

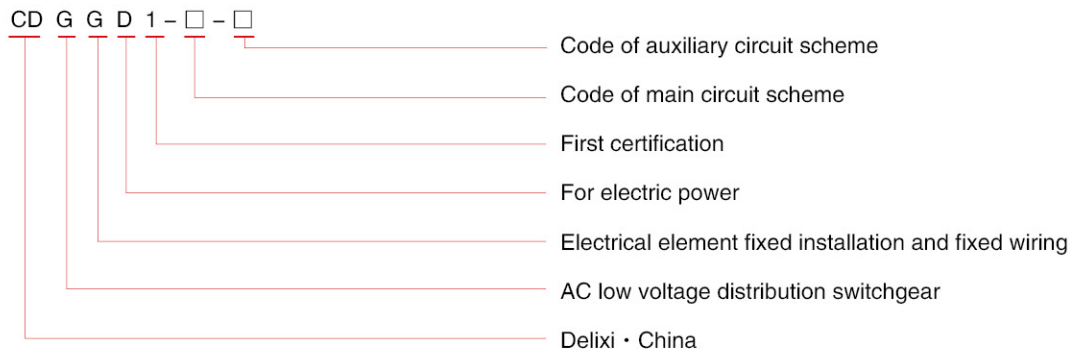
AC Low Voltage Distribution Switchgear CDGGD1 Type



1. Introduction

CDGGD1 AC low voltage distribution switchgear (hereinafter referred to as distribution switchgear) is used in power plant, electric power substation and industrial and mining enterprises, for purposes of electric energy conversion, distribution and control in the power distribution system of 50Hz AC, 380V rated operational voltage and rated operational current up to 5000A, used as power, lightening and switching equipment.

2. Model specification



3. Structure

3.1 Switchgear body is in the form of general cabinet. The frame work employs 8MF cold-formed steel and partial welded. In order to meet the dimension accuracy and quality, the frame work fittings and special fittings are supplied by indicated manufactory. General cabinet fittings are designed by modular method. There are 20 modular mounting holes. It has a high universal coefficient. Therefore, it enables factories to realize preproduction, shorten the production and increase the work efficiency.

3.2 The heat-dissipation issue is taken into consideration during designation. There are numbers of heat-dissipation holes on the upper and lower plates. When the electric components heat, causing temperature to rise. The hot air goes out through upper holes, while cold air comes from lower holes. The formation of circulation system can dissipate heat.

3.3 In terms of modern industrial product design standard, the switchgear dimension and other parts are designed in golden ratio. Therefore, the switchgear with elegant appearance may offer you a kind of refreshing feeling.

3.4 Connected with the frame work with rotating shaft type movable hinge, the switchgear door is easy to install and unload. The edge fold areas of the door are all embedded with rubber and plastic strips in the shape of Chinese character "山". There is a certain compression stroke between the door and insertion strip of the frame work when closing the door. It prevents the door and cabinet from knock-on collision.

3.5 The instrument gate with electric elements is connected with the frame work by multiple annealed copper wires. Thus the entire switchgear forms a complete earthing protection circuit.

3.6 Switchgear coat is polyester orange shape baking finish which has perfect adhesion and favorable tactile sensation. Color of the cabinet is matt. Therefore, it avoids the glare effect and creates a comfortable visual for operators.

3.7 For convenient in-site assembling and adjusting of main busbar, the top plate of switchgear can be removed when needed. Lifting lugs on the four corners for lifting and transportation.

3.8 Switchgear has a protection level of IP30. Users can choose from IP20 to IP40 according to actual requirements of the environmental conditions.

4. Technical specifications

Technical specifications of distribution cabinet are listed in Table 1

Model	Rated voltage (V)	Rated current (A)	Rated short-time withstand current (kA)	Rated peak value withstand current (kA)
CDGGD1	380	630,800,1000,1600	50,65,80	105,140,176

5. Primary circuit scheme

Distribution switchgear primary circuit scheme and inside main electric components refer to Table 2. For main schemes, technical statements are shown as below,

5.1 Primary components selection

Distribution switchgear has a wide range of application. Based on the principle of security, economical efficiency, reasonableness and reliability, old style and poor performance components are not permitted. Products produced by our company with excellent technical performance are used in recent years. Meanwhile several kinds of classic products are kept in the switchgear. Since switchgear structure has excellent flexibility of installation, even if some products are to be eliminated as required by relevant competent department or some users make any specific requirements, it will not be difficult to replace or update the components inside the distribution switchgear.

5.2 Type of incoming line

In order to satisfy different incoming line ways of different engineering designs, incoming line modes of the distribution cabinet include the common modes of incoming line from the upside and the underside, from left side, middle part and right side of the cabinet top and rear end of the cabinet.

5.3 Derating

Distribution switchgear is equipped with a good natural air circulation system for solving the problems of temperature rising and derating when components are installed inside the sealed cabinet. Experienced with much verification, we confirmed of the success of air circulation system design. Therefore, when selecting distribution switchgear, similar components can be installed in open-type cabinet, as well as the derating coefficient can be referred to the common design.

5.4 Reactive power automatic compensation cabinet

For the purpose to match the switchgear when customer chooses this series of switchgear, there is another product in this series called reactive power compensation switchgear (refer to as CDGGJ). Dimension of the CDGGJ is the same as CDGGD1. See its primary circuit scheme in Table 2.

6. Outline dimension and mounting dimension

Outline dimension of CDGGD1 AC low voltage distribution switchgear is shown in Figure 1, mounting dimension in Figure 2.

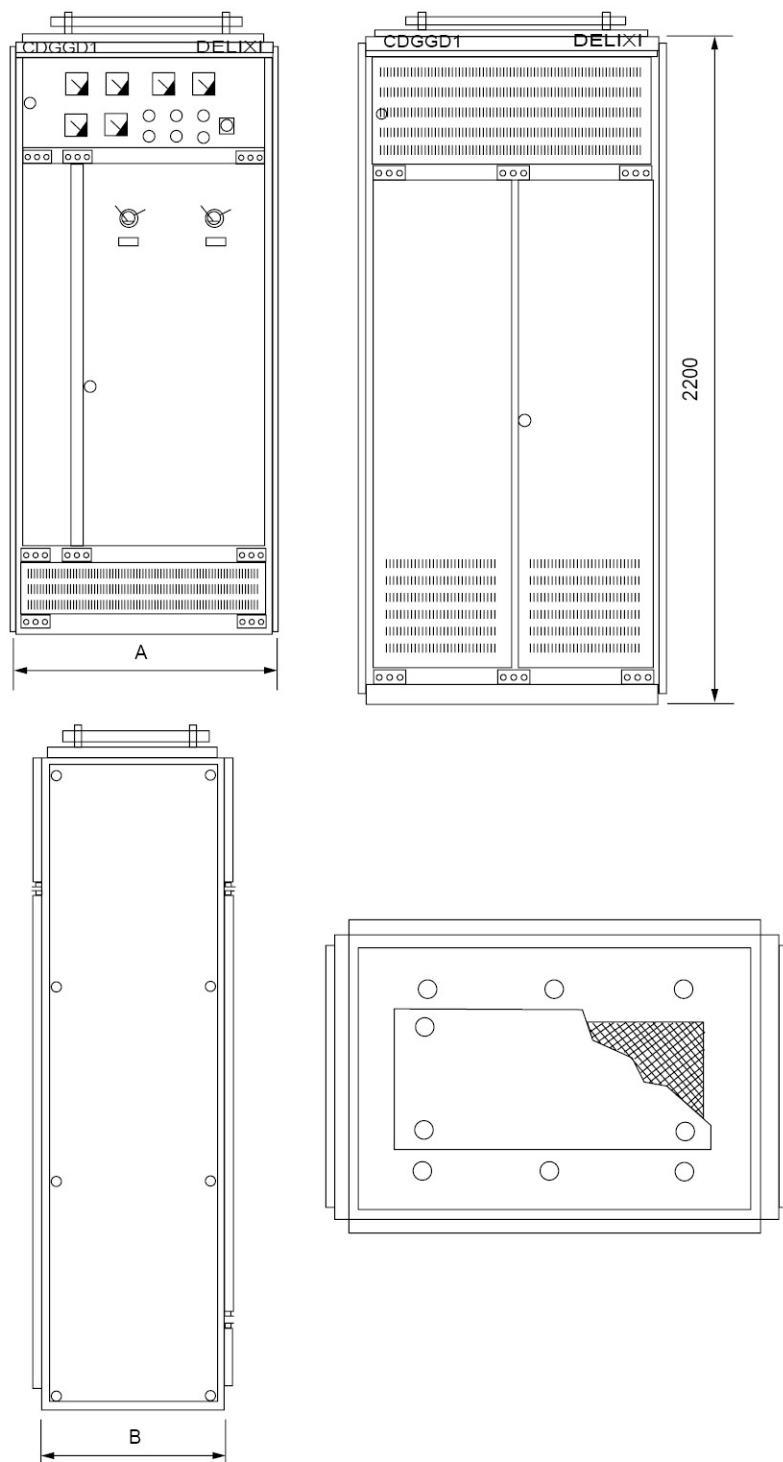


Figure 1. Outline dimensions of CDGGD1 AC low voltage distribution switchgear

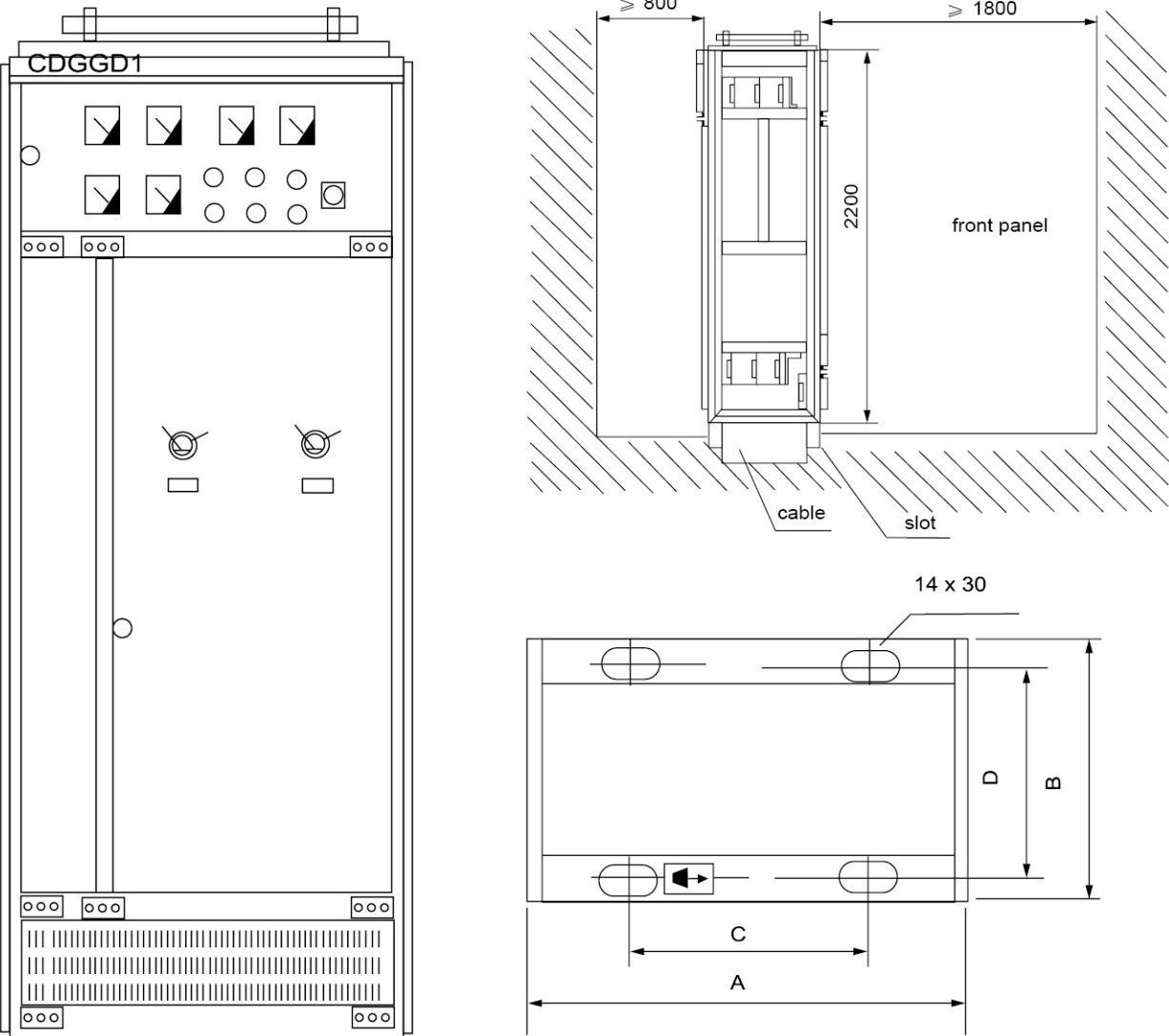


Figure 2. Mounting dimensions of CDGGD1 AC low voltage distribution switchgear

Outline dimensions			
A	B	C	D
600	600	450	556
600	800	450	756
800	600	650	556
800	800	650	756
1000	600	850	556
1000	800	850	756
1200	800	1050	756

7. Working environment

- 7.1 Sea level elevation of mounting and working place shall not exceed 2000m;
- 7.2 Ambient temperature shall be below +40 °C and no less than -5 °C . Average temperature during 24 hours shall not be higher than +35°C ;
- 7.3 Indoor relative humidity shall not be higher than 90% (when the temperature is 25°C);
- 7.4 A place without conductive dust and gas that may corrode the metal and destroy the insulating performance;
- 7.5 A place without the dangers of fire hazard or explosion;
- 7.6 A place without severe vibration or jounce; Vertical inclination degree of such place shall be no more than 5°;
- 7.7 For any specific using requirements, please notify the factory in advance when you order it.

8. Ordering information

When ordering, please provide following material and data:

- 8.1 Complete model number of product (including code of main circuit scheme and code of auxiliary circuit scheme)
- 8.2 Main circuit system sequential combination diagram
- 8.3 Electric schematic diagram of auxiliary circuit
- 8.4 List of components in the switchgear
- 8.5 For any specific product requirement, please notify us in advance.

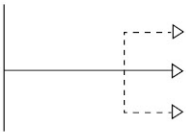
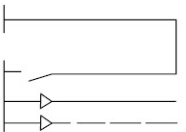
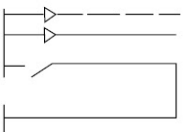
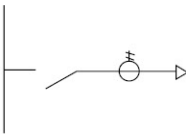
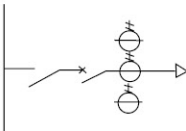
9. Special declaration

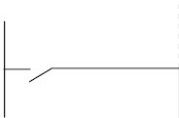
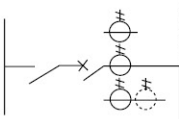
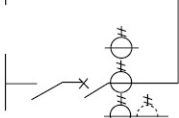
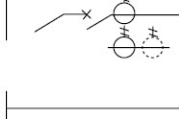
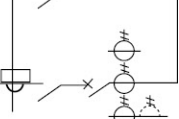
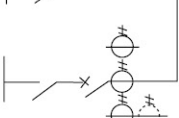
The product of our company has passed the National Quality CCC Certification. Short-time withstand currents are 50kA, 65kA and 80kA.

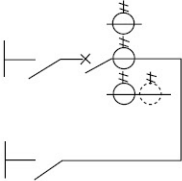
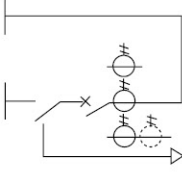
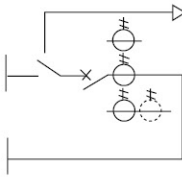
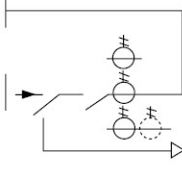
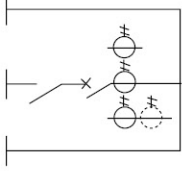
10. Main circuit scheme

CDGGD1 includes 49 schemes and 123 specifications (see Table 2)

Table 2

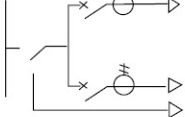
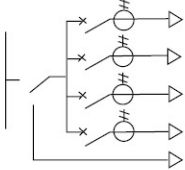
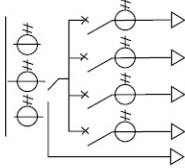
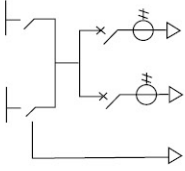
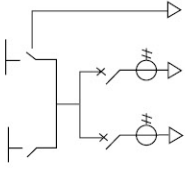
Serial number of primary circuit scheme	01	02	03	04	05	06	
Primary circuit schematic diagram							
Quantity	Usage						
Model and Name	Code of scheme						
	A	B	C	A	B	C	
HD13BX-1500/30 knife switch				1	1	1	
HD13BX-1000/31 knife switch				1	1	1	
HD13BX-600/31 knife switch						1	
DW15-1600/3 circuit breaker					1		
DW15-1000/3 circuit breaker					1		
DW15-630/3 circuit breaker						1	
LMZ1-0.66□/5 current transformer				1	1	3	
Width of switchgear(mm)	600	600	1000	1000	800	800	
Width of switchgear(mm)	600	600	600	600	600	600	
Note	DW15 – 1600 and 1000/3 low voltage circuit breakers are equipped with motor-operating mechanism and DW15 – 630, 400 and 200/3 low voltage circuit breakers are equipped with electromagnetic operating mechanism. Similarly hereinafter.						
	C scheme switchgear width can be 600mm						

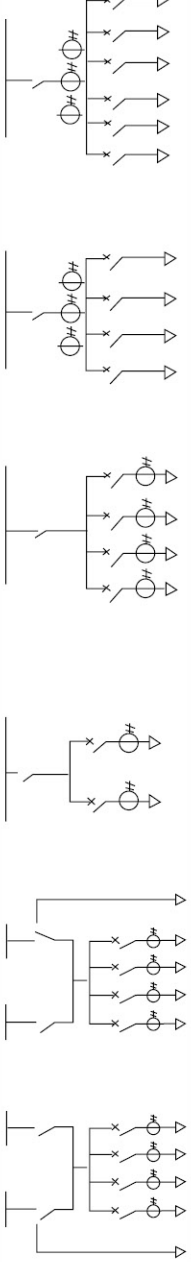
Serial number of primary circuit scheme		07	08	09	10	11	12
Primary circuit schematic diagram							
Usage		Electricity incoming, connecting		Electricity incoming, connecting		Electricity incoming, connecting	
Quantity		A	B	C	A	B	C
Model and Name		Code of scheme					
HD13BX-1500/30 knife switch		1			1		2
HD13BX-1000/31 knife switch			1		1		2
DW15-1600/3 circuit breaker			1		1		1
DW15-1000/3 circuit breaker				1		1	1
LMZ1-0.66□/5 current transformer			3(4)	3(4)	3(4)	3(4)	3(4)
Width of switchgear(mm)		600	600	800	800	1000	1000
Width of switchgear(mm)		600	600	600	600	600	600
Note		The increase of a current transformer quantity in the bracket is for reactive power automatic compensation cabinet. When it is needed to set measuring instrument in distance range and install repay protection in the cabinet, current transformer shall be LMZ3D—0.66 model. Similarly hereinafter					

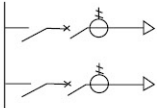
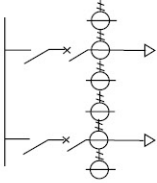
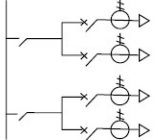
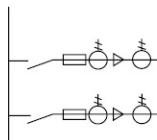
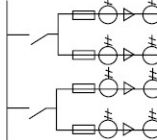
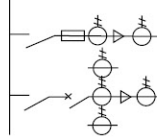
Serial number of primary circuit scheme					13	14	15	16	17	18						
Primary circuit schematic diagram																
Usage					Electricity incoming			Electricity incoming, standby			Electricity incoming, standby			Electricity incoming		
Code of scheme					standby			standby			standby			standby		
Model and Name					A	B	C	A	B	C	A	B	C	A	B	C
HD13BX-1500/30 knife switch					2			1			1			1		
HD13BX-1000/31 knife switch					2			1			1			1		
HS13BX-1000/31(41) knife switch					1			1			1			1		
DW15-1600/3 circuit breaker					1			1			1			1		
DW15-1000/3 circuit breaker					1			1			1			1		
LMZ1-0.66□/5 current transformer					3(4)			3(4)			3(4)			3(4)		
Width of switchgear(mm)					1000			1000			1000			1000		
Width of switchgear(mm)					600			600			600			600		
Note																

Serial number of primary circuit scheme		19	20	21	22	23	24
Primary circuit schematic diagram							
Quantity	Usage						
Model and Name	Code of scheme	A	B	C	A	B	C
HD13BX – 1500/30 knife switch		2			2		
HD13BX – 1000/31 knife switch		2			2		
HS13BX – 1000/31(41) knife switch						1	
HS13BX – 600/31(41) knife switch							1
HS13BX – 400/31(41) knife switch							1
DW15 – 630/3 circuit breaker						1	
DW15 – 400/3 circuit breaker							1
DW15 – 200/3 circuit breaker							1
CDM7-400/3□ circuit breaker					2		
CDM7-250/3□ circuit breaker						2	
NT-□ fuse		3	3				
JDG-0.5 380/100V voltage transformer		2(3)	2(3)				

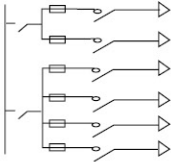
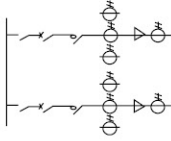
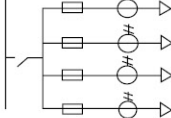
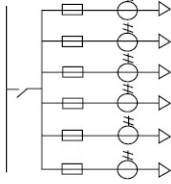
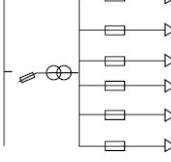
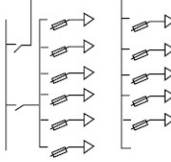
Continued									
LMZ1 – 0.66□/5 current transformer	2		3		3				
LMZ3 – 0.66□/5 current transformer	2		3		3				
Width of switchgear(mm)	1000	1000	1000	1000	600	600	600	600	600
Width of switchgear(mm)	600	600	600	600	600	600	600	600	600
Note Quantity of voltage transformer in the bracket is used for neutral-point earthing by high-resistance. Similarly hereinafter.									

Serial number of primary circuit scheme		25	26	27	28	29	30						
Primary circuit schematic diagram													
Quantity	Usage												
Model and Name	Code of scheme	A	B	C	A	B	C	A	B	C	A	B	C
HD13BX-600/31 knife switch													
							1						
HS13BX-1000/31(41) knife switch													
		1		1									
HS13BX-600/31(41) knife switch													
			1		1			1				1	
HS13BX-400/31 knife switch													
				1		1				1			
CDM7-400/3□ circuit breaker													
		2											
CDM7-250/3□ circuit breaker													
			2	4	2	4	2						
CDM7-125/3□ circuit breaker													
				2	2	4	2	4	2			2	
LMZ1-0.66□/5 current transformer													
		2				3	3	3					
LMZ3-0.66□/5 current transformer													
			2	2	4	4	4	4	2			2	
Width of switchgear(mm)													
		600	600	600	800	800	800	800	800	800		800	
Width of switchgear(mm)													
		600	600	600	600	600	600	600	600	600		600	
Note													

Serial number of primary circuit scheme	31	32	33	34	35	36
Primary circuit schematic diagram						
						
Usage						
Quantity						
Code of scheme						
Model and Name	A	B	C	A	B	C
HD13BX-1500/30 knife switch	1					
HD13BX-1000/31 knife switch	1					
HD13BX-600/31 knife switch	1	1		1	1	1
HD13BX-400/31 knife switch						
HS13BX-600/31(41) knife switch	1	1		1	1	
DW15-630/3 circuit breaker	2					
CDM7-400/3□ circuit breaker	2					
CDM7-250/3□ circuit breaker			2	4	2	2
CDM7-125/3□ circuit breaker	4	4		2	4	6
LMZ1-0.66□/5 current transformer	2					
LMZ3-0.66□/5 current transformer	4	4	2	4	4	
Width of switchgear(mm)	800	800	800	800	800	800
Width of switchgear(mm)	600	600	600	600	600	600
Note						

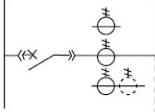
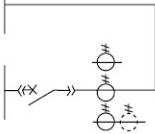
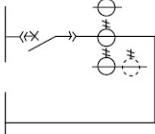
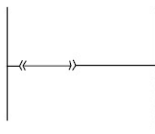
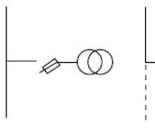
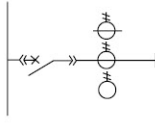
Serial number of primary circuit scheme		37	38	39	40	41	42
Primary circuit schematic diagram							
Usage		Feeding					
Code of scheme		Feeding					
Quantity		Feeding					
Model and Name		A	B	C	A	B	C
HD13BX-1000/31 knife switch		2			2		
HD13BX-600/31 knife switch			2			2	1
HS13BX-400/31 knife switch				2		2	1
DW15-630/3 circuit breaker		2			2		
DWX15-630/3 circuit breaker			2				1
CDM7-400/3□ circuit breaker				2	2		
CDM7-400/3□ circuit breaker			2				
CDM7-250/3□ circuit breaker				2	4		
NT-□ fuse					6	6	3
LMZ1-0.66□/5 current transformer		2	2	6	6	4	
LMZ3-0.66□/5 current transformer				2			
LMZ3D-0.66□/5 current transformer					2	2	4
LJ-□ current transformer					2	2	2
Width of switchgear(mm)		800	600	800	800	800	800
Width of switchgear(mm)		600	600	600	600	600	600
Note							

Serial number of primary circuit scheme		43	44	45	46	47	48
Primary circuit schematic diagram							
Quantity	Usage	Feeding			Feeding		
Model and Name	Code of scheme	A	B	C	A	B	C
HD13BX-600/31 knife switch		1			2		2
HD13BX-400/31 knife switch		1			2		2
HS13BX-200/31 knife switch				1			3
DWX15-630/3 circuit breaker		1		1			
CJ20-630/3 circuit breaker					1		
CJ20-250/3 circuit breaker				1	1	1	
CJ20-160/3 circuit breaker					1		
CJ20-63/3 circuit breaker							6
NT-□ fuse		3		9	6	6	12
JDG-0.5 380/100V voltage breaker		2(3)		2(3)			18
LMZ3D-0.66□/5 current transformer		3		2	2	2	4
LJ-□ zero-phase current transformer		1		2	2	2	4
Width of switchgear(mm)		800		800	800	800	800
Width of switchgear(mm)		600		600	600	600	600
Note							

Serial number of primary circuit scheme		49	50	51	52	53	54
Primary circuit schematic diagram							
Quantity	Usage	Feeding	Feeding	Illumination	Illumination	Illumination	Illumination
Code of scheme		A	B	C	A	B	C
Model and Name		A	B	C	A	B	C
HD13BX-1000/31 knife switch		2					
HD13BX-600/31 knife switch		2	2	1	1		2
HD13BX-400/31 knife switch				1	1		
HR5-630/3□ fuse switch						1	
HR5-400/3□ fuse switch						1	
HG2-160 fuse isolator							12
CDM7-630/3 circuit breaker			2				
CJ20-630/3 contactor			2				
CJ20-250/3 contactor		2					
CJ20-160/3 contactor			2				
CJ20-63/3 contactor		4	4				
NT-□ fuse		18	18	12	12	18	18

Continued									
SG-□ dry power transformer									
								1	1
LMZ3-0.66□/5 current transformer									
				4	4			6	6
LMZ3D-0.66□/5 current transformer									
						6			
LJ-□ zero-phase current transformer									
						2			
Width of switchgear(mm)									
	800	600		800	800	800	800	800	800
Width of switchgear(mm)									
	600	600		600	600	600	600	600	600
Note									

Serial number of primary circuit scheme		55	56	57	58	59	60
Primary circuit schematic diagram							
Usage							
Code of scheme							
Model and Name		Feeding			Feeding (motor)		
		A	B	C	A	B	C
HD13BX – 600/31 knife switch		1					
HD13BX – 400/31 knife switch		1					
HR5-200/3□ fuse knife switch		2					
HR5-100/3□ fuse knife switch		2			4	4	4
CJ20-100/3 contactor		4	4		2	2	4
CJ20-60/3 contactor				2	4	3	4
CJ20-40/3 contactor					3	4	
JR36-150/3D thermal relay		2			4	2	2
JR36-60/3D thermal relay		2			4	3	2
NT-□ fuse		12	12				
LMZ1-0.66□/5 current transformer		3	3				
LMZ3D-0.66□/5 current transformer		2			4	5	4
LJ-□ zero-phase current transformer		4	4		4	5	
Width of switchgear(mm)		800	800	800	800	800	800
Width of switchgear(mm)		600	600	600	600	600	600
Note							

Serial number of primary circuit scheme	101	102	103	104	105	106
Primary circuit schematic diagram						
Quantity	Usage					
Model and Name	Code of scheme					
3200A isolating plug	AB	C	AB	C	ABC	ABC
2500A isolating plug	1					
2000A isolating plug	1					
CDW17-3205 drawer-type circuit breakers	1	1	1	1		
CDW17-2505 drawer-type circuit breakers	1	1	1	1		
CDW17-2500 drawer-type circuit breakers	1	1	1	1		
HR5-100/3□ fuse knife switch	1					
JDG-0.5/380/100V voltage transformer	2(3)					
LMZ3-0.66□/5 current transformer	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Width of switchgear(mm)	1000	800	1200	1000	800	800
Width of switchgear(mm)	600	800	600	800	800	800
Note	DW17-3205 and 2500 drawer-type circuit breakers are equipped with motor-operating mechanism and DWX15C-630 and 400/3 drawer-type circuit breakers are equipped with electromagnetic operating mechanism. The increase of a current transformer quantity in the bracket is for reactive power automatic compensation cabinet. When it is needed to set measuring instrument in distance range and install replay protection in the cabinet, current transformer shall be LMZ3D-0.66 model. Quantity of voltage transformer in the bracket is used for neutral-point earthing by high-resistance. Similarly hereinafter.					

Serial number of primary circuit scheme										107	108	109	110	111	112
Primary circuit schematic diagram															
										Feeding			Feeding		
Usage															
Quantity															
Code of scheme															
Model and Name										A	B	C	A	B	C
HD13BX-1000/31 knife switch										1			1		
HD13BX-600/31 knife switch											1		1		
HD13BX-400/31 knife switch												1			1
HR5-400/3□ fuse switch													1	1	2
HR5-200/3□ fuse switch														1	2
HR5-100/3 fuse isolator															3
										1		1			4
DW17-630/3drawer-type circuit breakers										2					
DWX15C-630/3 circuit breaker											2		2		
DWX15C-400/3 circuit breaker												2			2
CDM7-630/3 circuit breaker													1		1
CDM7-400/3 circuit breaker												1			1
CDM7-250/3 circuit breaker															1

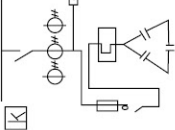
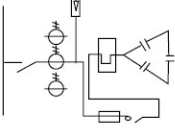
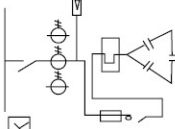
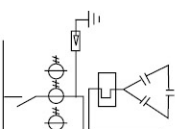
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Serial number of primary circuit scheme	113	114	115	116	117	118
Primary circuit schematic diagram						
Quantity	Usage Code of scheme					
Model and Name	A	B	C	A	B	C
HR5-630/3□ fuse switch	2					
HR5-400/3□ fuse switch	2					
HR5-200/3□ fuse switch	2					
HR5-100/3□ fuse switch	1	1	3	1	2	2
CJ20-400/3 contactor	2					
CJ20-250/3 contactor	2					
CJ20-160/3 contactor	2					
CJ20-100/3 contactor	1					
JDG-0.5/380/100V voltage breaker	2(3)	2(3)	2(3)	2	3	5
LMZ3D-0.66□/5 current transformer	2	2	2	2	2	2
LJ□ zero-phase current transformer	2	2	2	2	2	2
Width of switchgear(mm)	800	800	800	800	800	800
Width of switchgear(mm)	600	600	600	600	600	600
Note						

Serial number of primary circuit scheme		119	120	121	122	123	124			
Primary circuit schematic diagram										
Usage										
Quantity										
Model and Name	Code of scheme	A	B	C	A	B	C	A	B	C
HD13BX-1000/31 knife switch		2						2		
HD13BX-600/31 knife switch			2			2				
DWX15C-630/3 circuit breaker		2								
DWX15C-400/3 circuit breaker			2							
CDM7-400/3 circuit breaker				2						
CDM7-200/3 circuit breaker					4					
CJ20-400/3 contactor				2						
CJ20-160/3 contactor						4				
HG2-160 fuse isolator							12			
LMZ3D-0.66□/5 current transformer		6	6	6		4				
LJ-□ zero-phase current transformer		2	2	2		4				
Width of switchgear(mm)		800	800	800		800		1000		
Width of switchgear(mm)		600	600	600		600		600		
Note										

Serial number of primary circuit scheme		125	126			127			128			129			130		
Primary circuit schematic diagram																	
Quantity	Usage																
Model and Name	Code of scheme																
HD13BX-1000/31 knife switch		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	
		1															
HD13BX-600/31 knife switch		1															
HD13BX-400/31 knife switch		1															
HR5-200/3□ fuse switch		2															
HR5-100/3□ fuse switch		2 2 2 4 4 4 4 4 4 4 4 4 4 4 4															
CDC1-105 (or CDC1-170) contactor		2 2 2 2 2 4 4 4 4 4 4 4 4 4 4															
CDC7-95 contactor		2 2 2 4 2 2 4 4 4 4 4 4 4 4 4															
CDC7-65 contactor		2 2 4 3 3 4 4 4 4 4 4 4 4 4 4															
CDC7-40 contactor		3 4															
CDR1-105 (or CDR1-170) thermal relay		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2															
CDR7-93 thermal relay		2 4 2 2 2 2 2 2 2 2 2 2 2 2 2															
T45 (or CDR7-93) thermal relay		2 2 4 3 3 2 2 2 2 2 2 2 2 2 2															

CDR7-36 thermal relay														3					Continued
NT-□ fuse														12 12					

Serial number of primary circuit scheme		CDGGJ1-01			CDGGJ1-02			CDGGJ2-01			CDGGJ2-02		
Primary circuit schematic diagram													
Usage													
Code of scheme													
Model and Name		A	B	C	A	B	C	A	B	C	A	B	C
HD13BX-1000/31 knife switch													
HD13BX-600/31 knife switch		1	1	1	1	1	1	1	1	1	1	1	1
LMZ2-0.66□/5 current transformer		3	3	3	3	3	3	3	3	3	3	3	3
RT14-63 Fuse		30	24	18	30	24	18	30	24	18	30	24	18
Y1.5W-0.28/1.3 metallic oxide lightning protector		3	3	3	3	3	3	3	3	3	3	3	3
B30C-30-20 □ contactor		10	8	6	10	8	6	10	8	6	10	8	6
JR36-63/3 relay		10	8	6	10	8	6	10	8	6	10	8	6
JKW20B power factor automatic compensation controller		1	1	1				1	1	1			
BSMJ04-16-3(BW0.4-16-3)		10(10)	8(8)	6(6)	10(10)	8(8)	6(6)	10(10)	8(8)	6(6)	10(10)	8(8)	6(6)
Width of switchgear(mm)		1000	800	800	1000	800	800	1000	800	800	1000	800	800
Width of switchgear(mm)		600	600	600	600	600	600	600	600	600	600	600	600
Note		Main switchgear			Auxiliary switchgear			Main switchgear			Auxiliary switchgear		