MNS

Low Voltage Switchgear and
Motor Control Center

Overview

The MNS low pressure drawout switchgear is a factory assembled (FBA) modular cabinet with standard modules. This series of low-voltage drawout switchgear is suitable for power plants, substations, petrochemical industry, metallurgical steel rolling, transportation energy, light industry textile and other factories and mining enterprises, residential areas, high-rise buildings and other places, as AC 50-60HZ, rated working voltage AC 660V and below the power system of the power distribution standby power conversion, distribution and control.

Model meaning

M	N	S
↓	↓	↓
Modular, modular	New type	System

Conditions of use

Ambient air: the temperature is not higher than +40 ° C, not lower than -5 ° C, and the average temperature within 24 hours is not higher than +35 ° C.

● Atmospheric conditions: The air is clean, the relative humidity does not exceed 50% at the maximum temperature of +40 ° C, and a higher relative humidity is allowed at lower temperatures, such as 90% at +20 ° C, but temperature changes should be taken into account, and condensation may occur occasionally.

● Altitude does not exceed 2000m.

● If the above conditions of use cannot be met, it shall be resolved by negotiation between the user and the manufacturer.

● When the device is used in offshore oil drilling platforms and nuclear power plants, a separate technical agreement shall be signed.

Main feature

● Compact design: it can accommodate more functional units in a smaller space.

● Strong structure versatility, flexible assembly. The C profile with 25mm modulus can meet the requirements of various structural forms, protection levels and use environment.

● Standard module design: can be composed of protection, operation, conversion, control, adjustment, measurement, indication and other standard units, users can choose to assemble according to needs. More than 200 assembly parts can be used to assemble the cabinet structure of different schemes and to form a fixed partition or drawer unit.

● Safety: A large number of high-strength flame-retardant engineering plastic components are used to effectively enhance protection and safety performance.

● High technical performance: the main parameters reach the contemporary international level.

● Compression site: high degree of tritization, can greatly compress the storage and transportation of prefabricated sites.

● Easy assembly: no special complex tools are required.

Switch cabinet type

● Power distribution cabinet (PC): Emax, MT, 3WN, AH, ME series circuit breakers can be used.

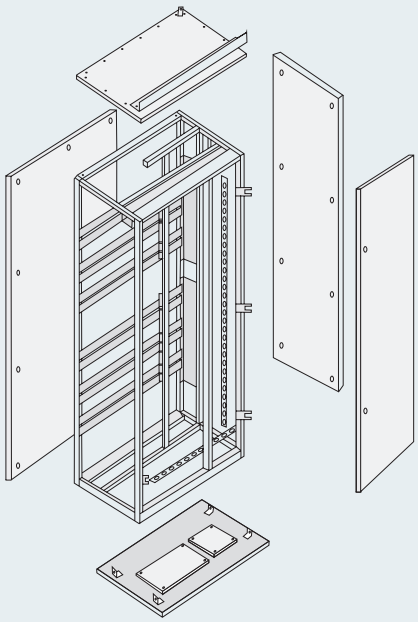
Motor control center cabinet (MCC): assembled by large and small drawers, the main switch of each circuit adopts high break plastic-case circuit breaker or rotary load switch with fuse.

Automatic power factor compensation cabinet (with manual, automatic and remote power factor compensation devices)

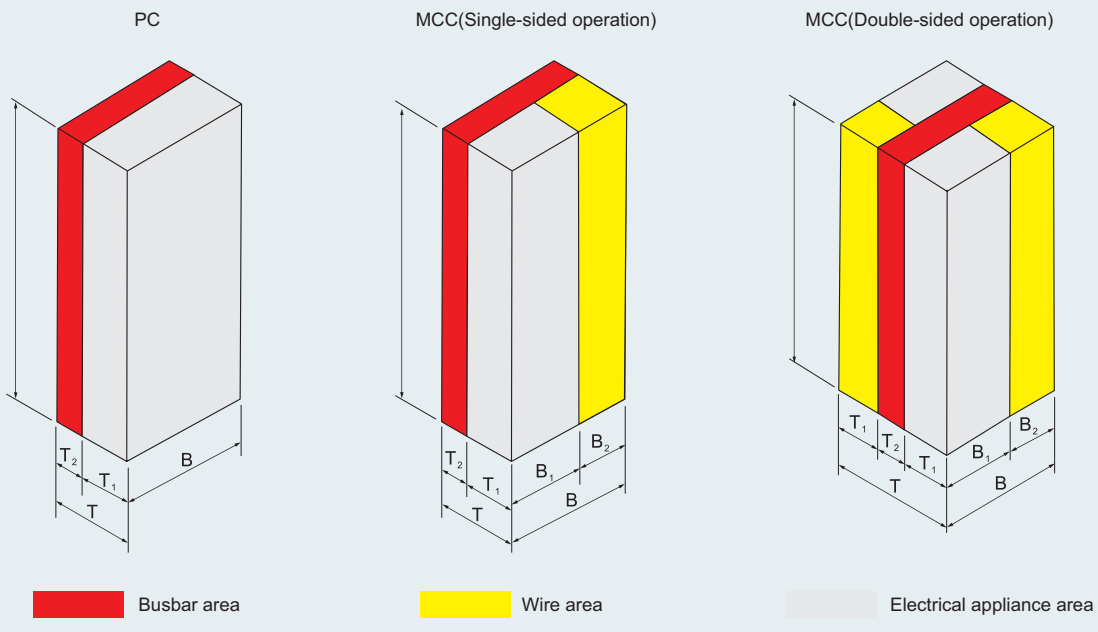
Basic technical parameters

Item	Argument
Rated insulation voltage	660V(1000)V
Rated operating voltage	380V, 660V
Maximum working current of main bus	5000A
Rated withstand current of main bus	100kA/1s
Rated peak withstand current of main bus	220 ka / 0.1 s
Maximum operating current of the distribution bus (vertical bus)	1000A
Distribution bus (vertical bus) peak current: standard type, enhanced type	105 Ka (Max.)/0.1s, 1 76kA(Max.)/0.1s

Cabinet frame structure composed of C-shaped profiles



Cabinet diagram



Drawer type

There are five standard sizes, all based on 8E(200mm) height:

8E/4: Assemble 4 drawer units in 8E height space.

8E/2: Assemble 2 drawer units in 8E height space.

8E: Assemble 1 drawer unit in 8E height space.

16E: Assemble 1 drawer unit in a 16E(400mm) height space.

24E: Assemble 1 drawer unit in 24E(600mm) height space.

The five drawer units are available as a single assembly in a cabinet or as a hybrid assembly. Maximum number of drawer units to be accommodated in a cabinet as a single assembly.

Item	Argument				
Drawer type	8E/4	8E/2	8E	16E	24E
Maximum number of units to accommodate	36	18	9	4	3

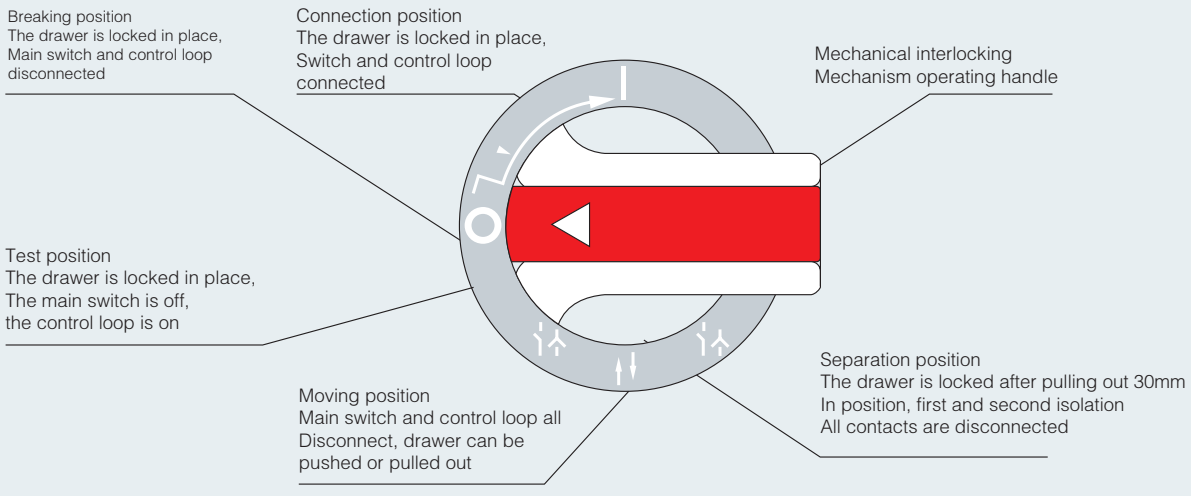
Electrical and mechanical interlocking of drawers

The drawer unit has a reliable mechanical interlocking position, controlled by an operating handle, with clearly accurate closing, test, extraction and isolation positions. The function of the operating mechanism is shown in the figure. In order to enhance safety precautions, the padlock can be added after the operation handle is positioned, and up to three locks can be added, see the picture on the left.

After the drawer unit is in place, it must operate the skylight function and its position in strict accordance with the figure, otherwise it is easy to damage the structural parts, please pay attention to it when using.

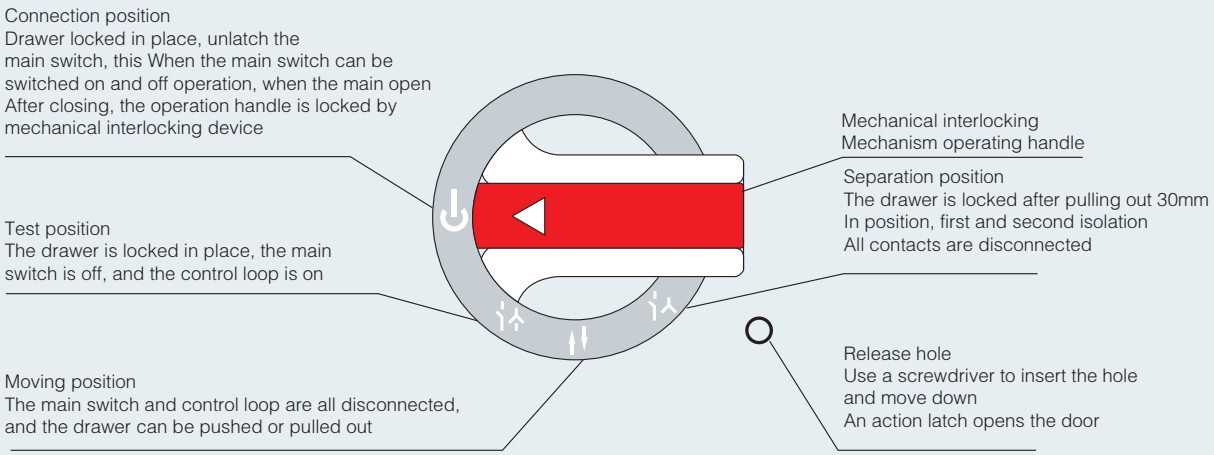
Operation switch function diagram

8E/4 and 8E operation switch function



Operation switch function diagram

8E, 16E, 24E, operation switch function



The permutation and combination of primary solutions

The total high charge of the functional unit compartment is 72E.

In the same device, the general arrangement of functional units is that small functional units are on the top and large functional units are on the bottom.

8E/4 drawers are made up of 4 to form an 8-day mounting unit, 8E/2 drawers are made up of 2 to form an 8E mounting unit, or 2 8E/4 drawers and 1 8E/2 drawer are made up of an 8E mounting unit.

The current transformer drawn in the scheme is the maximum number of installations in this scheme (in schemes 01 to 19,21 to 39, a current transformer can be added for reactive power compensation loop). In actual use, it can be reduced or not installed according to the needs of the system.

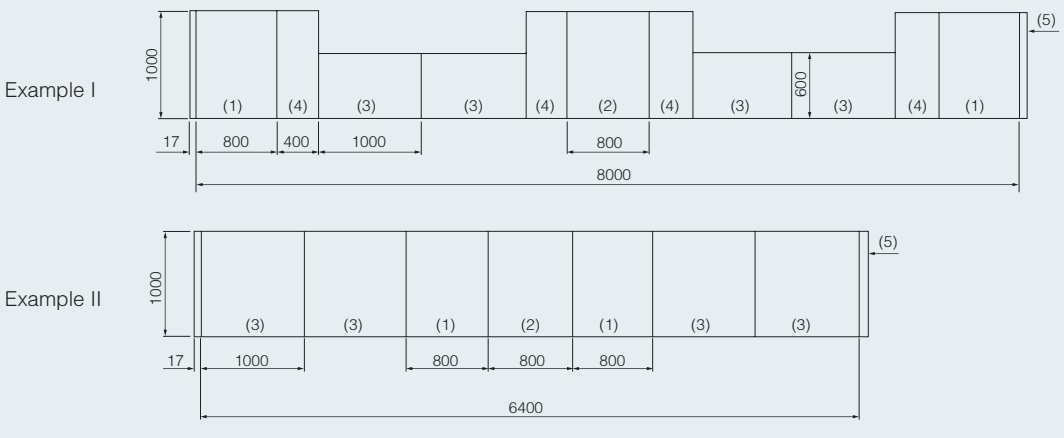
The depth of the device is 600mm (MCC single-sided operating cabinet) and 1000mm (PC and MCC double-sided operating cabinet), and it is recommended that the PC and MCC be arranged separately. When a split function board is used, a hybrid PC and MCC can be assembled in the same cabinet.

When PC and MCC two devices are arranged next to each other, then:

When an MCC double-sided cabinet (or a 600-depth MCC single-sided cabinet) is arranged adjacent to a PC cabinet, a conversion cabinet (its width is 400mm) must be added between the two cabinets, as shown in Figure 1.

When the single-side MCC is deepened to 1000mm, the conversion cabinet can be added without, as shown in Figure 2 below.

Combination mode diagram



Installation, use, maintenance

1. Refer to installation diagram and bus bridge installation diagram for installation.

2. When the device arrives at the destination, first check whether the packing box is complete. If the device is not installed immediately, it should be stored in a dry and clean place.

3. The device is recommended to be mounted away from the wall or against the wall. The installation base plane should be flat, the horizontal error of the base channel steel should be 1/1000, and the total length deviation should be 3mm.

4. It is recommended to use class 8.8 and tension gaskets for bolt fixing of all conductive parts. The recommended tightening torque values are shown in the following table:

5.MCC solution accessories supply the cable head sheath and a certain number of copper connectors for the secondary circuit. (In order to adapt to the cold pressing processing of copper joints, multi-core flexible wires are recommended for secondary cables).

6. After connecting the cable, the bottom of the device should be closed to prevent small animals from climbing into the cabinet and causing short circuit accidents.

7. After installation or adjustment, the following checks and tests should be carried out before the device is put into operation:

(1) Check whether the electrical equipment and control wiring installed in the device meet the requirements of the factory drawings.

(2) Manually operate a variety of switches, should operate flexible, no abnormal and clamping phenomenon.

(3) Check whether the action of the mechanical interlocking mechanism and the electrical interlocking device is correct and reliable, and should meet the requirements of the system.

(5) Check whether the insulation resistance of the main circuit and control loop meets the specified requirements.

(6) Check whether the electrical equipment installed in the device is in good contact and whether it conforms to the technical components of the electrical appliance itself.

(7). Check whether there is foreign matter inside the device and whether the mounting screws of each component are loose.

8. Extraction MCC operation instructions:

(1) After the bottom of the drawer is correctly entered into the guide, it can be pushed into the cabinet, otherwise it will damage the drawer or pull out and other adverse phenomena.

(2). The symbols and functions on the 8E/4 and 8E/2 drawer panel are shown in the 8E/4 and 8E operating switch function diagram, which is represented by the arrow from the breaking position "O" to the working position "I" : First push the handle inward and then rotate the handle from "O" to "I". There is no need to push the handle when returning, just turn the handle T towards "O". After letting go, the handle automatically pops out.

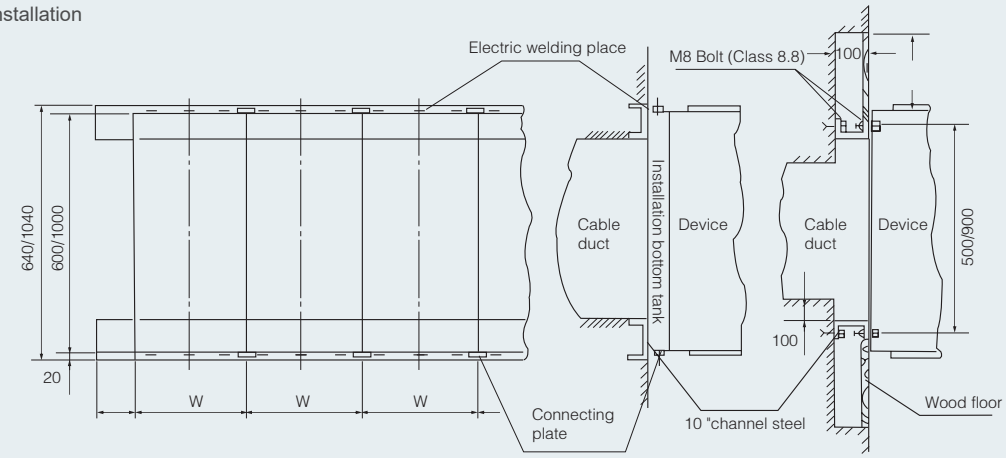
(3). The symbol mark and function on the 8E-24E drawer panel are shown in the operating switch function diagram. When the handle reaches the working position, the mechanism lifts the mechanical lock on the main switch, and then the main switch can be closed and opened.

There is a small plastic cover on the lower right corner of the door that meets the sign, which is the unlocking mechanism of the door. The operation process is as follows: when the drawer is in the working position, if you want to open the door, pull out the small cover first, and then move the lock down with a screwdriver to insert the hole to open the door. After opening the door, be sure to cover the small plastic cover, otherwise the original protection level will be destroyed.

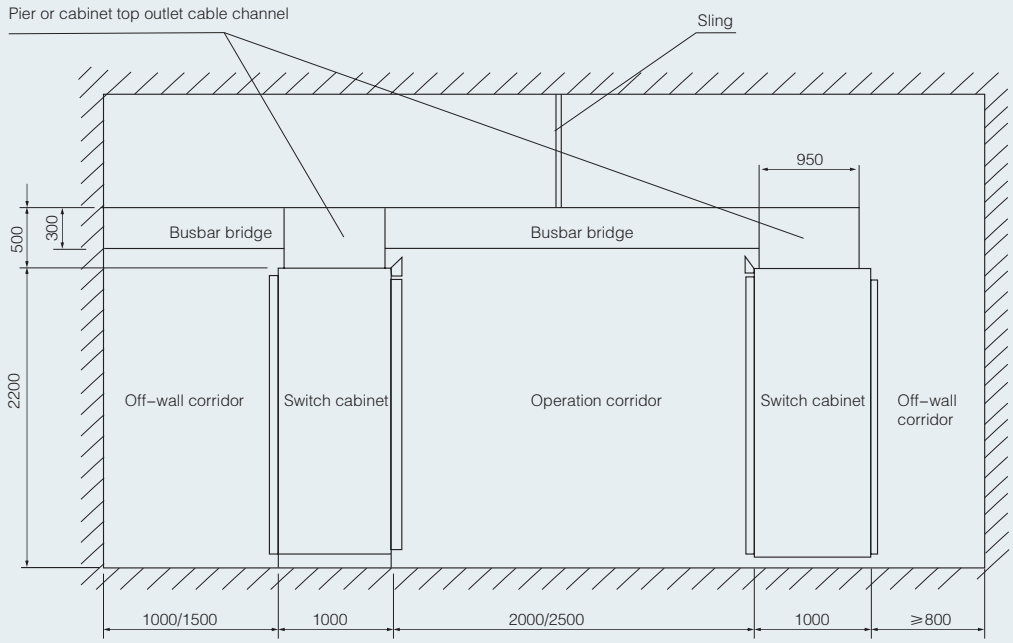
Bolt specification	Tightening moment
M6	9.5
M8	25
M10	40
M12	80
M16	20

Installation diagram

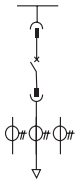
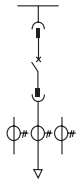
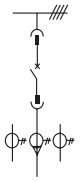
Solution 1 Welding installation
Solution 2 Bolt installation

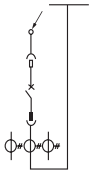
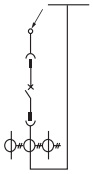
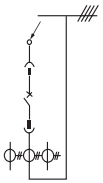


Bus bridge installation diagram

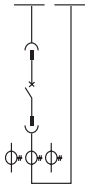
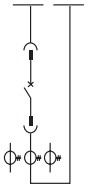
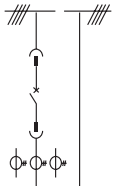


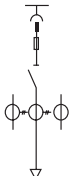
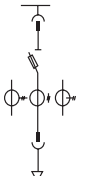
Primary loop scheme diagram

Scheme number	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
Primary scheme																				
Cabinet width (mm)	400	600	800	1000	600	800	1000	600	800	1000	600	800	1000	600	800	1000	600	800	100	
The equipment room is high	72E	72E	72E	72E	72E	72E	72E	72E			72E			72E			72E			
Maximum operating current (A)	1500	1500	2300	3150	1500	3200	4000	1600	3200	4000	2000	3200	4000	2000	3000	3600	1500	3200	4000	
Main equipment	ME1605 F1-1600 M16 BHG-60 II	Me630~ ME637~ ME1605 BHG-100	Me2000~ ME2505 ME2505 BHG-100	Me3200~ ME3205 BHG-120 II	AH-6B~ AH-16B BHG-100	AH- 20CH~ AH30CH BHG-100	AH-40C BHG-120 II	M08~ M16 BHG-1000	M20~ M32 BHG-100	M40~ BHG-120 II	F1-1250 to F1- 2000 BHG-100	F2-2000 to F-3200 BHG-100	F5-4000 BHG-120	F1-1250 toF1-2000 4P Switch BHG-100	F2-2000 F2-3000 F3-3200 4P Switch	F4-3200 F4-3600 4P Switch BHG-120 II	AH6B AH16B 4P Switch BHG-60II	M28 M32 4P Switch BHG-100	M40 4P 开关 BHG-120 II	
Use	Incoming or outgoing cables																			

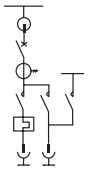
Scheme number	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Primary scheme																				
Cabinet width (mm)	600 400	800	1000	600 400	800	1000	600	800	1000		600	800	1000	600	800	1000	600	800	1000	
The equipment room is high	72E			72E			72E				72E			72E			72E			
Maximum operating current (A)	1500	2300	3150	1500	3000	4000	1600	3200	4000		2000	3200	4000	2000	3200	3600		3200	4000	
Main equipment	ME630~ ME-1605 M16 BHG-60 II	ME2000~ Me2505 BHG-100	ME3000~ ~3250 BHG-120	AH6B~ AH-16B BHG-100	AH-20CH AH-30CH BHG-120 II	AH-40CH BHG-120 II	M08~ M16 BHG.100	M20~ M32 BHG-120 II	M40 BHG-120 II		F1-1250 to F1-2000 BHG-100	F2-2000 to F4-3200 BHG-100	F5-4000 BHG-120	F1-1250 to F1-2000 4P Switch BHG-100	F2-2000 F2-3000 F3-3200 4P Switch	F4-3200 F4-3600 4P Switch BHG-120		M08 to M32 4P Switch BHG-120 II	M10 4P Switch BHG-120	
Use	Specify incoming and outgoing lines																			

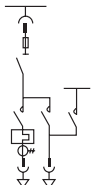
Primary loop scheme diagram

Scheme number	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Primary scheme																				
Cabinet width (mm)	600	800	1000	600	800	1000	600	800	1000		600	800	1000	600	800	100	600	800	1000	
The equipment room is high	72E			72E			72E				72E			72E			72E			
Maximum operating current (A)	1500	2300	3150	1600	3200	4000	1600	3200	400		1600	3200	4000	1600	300	3600		3200	4000	
Main equipment	ME630~ ME1605 BHG-100	ME2000~ ME2505 BHG-100	ME3200~ ME3205 BHG-100	AH-6B AH-16B BHG-100	AH-20CH to AH30CH BHG-100	AH-40C BHG-120	M08 to M32 BHG-120II	M20 to M16 BHG-100	M40 BHG-120II		F1-1250 toF1-2000 BHG-100	F2-2000 toF4-3200 BHG-100	F5-4000 BHG-120	F1-1250 F1-1600 4P Switch BHG-100	F2-2000 F2-3000 4P Switch BHG-120	F4-3200 F4-3600 4P Switch BHG-100		M28 to M32 4P Switch BHG-120II	M40 4P Switch BHG-120	
Use	Busbar										Busbar									

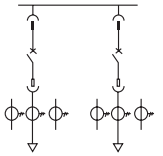
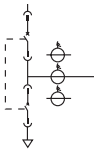
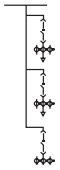
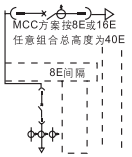
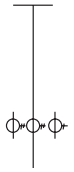
Scheme number	61	62	63	64	65	66	67	68	69	70	71	72	73	74
Primary scheme														
Cabinet width (mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
The equipment room is high	8E/4	8E/2	8E	16E	24E	8E/4	8E/2	8E	16E	24E	8E	16E	8E	8E
Maximum operating current (A)	30	50	100	300	600	30	50	200	300	500	100	300	100	200
Main equipment	S503-LV10 -40 / NC100L- BHG-30	S503-LV10 -GV63 / NC100L- BHG-30	TG30B TG100B BHG -30	TG225B TG400B BHG -40	TG600B BHG -40	NT-00 KG 60B / Hh17	NT-00 KG60B / HH17 BHG-30	NT-OO-1 SMP60-1 BHG-40	NT-2 SMP-2 BH-40	NT-3 SMP-3 BH-60	QSA-63 QSA-125 BHG-40	QSA-250 QSA-400 BHG-60	DCHR1-00 125A BHG-40	DCHR1-1 250A BHG-40
Use	Feeder					Feeder								

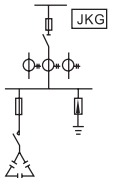
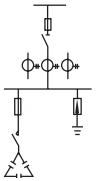
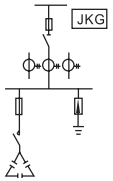
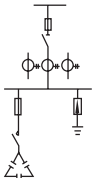
Primary loop scheme diagram

Scheme number	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
Primary scheme																				
Cabinet width (mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
The equipment room is high	16E	16E	8E/4	8E/2	8E/4	8E/2	8E/4	8E/2	8E	16E	24E	8E/2	8E	16E	24E	8E/2	8E	16E	24E	
Maximum operating current (A)	300	500	7.5	15	7.5	15	7.5	15	45	75	160	15	37	65	110	7.5	15	55	110	
Main equipment	DCHR1-2 400A BHG-60	DCHR1-630A BHG-60	S503 B16-B25 BHG-30	S503 B37-B45 BHG-30	NC100L B16-B25 BHG-30	NC100L B37-B45 BHG-30	S503 / NC100L B16-B25 T25-TSA45 BHG-30	S503 / NC100L B37-B45 T25-TSA45 BHG-30	TG-100B B65-B105 T105 BHG-40	TG-225B B65-B105 T107~250 BHG-40	TG-400 B65-45 T16-TSA45 BHG-30	S503 B65-45 T16-TSA45 BHG-30	TG-100B B65-85 T05 BHG-30	TG-225B B105-170 T105-170 BHG30	TG-400B B250 T250 BHG-40	S503 B16 T16 BHG-30	TG-100B B37 TSA45 BHG-30	TG-225B B45-85 T105 BHG-30	TG-225 B105-170 T170 BHG-40	
Use	Feeder		Irreversible				Irreversible					Reversible				Y/ △				

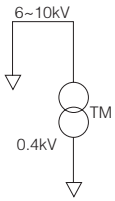
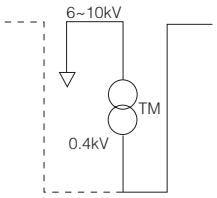
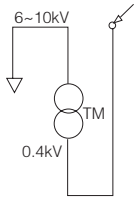
Scheme number	95	96	97	98	99	100	101	102	103	104	105	106	107
Primary scheme													
Cabinet width (mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
The equipment room is high	8E/4	8E/2	16E	24E	24E	8E/2	8E	24E	24E	8E/2	8E	16E	16E
Maximum operating current (A)	7.5	22	55	110	160	15	30	65	100	7.5	15	55	90
Main equipment	NT-00 KG64B B16 T16 / BHG30	NT-00 KG64B B25~45 T25~45 / HH17 BHG30	QSA-250 B65~170 T105~170 BHG-40	QSA-400 B65~250 T105~250 BHG-40	QSA-400 B250~370 T250~370 BHG-40	NT-00 KG64B B16~45 T16~45 / HH17 BHG30	QSA-125 B65~85 T105 BHG-30	QSA-250 B105~170 T105~170 BHG-40	NT-2 B250 T250 BHG-40	NT-00 B16 T16 BHG-40	QSA-125 B25~45 TSA45 BHG-30	QSA-160 B45~B85 T105 BHG-40	QSA-400 B105~170 T105~170 BHG-40
Use	Irreversible					ReversibleReversible				Y/ △			

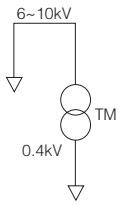
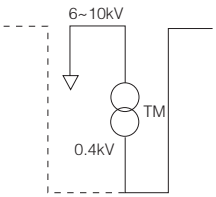
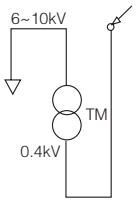
Primary loop scheme diagram

Scheme number	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123
Primary scheme																
Cabinet width (mm)	1000			1000		1000			1000	400	600	400	600	600	800	600
The equipment room is high	72E			72E		72E			32E PC Interval 8E 32E MCC	72E		72E		72E	72E	16E
Maximum operating current (A)	1600×2	1600×2	1600×2	1600×2	1600×2	630×3	630×3	630×3	630	2500	4000A	2000	4000A			
Main equipment	ME630~ ME1605 (3P-4P) BHG-80	M08~ M10 (3P-4P) BHG-80	$F_1$1250 to $F_1$1600 (3P-4P) BHG-80	M08-1600 (3P-4P) BHG-80	$F_1$1250 to $F_1$1600 (3P-4P) BHG-80	AH630 BHG-80	M08 BHG-80	$F_1$1250 BHG-80	AH630 / M08 / $F_1$1250 BHG-80	Press height 8E / M08mcc Scheme selection assembly	BHG-100BHG-120 Or user own			DS862-2 DX962-2 DT862-2 (Max. 8 PCS)	DS862-2 DX962-2 DT862-2 (Max. 12 PCS)	DT862-3 PCS
Use	Incoming or outgoing cables								Feed		Measure		Busbar		Measure	

Scheme number	124	125	126	127	128	129	130	131
Primary scheme								
Cabinet width (mm)	600	800	600	800	600+200	600+400	600+200	600+400
The equipment room is high	72E		72E		72E			
Maximum operating current (A)	(8×16)128	(12×16)192	(8×16)128	(12×16)192	(8×16)128	(16×16)256	(8×16)128	(16×16)256
Main equipment	QSA-400 NT / RT20 B30C BHG-40 BCMJ3 (10~16kVAR)		QSA-400 NT 或 RT20 B30C BCMJ3 (10~16kVAR)		DCHR1-2 NT / RT20 B30C BHG-40 BCMJ3 (10~16kVAR)	DCHR1-3 NT / RT20 B30C BHG-40 BCMJ3 (10~16kVAR)	DCHR1-2 NT / RT20 B30C BCMJ3 (10~16)BHG-40	DCHR1-2 NT / RT20 B30C BCMJ3 (10~16)BHG-40
Use	Automatic control compensation cabinet		Compensating tank		Automatic control compensation cabinet		Compensating tank	

Primary loop scheme diagram

Scheme number	132	133	134	135	136	137	138	139	140	141	142	143
Primary scheme												
Use	Cable in, cable out				Cable down, bus side out				The cable goes down and the bus goes up			
Plant capacity (kVA)	200~500	630~800	1000~1600	2000~2500	200~500	630~800	1000~1600	2000~2500	200~500	630~800	1000~1600	2000~2500
Overall dimension (H×D×W)	2200×1800 ×1200	2200×2200 ×1400	2400×2400 ×1600	2600×2600 ×1600	2200×1800 ×1200	2200×2200 ×1400	2400×2400 ×16001	2600×2600 ×1600	2200×1800 ×1200	2200×2200 ×1400	2400×2400 1600	2600×2600 ×1600
Main equipment Electric power change Depressor)	SCB-200/10 SCB-250/10 SCB-315/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10	SCB-200/10 SCB-250/10 SCB-300/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10	SCB-200/10 SCB-250/10 SCB-300/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10

Scheme number	144	145	146	147	148	149	150	151	152	153	154	155
Primary scheme												
Use	Bus side in, cable under the exit				Bus side out, side out				Bus side out, top out			
Plant capacity (kVA)	200~500	630~800	1000~1600	2000~2500	200~500	630~800	1000~1600	2000~2500	200~500	630~800	1000~1600	2000~2500
Overall dimension (H×D×W)	2200×1800 ×1200	2200×2200 ×1400	2400×2400 ×1600	2600×2600 ×1600	2200×1800 ×1200	2200×2200 ×1400	2400×2400 ×1600	2600×2600 ×1600	2200×1800 ×1200	2200×2200 ×1400	2400×2400 1600	2600×2600 ×1600
Main equipment (Power transformer)	SCB-200/10 SCB-250/10 SCB-315/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10	SCB-200/10 SCB-250/10 SCB-300/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10	SCB-200/10 SCB-250/10 SCB-300/10 SCB-400/10 SCB-500/10	SCB-630/10 SCB-800/10	SCB-1000/10 SCB-1250/10 SCB-1600/10	SCB-2000/10 SCB-2500/10

Instructions:

1. Transformer and inlet and outlet line can be selected according to needs;
2. When there is a load regulating device, the overall size should be relaxed by 500mm or deepened by 400mm, and the manufacturer should negotiate specifically;
3. Product description and legend for reference, with the passage of time, may continue to modify, without prior notice, please contact our company.