaning value $\leq 95\%$, Month meaning value $\leq 90\%$
4. Outdoor wind speed $\leq 35\text{m/s}$
5. Ground gradient ≤ 30
6. Seismic intensity $\leq \text{VII degree}$
7. No flame, explosion, serious pollution, chemical corrosion and severe vibration in mounting place, the pollution degree $\leq \text{II degree}$.

Model



Standards

Under normal usage condition it according to IEC 60694 and GB11022

IEC62271-202 & GB/T17467-1998	H.V./L.V. Prefabricated Substation
IEC62271-102 & GB/T1985	H.V. AC Disconnect switch and earthing switch
IEC62271-105 & GB/T 3804-1990	3kV-63kV AC H.V. Load break switch
IEC 420	H.V. AC Load break switch fuse combined apparatus
IEC62271-200:2003; GB3906-2006	3.6kV-40.5kV AC Metal-clad switchgear and controlling equipments.
IEC60694:1996; GB/T11022-1999	The public technical requirements of H.V. Switch equipment and controlling equipment standard
IEC60439-1:1999; GB7251.1-2005	L.V. Switchgear equipments and controlling equipments, part 1: type test and partial type test switchgear equipments
IEC60060-1:1989; GB/T16927.1-1997	H.V. test technology part1: common test requirements
IEC60529(1989); GB4208-1993	Enclosure protection degree: IP code
DL/T 537-2002	H.V./L.V. prefabricated substation selection guide rule
IEC60076 & GB/T6451	Three phases oil-immersed power distribution transformer's technical data and requirements

Technical specification

	Item	Unit	Data	
H.V Unit	Rated frequency	Hz	50	
	System voltage	kV	10/11	35
	Max. Operating voltage	kV	12	40.5
	Switch rated voltage	A	400, 630, 1250	
	Switch transfer voltage	A	1000 ~ 3150	
	Rated short time withstand current	kA	12.5(2s or 4s), 16(2s or 4s), 20(2s or 4s)	
	Rated peak withstand current	kA	31.5, 40, 50	
	P.F withstand voltage(Phase to phase, phase to earth)	kV	42/48	95/118
	Lightning impulse withstand voltage (Phase to phase, phase to earth)	kV	75/85	185/215
	Rated short circuit breaking current (Current-limited fuse)	kA	31.5	
	Breaking No-load transformer's capacity	kVA	1250	2500
Transformer unit	Rated voltage	kV	10(11)/12, 35/40.5	
	Rated capacity	kVA	30-2500	
	Tap-changer scope	%	± 2 × 2.5%, ± 5%	
	Vector group		Dyn11, Yyno	
	Impedance voltage	%	4, 4.5, 6, 8	
L.V. Unit	Rated voltage	V	690	
	Rated current	A	50 ~ 4000	
	Main circuit rated short time withstand current	kA	15(1s), 30(1s), 50(1s), 65(1s)	
	Main circuit rated peak withstand current	kA	30, 63, 110	
Shell	Protection degree		IP33	
	Noise level	dB	≤ 50	
	Material		Non-metal / Cement / Wooden / Steel	

Main components technical data

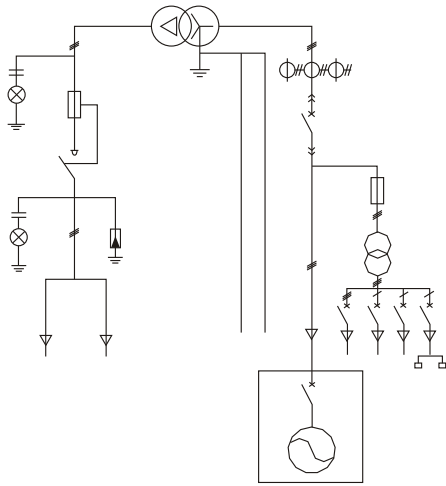
Item	Data	FZRN21-12	FZRN21-40.5	FKN□-40.5R
Max. operating voltage	kV	12	40.5	
Insulation type		air	air	air
LBS rated current	A	630	1250	400、630
Rated capacitor group breaking current	A	125	200	
Switch transfer current	A	3150	3150	1000
LBS rated short time withstand current	kA	31.5(4s)	12.5(4s)	12.5 ~ 31.5(4s)
LBS rated peak withstand current	kA	50	31.5	31.5 ~ 50
P.F withstand voltage(Phase to phase, phase to earth)	kV	42/48	95/118	
Lightning impulse withstand voltage (Phase to phase, phase to earth)	kV	75/85	185/215	
Rated short circuit breaking current(Current-limited fuse)	kA	31.5		
Mechanical life	times	10000		

Main specification of transformer

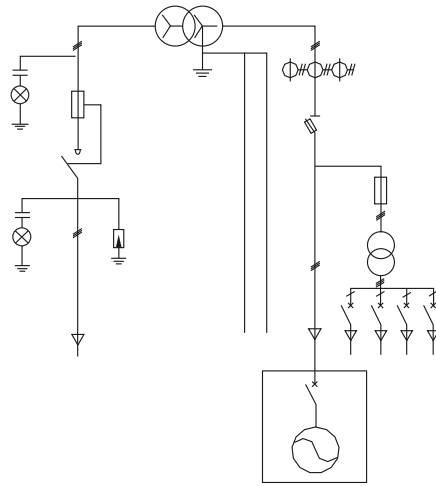
The transformer mainly use the S9(11)-M type absolute sealing transformer, and its capacity is as following:

50,80,100,125,160,200,250,315,400,500,630,800,1000,1250,1600,2000,2500KVA

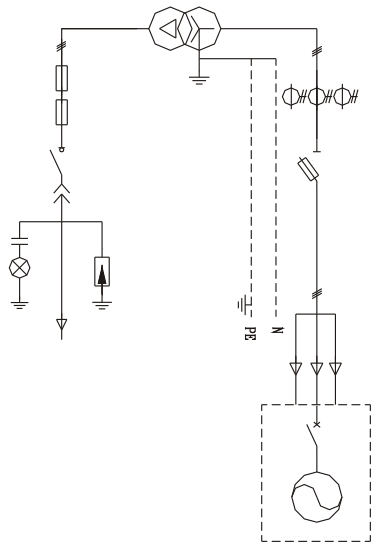
Main Programs



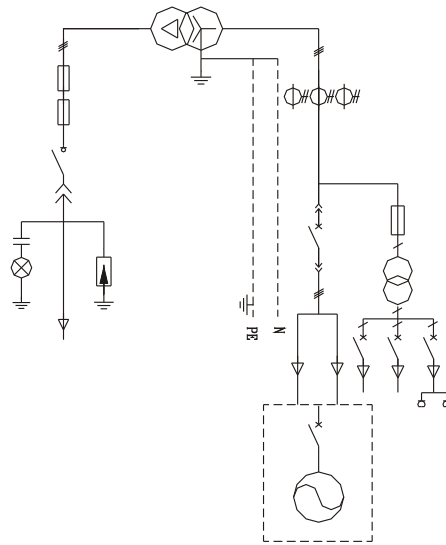
Program 1



Program 2



Program 3



Program 4

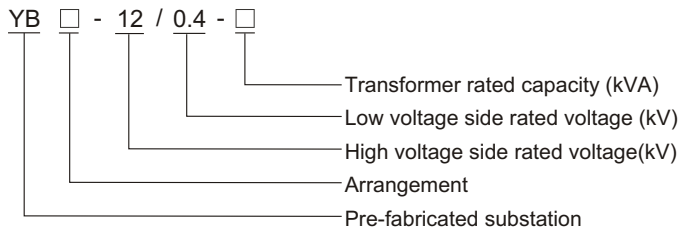
YB Series European Style Compact Substation

Composition

The covering material are: colored steel plate, cold rolled plate, stainless steel, glass-fabric special cement, aluminum alloy and copper aluminum zinc plate. The insulating medium of medium voltage switch device: can be SF6, air and vacuum. Transformer can be oil and dry type. Low voltage compartment main switch can be universal breaker, intelligent breaker type.



Model



Product feature

1. There are automatic temperature controlling device, exhaust blower, heating and dew resistant device in the substation.
2. Characteristic: Fastness, heat insulation, ventilation, good performance, guards against the micro-organism, moisture proof, nice looking, convenient maintenance, occupies little ground and so on.
3. At the high voltage side, use breaking switch and current limited fuse as the protector for the transformer. When the current limited fuse was fused, the three-phase load breaking switch will cut off. The high voltage side also can adopt the vacuum breaker as the protector.
4. At the bottom of the transformer, the pony truss can be installed, which can pass in and out freely for the inspection.
5. The wiring and arrangement are various; In terms of different environment and condition, it can adopt different structures and covering material.

Ambient condition

1. Ambient temperature: -25°C~+40°C;
2. Altitude: ≤1000m;
3. Wind pressure: ≤700Pa;
4. Humidity: daily average ≤95%, monthly average ≤90%;
5. Pollution degree: IV;
6. Earthquake intensity: 8 degree;
7. Occasions without fiercely shake and corrosiveness, as well as without flaming and explosive matter, the verticality is no more than 3 degree.

Technical specification

No.	Item	Unit	High voltage unit	Transformer	Low voltage unit
1	Rated voltage	kV	12	12/0.4	0.4
2	Rated capacity	kVA		30~1600	
3	Rated current	A	630		100~2500
4	Rated cutting current	kA	50		105~63
5	Rated short time withstand current	kA	20/3		
6	Rated peak value withstand current	kV(peak)	50		30/1
7	Rated closing current	kA	50		63

No.	Item	Unit	High voltage unit	Transformer	Low voltage unit
8	Power frequency withstand voltage	kV/min	Phase-earth and phase-phase:42/18	35/1	2.5/1
			Across open contacts:48/1		
			11kV Cable AC withstand voltage phase-earth:25/15		
9	Lightning impulse withstand voltage	kV(peak)	Phase-earth and phase-phase 75 Across open contacts:85	75	
10	Protection degree		IP33		
11	Noise level	dB		≤55	

It adopt the S9(11)-M fully sealing transformer and SC9 solid-cast transformer, the capacity is: 30, 50, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600kVA.



Anti-corrosion wooden covering



Nonmetal covering



Aluminum alloy covering



Colored steel plate covering



Steel covering



Stainless steel covering

ZBW Series Combination Compact Substation

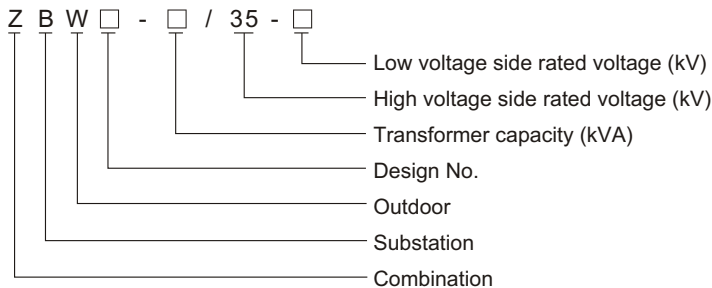
Summary

The ZBW series combination compact substation is a outdoor three-phase complete power distribution rated frequency is 50/60Hz, and the voltage at the HV side is 35kV, LV side is 0.4kV. It can be used in the cities, villages and towns, path, factories, oil field, mine, dock, as well as constructive work places, for the accepting, converting and distributing. It has the features of strong complete set, small volume, convenience installation, simple maintenance, low cost, high automatic performance and safety running.

The combination substation can meet the technical requirement of IEC62271-202 & GB/T17467-1998: high voltage / low voltage prefabricated substation, GB 1985-2004 high DC disconnecting switch and earthing switch, GB/T3309-1989 the mechanism test of high voltage device in air temperature, GB3906-1991 3~35kV DC metal sealing switch device, GB/T11022-1999 high switch device and control device, as well as GB/T16927.1-1997 the part one of the high voltage measurement technology General measurement requirement.



Model



Ambient condition

1. Altitude: $\leq 1000\text{m}$;
2. Ambient temperature: $-25^{\circ}\text{C} \sim +40^{\circ}\text{C}$;
3. Wind speed: $\leq 34\text{m/s}$ (Wind pressure: $\leq 700\text{Pa}$);
4. Ice thickness: $\leq 20\text{mm}$;
5. Relative humidity: daily average $\leq 95\%$, monthly average $\leq 90\%$;
6. Without fiercely shake and impulse;
7. Occasions without flammable, explosive, serious pollution and chemical corrosion.

Product feature

1. The covering adopts the special glass-fabric cement (sheet steel plate), which has the features of anti-corrosion, long service life, and the insulating material inside it can prevent the solar radiation.
2. Inside the substation there are automatic cool-down device and dew resistant device.
3. It can match to the integrated automatic device.
4. It can match to any communication device.
5. Composition of substation

This combined substation is combined primary and secondary electric devices into a removable, fully sealing, anti humidity and dew substation. It can be installed and debugged in the factory, which can make the installation more convenience. The rated voltage of the high voltage side is 40.5kV, and the low voltage is 12(0.4)kV, and the rated capacity of the transformer is 400~20000kVA. There are some types of substations: 35kV main substation, 35kV switch box, 10kV switch box and so on. The cable connects the substations, as well as 10kV incoming and outgoing wiring. The substation has the parts of high switch room, low voltage room, relay protection room, capacity compensation and transformer room. And the high voltage capacity compensation and oil transformer above 4000kVA always adopts the outdoor installation.

6. Introduce of automatic device

- 6.1 This substation is an intelligent design that the protection system adopts the substation microcomputer integrated automatic device. And it can realize the separate functions of remote measurement, remote communication, remote control and remote adjustment, which can protect the relay, distance alarm, and set distance parameter, i.e. humidity, temperature.
- 6.2 In addition, it can install the picture distance monitor device, which can deliver real time TV information by the video camera to the distance control room.
- 6.3 Transformer measurement control protection unit: complete the main transformer differential, differential current fast break, compound voltage over current, over load, as well as some protection function: measurement of main transformer's temperature, current, voltage, active power and reactive power. Control of circuit breaker under the load circuit.
- 6.4 Line measurement control protection unit: three-section current voltage, three-phase one time reclose, post acceleration, low frequency load decrease, and measurement of current, voltage, active power and reactive power.
- 6.5 Capacitor measurement control unit: Protect the over current, over voltage, low voltage, imbalance current, imbalance voltage. Measure the data of current, voltage, active power of capacitor and operating on the circuit breaker.
- 6.6 Communication management unit: Managing the communication of the measurement control site and control system.

Technical specification

Main technical specification of transformer

Model	Rated voltage	Rated capacity (kVA)	Rated voltage ratio (kV/kV)
SZ7	35	400-20000	35/11, 35/6.3, 35/0.4
SZ9	35	400-20000	35/11, 35/6.3, 35/0.4

Technical specification of 35kV switchgear with ZN85-40.5(ZN23-40.5) vacuum circuit breaker

No.	Item	Unit	Parameter
1	Rated voltage	kV	35
2	Max. working voltage	kV	40.5
3	Rated current	A	1250, 1600, 2000
4	Rated short circuit breaking current	kA	25, 31.5
5	Rated short circuit making current	kA	63, 80

Technical specification of 12kV switchgear with vacuum circuit breaker

No.	Name	Unit	VS1-12(ZN28-10)		
1	Rated voltage	kV	11		
2	Max. working voltage	kV	12		
3	Rated frequency	Hz	50		
4	Rated current	A	630,1250	1250~3150	2500~3150
5	Rated short circuit breaking current (virtual value)	kA	25	31.5	40
6	Rated short circuit making current (virtual value)	kA	63	80	100

Technical specification of HXGN11-12 (F) with FRN21-12 vacuum circuit breaker

No.	Item	Unit	Data
1	Rated voltage	kV	11
2	Highest work voltage	kV	12
3	Rated frequency	HZ	50
4	Rated current	A	630
5	Rated short circuit withstand current	kA/s	20/3

Technical specification of XGN15-12(L) ring main unit with FLRN48-12 SF6 load break switch

No.	Name	Unit	Data
1	Rated voltage	kV	11
2	Highest work voltage	kV	12
3	Rated frequency	Hz	50
4	Rated current	A	630
5	Rated short circuit withstand current (virtual value)	kA/s	20/4

Technical specification of high voltage insulate switch

No.	Model	Rated voltage (kV)	Rated current (A)
1	GN27-35	35	400/630/1000
2	GN19-35	35	400/630/1000
3	GN19-12(C)	11	630/1000/1250/1600

Technical specification of transformer

Model	Rated voltage	Voltage ratio (kV/kV)	Capacity (kVA)
SC9	35	35/0.4	30, 50, 80
SC9	11	11/0.4	30, 50, 80

Technical specification of voltage transformer

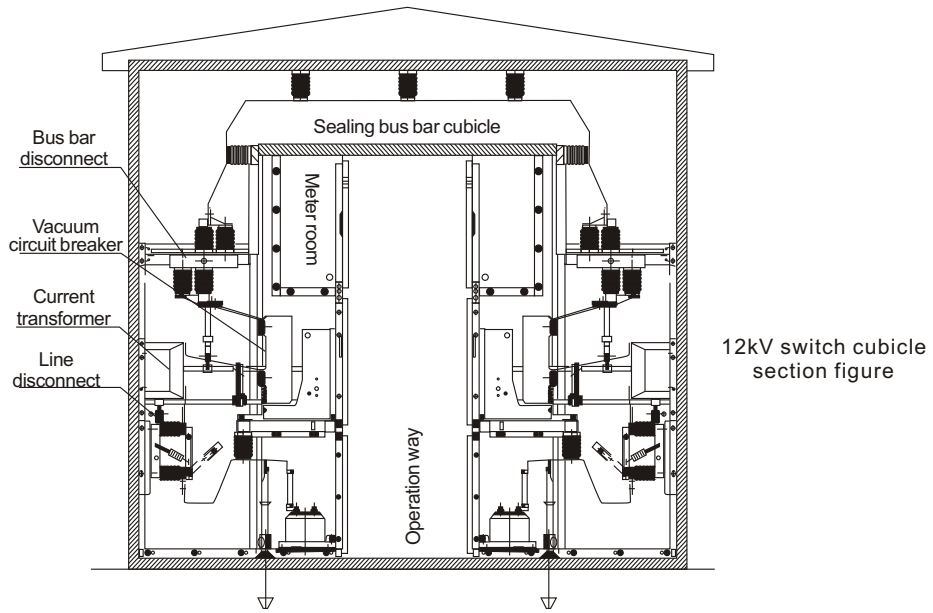
Model	Rated voltage ratio (kV/kV)	Rated capacity (kV)				Limited capacity (VA)
		0.2	0.5	1	6P	
JDZ9-35	35/0.1	60	120			800
JDZX9-35	$\frac{6}{\sqrt{3}} / \frac{0.1}{\sqrt{3}} / \frac{0.1}{\sqrt{3}} kV$	40	80		100	600
JDZ10-12B	11/0.1	25	50	90		300
JDZX10-10B			50	90	50	400

Technical specification of current transformer

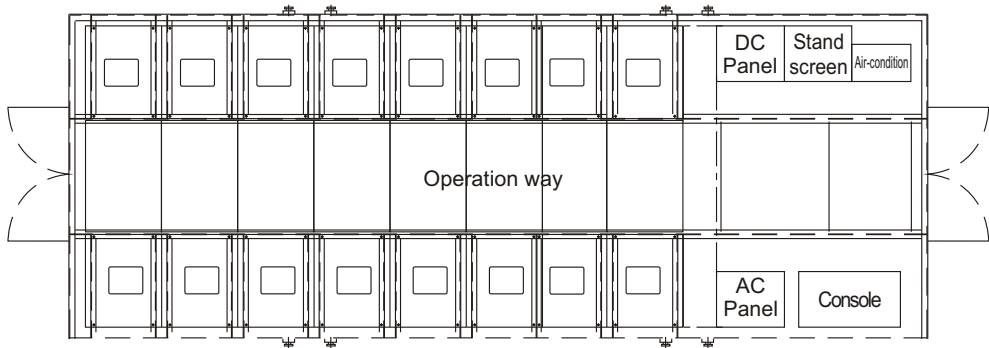
Model	Rated primary current (A)	Rated secondary current (A)	Accuracy combination	Secondary load (VA)			
				0.2	0.5	10P10	10P20
LCZ-35(Q)	20~1000	5	0.2/0.5 0.2/10P10 0.5/10P20 10P10/10P20	10	50	50	25
LZZB9-35	30~500	5	0.2/0.5/10P20 0.2/10P10/10P20 0.5/10P10/10P20 10P20/10P20	15	30	50	20
	600~2000			30	50	50	30
LZZBJ9-12	10~2500	5	0.2/10P10 0.5/10P10 10P10/10P20	10	10	20	10
LZZBJ12-12	10~200		0.2/0.5/10P10 0.2/10P10/10P10 0.5/10P10/10P10 0.5/10P10/10P20	10	15	15	10
	300~600			15	20	25	15
	800~3150			20	30	30	20

Technical specification of lightning arrester

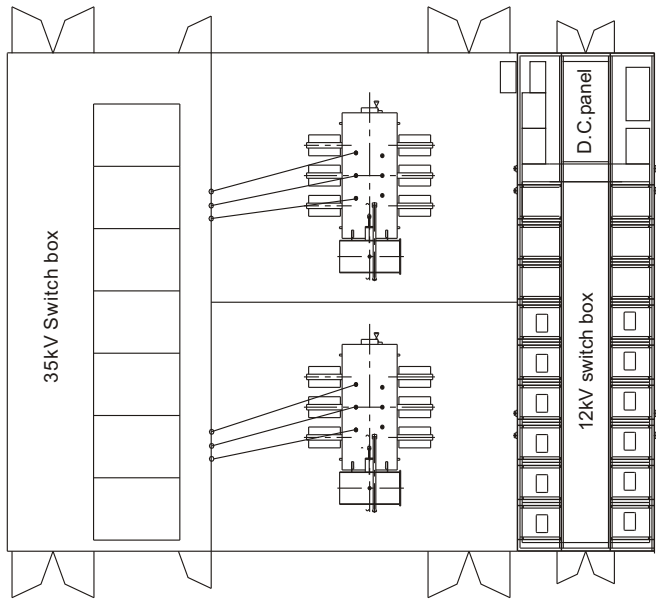
Model	Rated voltage	Residual peak (kV)
HY5WZ-17/45	17	45
HY5WS-17/50	17	50
HY5WZ-51/134	51	134



12kV switch cubicle section figure



12kV switch cubicle layout drawing



35kV Combined substation layout

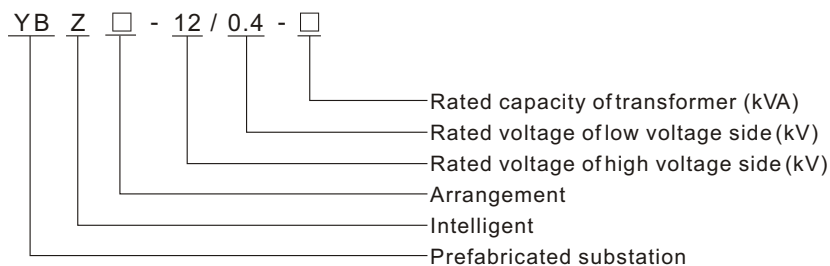
YBZ□-12 Intelligent Compact Substation

Summary

Compared to the traditional power supply, the box type substation has the obvious superiority, but still has some deficiency, not only dozens of simulations indicating instrument, the massive relays, which will bring enormous in convenient for the production organization, the spare storage product debugging and the maintenance, also the difficulty to control the complex logic. Regarding multi box type substations, it can't realize the centralized management and the sequencing operates, which will bring the hidden danger for the movement. Along with development of the modern industry, the integrated management and intellectualized operation become more and more important, use modern electronic technology, sensor technology, communication, computer network technology to manage the monitor, the protection, the control, the electric power measurement, the communication under the normal operation and the accident condition.



Model



Product feature

1. There are automatic temperature control and ventilative box, heat up and dew resistant devices in the box substation.
2. The covering has the features of: Fastness, heat insulation, good performance, against the micro-organism, moisture-proof, good outlooks and the convenience maintenance.
3. The high voltage side always adopts the load break switch and current limited fuse to protect the transformer. When the fuse acting, it can link the three-phase load switches. And the high voltage side also can adopt the vacuum circuit breaker as the circuit protector.
4. The communication network has the features of real time response ability, high reliability, fine electromagnetic compatibility performance, and hierarchical structure.
5. This automatic system adopts the intelligent modulations design, integrated management, so its centrality is good, the installment is simple, as well as the wiring.
6. The integrated protective device with high brightness LED of demonstration menu, it can add the dormancy function with liquid crystal display monitor.
7. It has the strong anti interfere ability and electricity protection function, its parameter and electricity parameter can be set.
8. It can realize the bidirectional communication according the automatic power monitor and control system.

Ambient condition

1. Ambient temperature: -50°C~+50°C;
2. Attitude: ≤2000m;
3. Wind pressure: ≤700Pa;
4. Humidity: daily average ≤95%, monthly average ≤90%;
5. Pollution degree: IV;
6. Earthquake intensity: 8 degree;
7. Occasions without strong electromagnetic interferences, conductive dust, fiercely shake and corrosiveness, as well as without flaming and explosive matter.

Application

The intellectualized pre-fabricated substation suits to the public city power distribution, industry and mining enterprise, oil field wharf, residential area, construction, especially the heavy power load place, it can improve the power supply quality and strengthen the energy management through the real-time monitoring.

Technical specification

Technical specification of box

No.	Performance standard	Unit	High voltage element	Transformer	Low voltage unit
1	Rated voltage	kV	12	11/0.4	0.4
2	Rated capacity	kVA		100~1600	
3	Rated current	A	630		144~2309
4	Rated breaking current	kA	20~31.5(circuit breaker)		15~63
5	Rated short circuit withstand current	kA/s	20~31.5(circuit breaker)		30/1
6	Rated peak withstand current	kA(peak)	50~80(circuit breaker)		63
7	Rated closing current	kA	50~80(circuit breaker)		
8	Power frequency withstand voltage		Phase-earth and phase-phase: 42/1	35/1	2.5/1
		kV/min	Across open contacts:48/1		
			10k Connection cable DC withstand phase-earth / phase-phase		
9	Lightning impulse withstand voltage	kV(peak)	Phase-earth and phase-phase:75	75	
			Across open contacts:85		
10	Protective accuracy		IP33	IP33	IP33
11	Noise class	dB		≤55	

The capacity of the transformer: The S9(11)-M fully sealing transformer and SC9 dry transformer, and the capacity data as below: 50, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600kVA.

Integrated protective device BZBH-5000 parameter

	Item	Parameter
Rated parameter	Rated power voltage (V)	220(AC)
	Rated current (A)	1(AC)
	Rated voltage (V)	220
	Frequency (Hz)	50
Measurement accuracy	Current and voltage accuracy (class)	0.5
	DC voltage, frequency sampling accuracy (class)	0.5
	Active power, reactive power, apparent power, power factor (class)	0.5
	Contact site (V)	220(AC)
	Software anti shock time (ms)	20
	Contact capacity	5A(AC)
Remote control	Analogue input	Total: 36 ways (extensible)
	Digital input	Total: 30 ways (extensible)
	Digital output	Total: 32 ways (extensible)
	Communication interface	RS485GSM
Ambient condition	Temperature scope (°C)	-20~+70
	Relative humidity (%)	50~90
	Air pressure (kPa)	66~108
Communication channel	Transmit speed (bit/s)	9600
	Communication rule	User-defined
	Communication medium	Wireless and wire
Power consumption	Whole power consumption under normal work time (VA)	<10
Reliability	Average no fault work time (h)	≥10000

ZXB Series Intelligent Railway Signal Double Power Compact Substation

Summary

To meet the requirements of the fast development of the railway, the realization of the distance monitor and self control of the railway information, the reliability power supply, the HEAG company had develop the ZXB intelligent railway information bi-power substation, which can resolve the problems of disperse power supply of railway information, difficult of operation and maintenance, bad environment of the installation site, the difficult of distance control and monitor. Consider the railway's self closed and electrical run-through circuit, this product combined the high voltage ring main unit, transformer, low voltage switchgear, double power monitor, power circuit fault self cut off system and low voltage control and so on to a double-deck, sealing and antiseptis box, which can suit to the power supply of primary load of the concentrating control, large substation electric concentrating linkage, automatic closedown and hump signal.



Standard

IEC62271-202 & GB/T17467-1998	High / low voltage prefabricated substation
IEC62271-102	High AC disconnecting switch and earthed switch
GB/T3309-1989	Cold mechanical test of high voltage device
GB3906-1991	3~35kV DC metal sealing switching plant
GB/T11022-1999	General standard technical specification of high voltage switching plant and control device
GB/T7251.1-1997	The first part of High voltage complete switching plant and control device: formal test and partial formal test of complete equipment
IEC60529 & Protection grade	Part 1 of high voltage test technology: general test requirement
GB4208-1993	Covering grade (IP code)
DL/T537-2002	High / low voltage prefabricated substation use index

Product feature

1. The intelligent railway signal double power substation pole adopts the 3mm cold rolling steel plate, and the double-decked shutter which has good features of high mechanical strength, good heat insulation, dustproof, against the micro-organism, moisture-proof, good outlook, convenience maintenance.
2. Accord to the requirement of the railway power supply, the substation can be divided into three parts: high voltage room, transformer room and low voltage room.
3. To assure the quality of the communication and avoid the signal power fault, there are clapboards between the low voltage room and transformer room, as well as there are heat insulation clapboards between the double-decked shutter.
4. To maintenance the temperature in a permission scope, it uses natural and compulsive wind to release the temperature for the railway signal double power substation.
5. The high voltage distribution unit and the high voltage ring main unit are made up by the import spread aluminum zinc plate, and it has three parts of wiring incoming and outgoing unit, signal PT unit and signal transformer wiring outgoing unit.
6. The low panel combined by standard network panels, it has self close low voltage panel, link up low voltage panel, automatic panel, self close terminal box and link up terminal box.
7. The transformer is S11-M series fully sealing oil distribution transformer and dry transformer.
8. Other characteristics:
 - 8.1 The cable hole of incoming and outgoing wiring of high voltage and low voltage room is made by dismantlable steel plate and protected by the cable sheath.
 - 8.2 There are two steel channels for the transformer's pass in the transformer room, so the transformer can be maintained and replaced by demolishing the bolt.
 - 8.3 There is an inter door inside the transformer door, so the running status of transformer can be observed by it.
 - 8.4 The top of the substation is an incline design, the gradient is bigger than 5 degree, in order to avoid the accumulating of rain water.
 - 8.5 There is a limit switch on each transformer door, when the door was opened, the light will turn on. Otherwise, it will turn off.
 - 8.6 The low voltage outgoing loops are link to the terminal bus, so every operation of the outgoing cable connecting is operated on the terminal bus.
 - 8.7 When the angle of the door open is at the 90 degree, at the same time, the wind-proof tension will fix up the door.
 - 8.8 There is a plate on the door of each room, there is high voltage danger marking on each side and also there is wiring marking on the low voltage loop switch and DC measuring meter.
 - 8.9 There is lightning arrester and surge absorber in the substation for lightning avoiding.

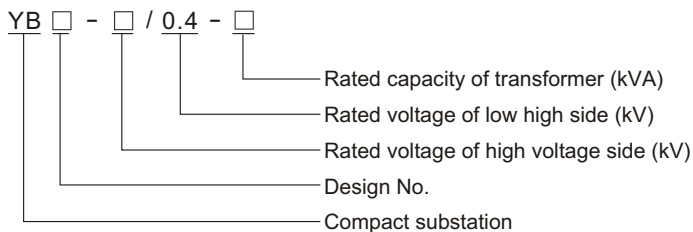
YB□ American Type Compact Substation

Summary

The YB□ compact substation is an important unit of the power supply network. It has the features of controlling, protecting, power transforming and power distributing for high voltage. The high voltage load break switch and fuse are put into the transformer oil. So it has two kind structures that are: single and sharing substation with transformer. There are the oil thermometer, pressure gauge, pressure release valve, oil drain valve monitors in the fully sealing oil box. The way of power supply is ring main unit mode, terminal mode and bi-power mode. For the fact of the domestic power supply network, our company produces the insert type dry fuse, if the fuse fused, it won't affect to the transformer oil. There are three kind of YB□ substation: standard model, strengthen model, integrated model.



Model



Ambient condition

1. Ambient temperature: -10°C~+40°C;
2. Attitude: ≤1000m;
3. Wind speed: 34m/s(Wind pressure: ≤700Pa);
4. Humidity: Daily average ≤95%, monthly average ≤90%;
5. Shake-proof: Level acceleration ≤0.4m/s, and the vertical acceleration ≤0.15m/s;
6. Gradient of installation place: ≤3 degree;
7. Occasions without fiercely shake and corrosiveness, as well as without flaming and explosive matter;
8. If you have other requirement not on the list, warmly welcome to contact us.

Product feature

1. Compact structure, the volume is the same as 1/3~1/5 of European substation;
2. Fully sealing and fully insulated, needn't insulated gap;
3. The wiring management can be used in the ring main unit and terminal;
4. Low wastage, noise and temperature rise;
5. It has the strong capability of anti over load, short circuit and impulse;
6. Conforms to the various requirements of low voltage outgoing;
7. There are two kinds of cable, 200A elbow plug and 600A "T" the stationary electric cable, which can match to the fully sealing device;
8. Zinc oxides arresters, 200A electric with load insert which can be used as disconnecting switch.

Technical specification

1. Performance parameter of load breakswitch

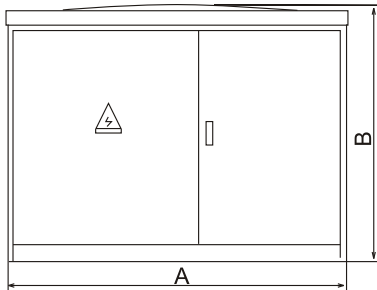
Rated current (A)	Rated voltage (kV)	Impulse withstand voltage (kV)	Power frequency withstand voltage (1min.kV)	Rated short time withstand voltage (kA/s)	Short circuit closing current (kA)	Rated peak withstand voltage (kA)	Load operation times	Mechanical operation times
315	12	75	42	12.5/2	31.5	31.5	100	2000
630	12	75	42	16/4	40	40	100	3000

2. 12kV compact substation S9, S10, S11 series oil transformer performance level

No.	Rated capacity (kV)	Rated voltage		Voltage adjustment scope (%)	Connecting group No.	No load current (%)		Consumption (W)			Assistance voltage	Noise (dB)	Temperature rising					
		High voltage (kV)	Low voltage (kV)			No load		Load										
						S9	S10/S11	S9	S10	S11				S9	S10/S11			
1	30	6.3/6.6	0.4	±5	Yyn0	2.2	2.0		130			600	4	Top oil temperature 60°C winding 65°				
2	50					2.0	1.8		170			870						
3	63					1.9	1.5		200			1040						
4	80					1.7	1.2		250			1250						
5	100					1.6	1.1		290			1500						
6	125					1.5	1.0	340	270			1800						
7	160					1.4	1.0	400	310			2200						
8	200					1.4	0.8	480	375			2600						
9	250					1.2	0.8	560	455	400	3050	3000						
10	315					1.1	0.7	670	540	475	3650	3600						
11	400				1.0	0.7	800	650	570	4300	4200							
12	500				10	(0.69)	(±2×25)	Dyn11	1.0	0.6	960	775			680	5100	5000	4.5
13	630				0.9	0.6	1200		920	800	6200	6000						
14	800				11/12	0.8	0.6		1400	1120	980	7500			7400			
15	1000				0.7	0.5	1700		1320	1150	10300	9860						
16	1250				0.6	0.5	1950		1560	1360	12800	12000						
17	1600				0.6	0.5	2400		1880	1640	14500	14000						

Note: a. The high voltage tap-changer of transformer is $\pm 2 \times 2.5\%$
 b. The low voltage of transformer is 0.69kV.

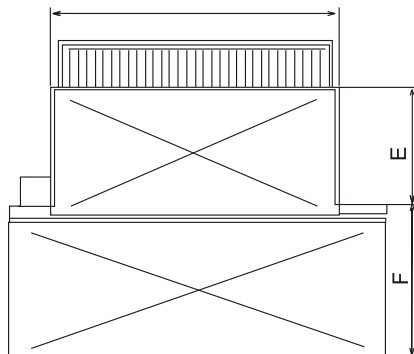
Outline Dimension



Standard type / integrated type front view

YB□ Standard type outline dimension

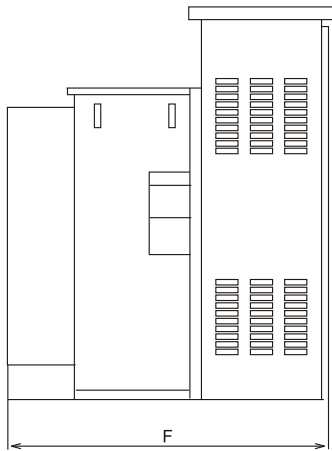
	Capacity(kVA)	A	B	C	D	E	F	G
		Standard	100-250	1900	1650	1250	650/800	600
315	1900		1650	1350	650/800	650	1460/1610	1450
400-500	1900		1750	1450	650/800	650	1490/1640	1550
630	1900		1750	1550	650/800	700	1580/1730	1550
800	1900		1850	1550	650/800	700	1640/1790	1650
100	1900		1850	1650	650/800	700	1640/1790	1650



Standard type/strengthened type look down view

YB□ Strengthened type outline dimension

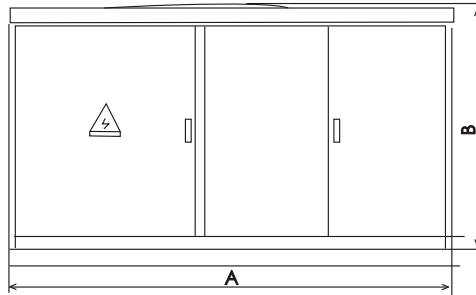
	Capacity(kVA)	A	B	C	D	E	F	G
		Strengthened type	100-250	2400	1650	1250	800	600
315	2400		1650	1350	800	650	1610	1450
400-500	2400		1750	1450	800	650	1640	1550
630	2400		1750	1550	800	700	1730	1550
800	2400		1850	1550	800	700	1790	1650
100	2400		1850	1650	800	700	1790	1650



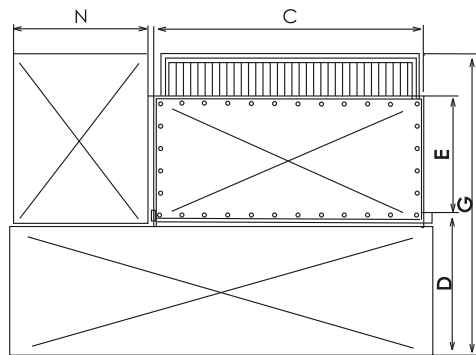
Standard type/strengthened type side view

YB□ Integrated type outline dimension

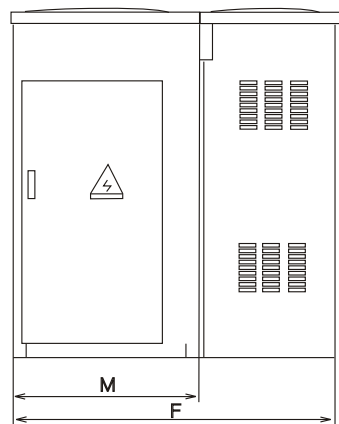
	Capacity(kVA)	A	B	C	D	E	F	G	M	N
Strengthened type	100-250	2400	1750	1250	800	600	1750	1560	950	550
	315	2400	1750	1350	800	650	1750	1610	950	550
	400-500	2400	1850	1450	800	650	1750	1640	950	550
	630	2400	1850	1550	800	650	1750	1720	950	550
	800	2400	1950	1550	800	650	1750	1790	950	550
	100	2400	1950	1650	800	700	1750	1840	950	550



Strengthened type front view



Integrated type planform



Integrated type side view

DFW-12 Cable Distribution Box

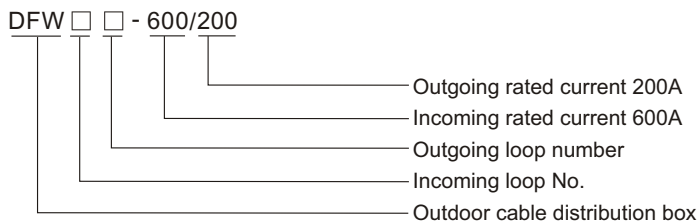
Summary

The cable distribution box is an excellent product to solve the problem of too massive branches. It has the feature of fully insulated and fully sealing, which can decrease the fault ratio in the power supply line.

The distribution is simple, convenient and flexible. In some situations, it can replace the ring main unit. It also can be put into water and underground which suits the place of business center, industry garden, cities and so on. According to the structure and the kind of cable connector, it can be divided as: American cable distribution box, European cable distribution box and distribution box with switch.



Model



Product feature

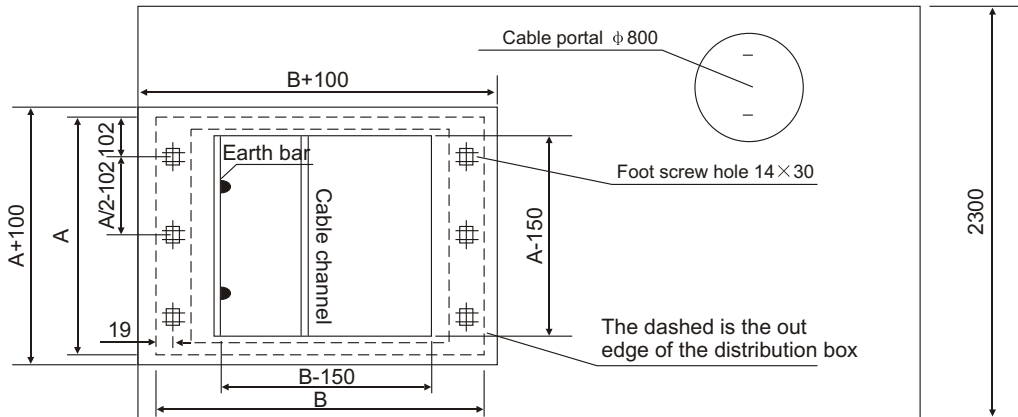
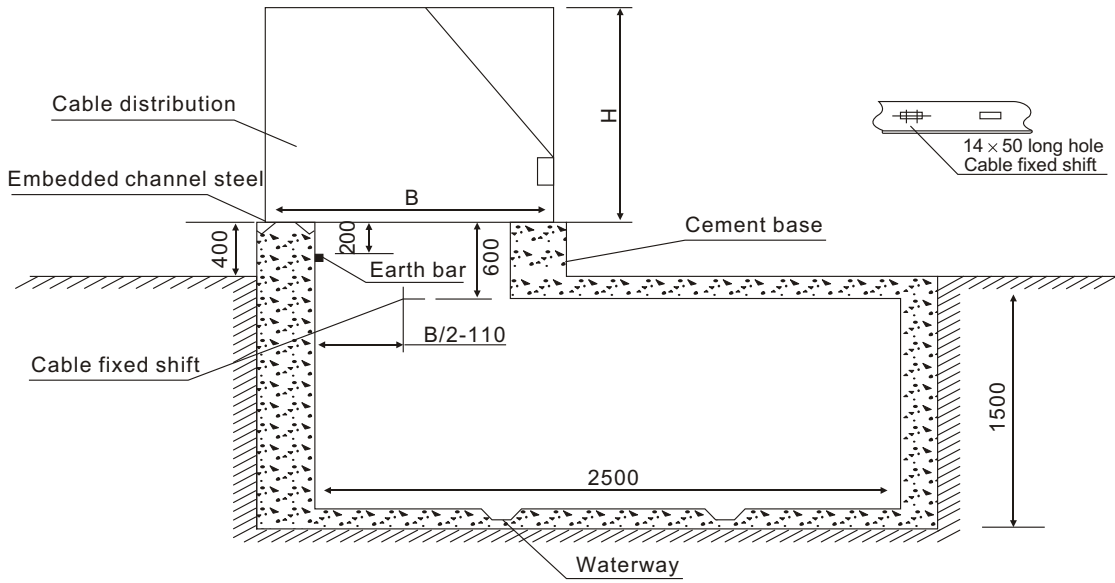
1. Fully sealing structure.
2. Without maintaining, against dust, flood and corrosion and so on, suit to the situation of outdoor, water and any other serious location.
3. The structure is flexible, and there are 8 branches can be used for various connecting.
4. Small volume, compact structure, simple installation and convenient operation.
5. The 200A branch cable connector can be used as a load switch, which has a load insert, so it has the feature of disconnect switch.
6. Can connect to the fault indicator for fault examining of cable.
7. There are various box's materials can be chosen: Common steel matches the military green, mirror surface stainless steel, stainless steel matches the military green and so on.

Technical specification

Technical specification	200A loop specification	600A loop specification
Rated voltage	12kV	12kV
Max. Voltage of phase to phase	14.4kV	14.4kV
Max. Voltage of phase to earth	8.3kV	8.3kV
1 min power-frequency withstand voltage	42kV	42kV
15 min DC withstand voltage	52kV	52kV
Lightning impulse withstand voltage	75kV	75kV
Mini corona starting voltage	11kV	11kV
Rated current	200A	600A
Rated thermal standing current	3.5kV/3s	20kA/2s
Rated dynamic standing current	10kA/0.2s	50kA/0.3s
Partial discharge	≤ 10PC/15kV	≤ 10PC/15kV
Loop resistance	≤ 40 μΩ	≤ 40 μΩ
Protection degree	IP33	IP33

Foundation

Foundation drawing(mm)



Outline dimension

Model	Length A (mm)	Width B (mm)	Height H (mm)	Weight (kg)
DFW3-200(200A three-way bus bar)	1219	381	762	75
DFW4-200(200A four-way bus bar)	1524	381	762	89
DFW2-600(600A two-way bus bar)	1219	559	762	90
DFW3-600(600A three-way bus bar)	1219	559	762	94
DFW4-600(600A four-way bus bar)	1676	559	762	116

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