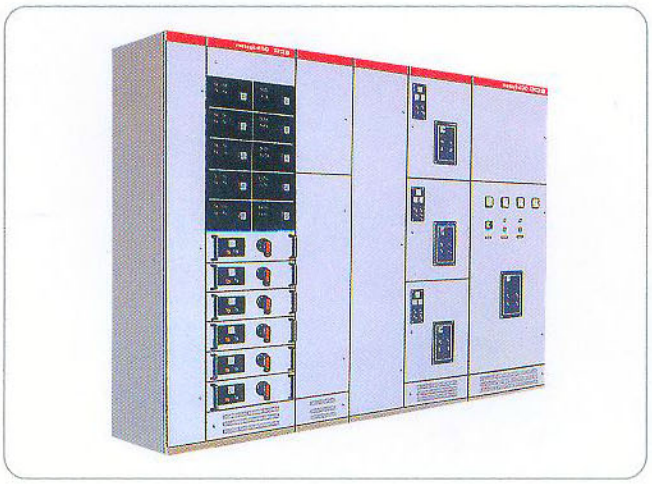
ECC®

GCS 低压抽出式开关柜

Low Voltage Withdrawable Switchgear



中国·上海中科电气集团

SHANGHAI CHINA-SCIENCE ELE.GROUP, CHINA

上海人民电力设备股份有限公司

SHANGHAI RENMIN ELECTRIC POWER EQUIPMERIL CO., LTD.

用途

装置适用于发电厂、变电所、石油化工部门、厂矿企业、高层建筑等低压配电系统的动力、配电和电动机控制中心、电容补偿等的电能转换、分配与控制用。

在大单机容量的发电厂、大规模石化等行业的低压动力控制中心和电动机控制中心等电力使用场合时能满足与计算机接口的特殊需要。

装置是根据电力部主管上级，广大电力用户及设计部门的要求，为满足不断发展的电力市场对增容、计算机接口、动力集中控制、方便安装维修、缩短事故处理时间等需要，本着安全、经济、合理、可靠的原则设计的新型低压抽出式开关柜。产品具有分断、接通能力高、动热稳定性好、电气方案灵活、组合方便、系列性、实用性强、结构新颖、防护等级高等特点。可以做为低压抽出式开关柜的换代产品使用。

装置符合IE C439—1《低压成套开关设备和控制设备》、GB7251《低压成套开关设备》、ZBK36001《低压抽出式成套开关设备》等标准。

产品使用环境

- 周围空气温度不高于+40℃，不低于−5℃。24小时内平均温度不得高于+35℃。超过时，需根据实际情况降容运行。
- 户内使用，使用地点的海拔高度不得超过2000m。
- 围空气相对湿度在最高温度为+40℃时不超过50%，在较低温度时允许有较大的相对湿度，如+20℃时为90%，应考虑到由于温度的变化可能会偶然产生凝露的影响。
- 装置安装时与垂直面的倾斜度不超过5%，且整组柜列相对平整(符合GBJ232−82标准)。
- 装置应安装在无剧烈震动和冲击以及不足以使电器元件受到不应有腐蚀的场所。
- 用户有特殊要求时，可以与制造厂协商解决。

Application

The switchgear is suitably used in power plants, substations, petro-chemical engineering departments, manufacturing and mining enterprises, high rises as power center, distributing center and motor control center for power distribution, control and compensation.

It satisfies with particular needs of computer interface in low voltage power control center and motor control center especially in large capacity single set power plants, large scale petro-chemical complexes.

As a new generation of low voltage withdrawble switchgear developed recently, it has been designed on requirements from national electric power ministerial superior authorities concerned, wide electric power customers and design institutions for meeting the needs of continuous enhancement of capacity, computer interface, power concentrated control and reducing downtime in fault restoration on principle of safety, economical result, reasonability and reliability, featuring high making and breaking capacity, excellent performance both in short time withstand current and peak value withstand current, flexible electrical schemes, easy combinations, perfect series and applications, novel structure and high class of protection.

The switchgears is manufactured to various relevent standards such as IEC439 - 1 "Low Voltage Switchgear and Controlgear", GB7251 "Low Voltage Switchgear" and ZBK 36001 "Low Voltage Withdrawble Switchgear".

Working conditions

- Ambient temperature not higher than +40℃ nor lower than -5℃ with 24-hour average not more than +35℃. If actual temperature is over the range of mentioned above, degrading application is necessary as per actual situations.
- The altitude of application site not over 2000 meters above sea level when in indoor use.
- The relative humidity of ambient air not exceeding 50% at the maximum temperature of +40℃,and higher humidity permissible at lower temperatures, e.g., 90% at 20℃. Allowance should be made for the impact of accident condensation caused by abrupt temperature fluctuation.
- The inclination to vertical surface when installation not over 5% and relative smoothness and flatness kept as per GBJ232 - 82 Standard.
- Places where there is no violent shock and impact nor sufficient corrosive materials to corrode electrical components and parts.
- Particular requirements may be satisfied through discussion with the manufacturer.

主要技术数据
Main technical parameters

- 基本电气参数

额定绝缘电压 Rated insulation voltage		交流 AC 660(1000)V
额定工作电压 Rated working voltage	主电路 Primary circuit	交流 AC 380(660)V
	辅助电路 Aux. circuit	交流 AC 380、220、24V
		直流 DC 220、110V
额定频率 Rated frequency		50(60)HZ
水平母线额定电流 Rated current of horizontal busbar		≤4000A
垂直母线额定电流 Rated current of vertical busbar		1000A
额定峰值耐受电流 Rated peak value withstand current		105(176)KA
额定短时耐受电流(1s) Rated short-time withstand current (1s)		50(80)KA

主电路方案

装置主电路方案共32组118个规格，不包括由于辅助电路的控制与保护的变化而派生的方案和规格。

主电路方案是征求了广大设计、制造、试验和使用部门的意见而选编的，包括了发电、供用电和其它电力用户的需要，额定工作电流为4000A，适合2500KVA及以下的配电变压器选用。

此外，为适应供用电提高功率因数的需要而设计了电容器补偿柜；考虑综合投资的需要而设计了电抗器柜。(主电路方案图附后面)

◆ 辅助电路方案

GCS辅助电路图册是根据有关设计要求规定而编制的。共有辅助电路方案120个，分上下两册。上册(交流操作部分)共分63个方案，下册(直流操作部分)共有57个方案。

直流操作部分的辅助电路方案，主要用于发电厂变电站的低压厂(所)用系统；在编制时，已考虑到适用于200MW及以下和300MW及以上容量机组低压厂用系统，工作(备用)电源进线，电源馈线和电动机馈线的一般控制方式。

交流操作部分的辅助方案主要用于厂矿企业及高层建筑的变电所的低压系统。在编制时选编了6种适用于双电源进线操作控制的组合方案。并设有操作电气联锁备用自投、自复等控制电器。工程设计中可以直接采用。

直流控制电源为直流220V或110V，交流控制电源为交流380V或220V，由抽屉单元组成的成套柜。220V控制电源引自本柜内专设控制变压器供电的公用控制电源。公用控制电源采用不接地方式控制变压器，留有24V电源供需要使用弱电信号灯时采用。

电度表的安装地点和电压的引入方法及其它安装使用要求详见辅助电路图的《编制说明》。

母线

为提高母线动热稳定能力和改善接触面的温升，装置全部采用TMY-T2系列硬铜排，铜排的连接部分必须搪锡，推荐采用全长搪锡。也可选用全长镀银铜母线。

◆ 水平母线

水平母线置于柜后部母线隔室内，3150A及以上为上下双层布置，2500A及以下为单层布置，每相由4条或2条母排组成，大大提高了母线的短路强度。

装置水平母线铜排选用如下表：

Primary circuit scheme

There are 32 groups with 118 specifications for primary circuit schemes excluding derivative schemes and specifications due to variations in control and protection of auxiliary circuits.

The primary schemes are prepared as per comments and suggestions from wide designers, manufacturers, testers and application organizations for the needs of power generation, provision, application and various other customers. The schemes may by selected with a distribution transformer of rated working current 4000A and rated capacity 2500kVA and below.

Besides, condenser compensation cubicle is designed to cater for needs of boosting power factor, and reactor cubicle for need of comprehensive investment.

The primary circuit scheme drawings are attached in this manual.

◆ Auxiliary circuit scheme

ECC GCS auxiliary circuit drawing pamphlet is prepared in two volumes including 120 schemes as per relevant design requirement regulation. There are 63 schemes (AC operation) in Volume Ⅰ and 57 schemes (DC operation) in VolumeⅡ.

DC operated auxiliary schemes are mainly used in low voltage service system of a power plant substation. During preparation, we allow for their competent work in low voltage plant service systems of 200MW below and 300MW above generation sets, work (spare) power incoming leads, general control mode for power feeders and motor feeders.

AC operated auxiliary schemes are mainly used in low voltage systems of substations in manufacturing and mining enterprises and high-rises. During preparation, six combined schemes suitably used in dual power supply incoming leads are optionally compiled in. Still others, self-operated and self-reset control apparatus are set for operation of electrical interlocking which may be directly adopted in the course of engineering design.

The voltage of DC control power supply may be DC 220V or 110V whereas that of AC control power supply may be AC 380V or 220V. The cubicle is composed of PC (power center) and MCC (motor control center). The 220V control power supply comes from common control power supply of a special cubicle transformer in same cubicle. The common control power supply is of a control transformer in no earthing mode, with a 24V power supply for low voltage pilot lamps when necessary.

As for installation site and voltage incoming mode of kilowatt-hour meters and their installation and application notes, refer to the "Notes of Preparation".

Busbars

To enhance the short time withstand capacity and improve temperature rise of contact surfaces, all busbars are made of TMY - T2 Series hard copper busbar, connection part must be tin dipped. Whole busbars tin dipped or silver plated copper busbar are recommended.

◆ Horizontal busbars

Horizontal busbars are located in busbar compartment at rear of cubicle, double layer (up layer and low layer) layout for 3150A and above and single layer layout for 2500A and below. Each phase is composed of 4 or 2 busbars to boost busbar's short circuit intensity greatly.

额定电流(A) Rated current (A)	铜排规范 Specification of busbar
630 1250	2(50×5)
1600	2(60×6)
2000	2(60×10)
2500	2(80×10)
3150	2×2(60×6)
4000	2×2(60×10)

◆ 垂直母线

用于抽屉柜的垂直母线采用"L"形硬铜搪锡母线。L形母线规格(mm)：

(高×厚)十(底×厚)

(50×5)十(30×5)

额定电流1000A。

◆ 中性接地母线

采用硬铜排

贯通水平中性接地线(PEN)或接地+中性线 (PE+N)规格如表：

相导线截面积 (mm²) Crossing sectional area of phase conductor (mm²)	选用PE(N)线截面 (mm²) Crossing sectional area of PE(N) line (mm²)
500—720	40×5
1200	60×6
>1200	60×10

* 装置内垂直PEN线或PE+N线的规格全部选用40×5
In this installation, the specification selected for all of vertical PEN or PE+N lines is 40×5 only.

主要电器元件选择

装置主要选用技术性能指标先进，采用引进技术国内已能批量生产的电器元件。

◆ 主开关

630及以上的电源进线及馈线开关，主选AH系列，也可以用DW40、DW48系列、AE系列、3EM或ME系列。认为有必要时，也可以选用进口的M系列或F系列。

◆ 630A以下的馈线和电动机控制用开关，主要选用TG系列、CMI系列、塑壳开关也可以选用NZM系列、TM30系列塑壳断路器。

◆ 交流接触器，主要选用B系列、LCI系列、3TB系列的接触器以及与之配套的热继电器、连锁机构。

◆ 电流互感器全部采用森源电器有限公司与苏州吴市低压电器厂、杭州建德电器厂、新市互感器厂联合开发的由森源电器公司监制的SDH系列、SDL系列、SDL1系列。

◆ 熔断器选用高分继能力的Q系列刀熔和NT00系列。

◆ 为提高住电路的动稳定能力，设计了GCS系列专

◆ **Vertical busbars**

Vertical busbas used at rear of drawer cubicle are made of L shaped hard copper busbar with tin plated.

Specifications (mm):

50 (height) × 5 (thickness) + 30 (bottom) × 5 (thickness)

With rated current of 1000A.

◆ **Neutral earthing busbas:**

Hard copper busbars.

Specifications:

Choice of main electrical components

In principle, the main electrical components are of advanced technical performance and mass domestically manufactured with introduced technology.

◆ Main switching device For 630A and above power incoming and feeding, AH Series Circuit Breakers are the first preference, also may be DW40 and DW48 Series, AE Series as well as 3WE or ME Series. When necessary, imported M Series or F Series also may be selected.

◆ For 630A and below feeding and motor control, TG Series and CM1 Series Circuit Breakers are the main choice, also may be NZM Series and TM30 Series for molded case circuit breakers.

◆ AC contactors are mainly B Series, LC1 Series, 3TB Series with their coordinated thermal relays and interlocking mechanisms.

◆ All current transformers are selected to be SDH Series, SDL Series and SDL1 Series Current Transformers which are co-developed by Sengyuan Electrical Co., Ltd., Huxiang Low Voltage Apparatus Works in Suzhou, Jiande Electric Apparatus Works in Hangzhou, Xinshi Instrument Transformer Works and supervisory manufactured by Sengyuan Electrical Co., Ltd..

◆ Fuses are selected to be high breaking capacity Q Series Blade-ones and NT00 Series ones.

◆ CMJ Combined Busbar Clamps and Insulating Supporters are specially designed used in GCS Series product for purpose of boosting peak value withstand capacity of main circuit, featuring high mechanical intensity, thermal shaping from flame retardant synthetic materials, high insulating strength, self-extinguishing and unique structure. These accessories work suitably with different specifications of busbars by regulating relevant building blocks to a certain degree.

◆ In order to reduce temperature rise of cable terminals, connectors and partitions between functional units, a trans-connector is specially designed for GCS Switchgear. Comparing with other kind of connectors with same specification, this one possesses higher thermal capacity resulting in lower temperature rise.

◆ Because of wide applicability, better performance and more advanced apparatus can be used as per requirement of customers without any difficulty in assembly and manufacturing.

Features in structure

◆ The main support frame is made of shaped steel and the frame is formed by connection and partial welding in construction. In the main support frame, there are installing module holes of E=20mm.

◆ The functional compartments are strictly separated. The compartments may be divided into functional unit compartment, busbar compartment and cable compartment etc.. The function of each unit is relatively independent.

用的CMJ型组合式母线夹和绝缘支撑体，采用高强度、阻燃型的合成材料热成型，绝缘强度高，自熄性能好，结构独特，只需调正积木式间块即可适用不同规格的母线。

- 为降低功能单元的间隔板、接插件、电缆头的温升，设计了GCS柜专用的转接件，与同类产品比较转接件热容量增大，温升降低。
- 如设计部门根据用户需要，选用性能更优良、技术更先进的新型电器元件时，因GCS系列柜具有良好的通用性，不会因更新的器元件，造成制造和安装方面的困难。

结构特点

- 装置的主构架采用型钢，构架采用拼装和部分焊接两种结构形式。主构加上均有安装摸数孔E=20mm。
- 装置各功能室严格分开，其格式主要分为功能单元式、母线室、电缆室，各单元的功能作用相对独立。
- 装置没有采用将水平将水平主母线置于柜顶的传统设计，使电缆室上下均有出线通道、解决了老产品无法上处线的难题。
- 柜体的尺寸如下表Dimensions of the cubicle:

高(mm) Height	宽(mm) Width	深(mm) Depth
2200	400	800
		1000
	600	800
		1000
	800	600
		800
		1000
	1000	600
		800
		1000

- 功能单元
  - 一个抽屉为一个独立功能单元。
  - 抽屉分为二分之一单元、一单元、二单元、三单元四个尺寸系列。回路的额定电流在400A及以下。
    一个单元抽屉的尺寸为：160(高)×560(宽)×410(深)
    二分之一单元抽屉的宽为280，二单元，三单元仅以高度做二倍、三倍的变化，其余尺寸均同一单元。
  - 功能单元的抽屉可以方便的实现互换。
  - 装置的每柜内可以配置11个一单元的抽屉或22个二分之一单元的抽屉。
  - 抽屉进出线根据回路电流大小采用不同片数的同一规范片式接插件，一般一片接插件≤200A。

Features in structure

- The horizontal main busbar is not mounted on top of cubicle as traditional design did so as to let cable compartment have outgoing lines both on top and bottom, solving the hard problem of no way outgoing above in traditional products.
- Functional unit
  - One drawer is an independently functional unit.
  - The drawer may be divided into four series, i.e., half unit, single unit, double unit and tri-unit. The rated current of the circuit is 400A or below. The dimension of single unit is 160(height) × 560(width) × 410(depth). By half-unit, we mean that the width of it is 280, and by double unit, tri-unit, actually the height of them double and triple of that for single unit respectively with remaining dimensions unchanged.
  - The functional unit drawers with same specification are easily interchanged with each other.
  - There may be 11 single units or 22 half units in each cubicle.
  - The incoming and outgoing conductors of drawers are the same specification of link pieces with different number of pieces according to actual circuit current. Generally, one link piece carries a current of ≤ 200A.
  - The connection between half drawers and cable compartment is of a kind of rear plate in structure whereas the connection between unit drawers and compartments is of bar structure.
  - There are obvious labels on the drawer panel for On, Off, Test and Withdrawal positions.There is also a mechanical interlocking device for the drawer.
- There are special cable compartments for feeding and motor control cubicles.The cable connection between functional unit compartment and cable compartment is made via trans-connectors or trans-connecting copper busbars resulting in higher operational reliability of the cable and facilitating installation and maintenance on cable by customers greatly.
- There are two width dimensions of the cable compartment (240mm and 440mm) for optional application according to the number, sectional crossing area of the cable and the actual requirement from customer on installation and maintenance.
- The auxiliary contacts of the functional unit are 32 pairs for single one, 20 for half one, which can satisfy the needs of automation customers and PC interfaces.
- Due to the optional adaptability and safety of the dry type transformer, and economical results of the oil immersed transformer, the installation may combine with a dry type transformer to form a series and connect to low voltage of an oil immersed transformer just as easily.
- Taking the drawer as a lead, withdrawble and fixed type may be combined in mixed way for option simultaneously.
- GCS intelligent type MCC Cubicle with transparent protective door
- The switchgear is designed to be used in three-phase five-wire systems and three-phase four-wire systems, and design department and customers may select PE+N or PEN mode very flexibly.
- The class of protection of the enclosure may be IP30 or IP40 for the choice of customers just as actual needs.

- 二分之一抽屉与电缆室的转接，采用背板式结构的转接件。单元抽屉与电缆室的转接采用棒式结构的转接件。
- 抽屉面板有合、断、试验、抽出等位置的明显标志。抽屉设有机械联锁装置。
- 馈电柜和电动机控制柜设有专用的电缆隔室，功能单元室与电缆隔室内电缆的连接通过转接件或转接铜排实现，既提高了电缆的使用可靠性，又极大的方便了用户对电缆的安装与维修。
  电缆隔室有二个宽度尺寸(240mm或440mm)可供选用，视电缆数量，截面和用户对安装维修方便的要求而定。
- 装置的功能单元辅助接点对数一单元及以上的为32对，1／2单元的为20对。能满足自动化用户和与计算机接口的需要。
- 考虑到干式变压器使用的普通性、安全性和油浸变压器的经济性，装置既可以方便地与干式变压器组成一个组列。也可以与油浸变压器低压母线方便连接。
- 以抽屉为主体，同时具有抽出式和固定式，可以混合组合，任意选用。
- 装置按三相五线制和三相四线制设计，设计部门和用户可以方便地选用PE+N或PEN方式。
- 柜体的防护等级为IP30 IP40，可以按用户需要选用。

柜体外形尺寸和安装尺寸

受电柜，联络柜尺寸见图一。
PC柜尺寸见图二。
MCC柜尺寸见图三。

安装使用

- 用户应根据制造厂提供的柜体底脚尺寸预先做好槽钢基础，然后将柜就位，紧固底脚和柜间连接螺栓及水平母线，母线的连接必须牢固可靠。
- 根据进出电缆的数量，用户可在柜底封板上敲开敲落孔，引进电缆。
- 采用旋转隔离开关或塑壳空气开关的回路，开关操作手柄与小室门具有联锁装置，因此一般开关分断后才能开门，而合闸状态时必须用工具解锁开门。

订货须知

- 用户订货时请提供以下资料：
- 产品排列布置图
- 主电路辅助电路原理图
- 产品颜色
- 公司根据用户要求，可在柜内安装原装进口的世界各大名牌电气公司生产的电器元件及附件

Overall and installation dimensions of the switchgdear

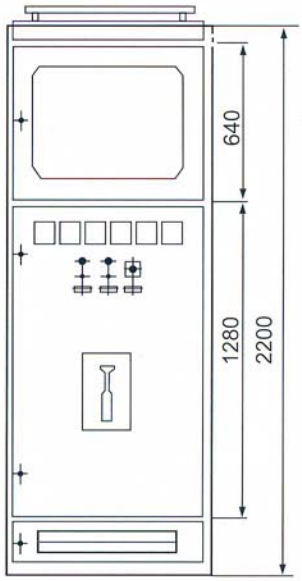
The Fig. 1 shows the dimensions of electricity acceptance cubicles and coupling cubicles whereas Fig. 2 shows those of PC cubicles, and Fig. 3, for MCC cubicles.

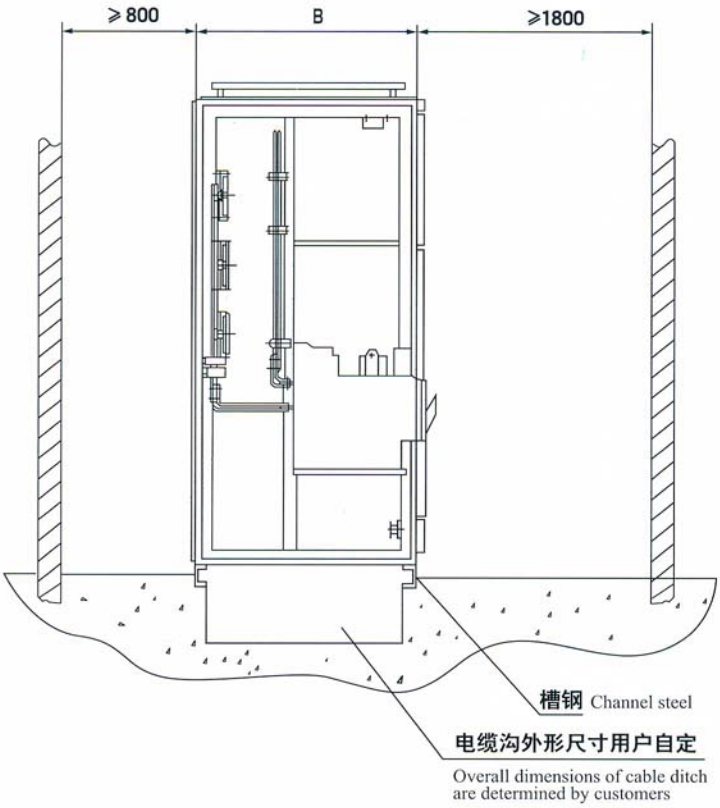
Installation and operation

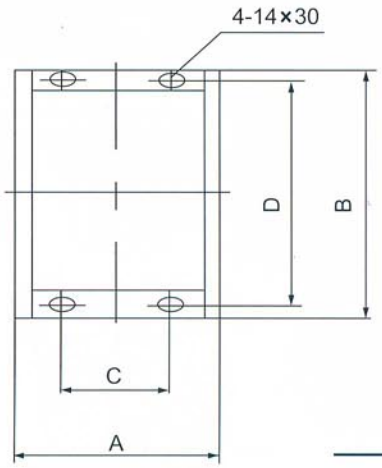
- The customer is supposed to pre-fabricate channel steel foundation according to the cubicle bottom dimensions provided by the manufacturer.Then put the switchgear in place, and tighten the fool screws and connecting bolts and horizontal busbars between cubicles.
- Customers may knock out certain amount of knock-off holes as per numbers of cable for entrance.
- A kind of rotating disconnector and a molded case circuit breaker circuit is adopted. There is an interlocking device between the operating handle of the circuit breaker and the compartment door. Generally, the door may be opened only when the circuit breaker is in open position, If somebody else will open the door with the circuit breaker in closed position, a special tool to disable the interlocking is necessary.

Information given when ordering

- Layout drawings of the product
- Principle drawings of main and auxiliary circuits.
- Color
- In light of customer's demand, ECC may import electrical components and accessories from world famous electric corporations in original assembly.

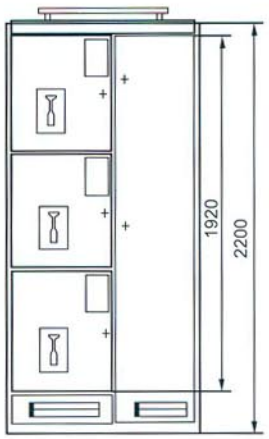


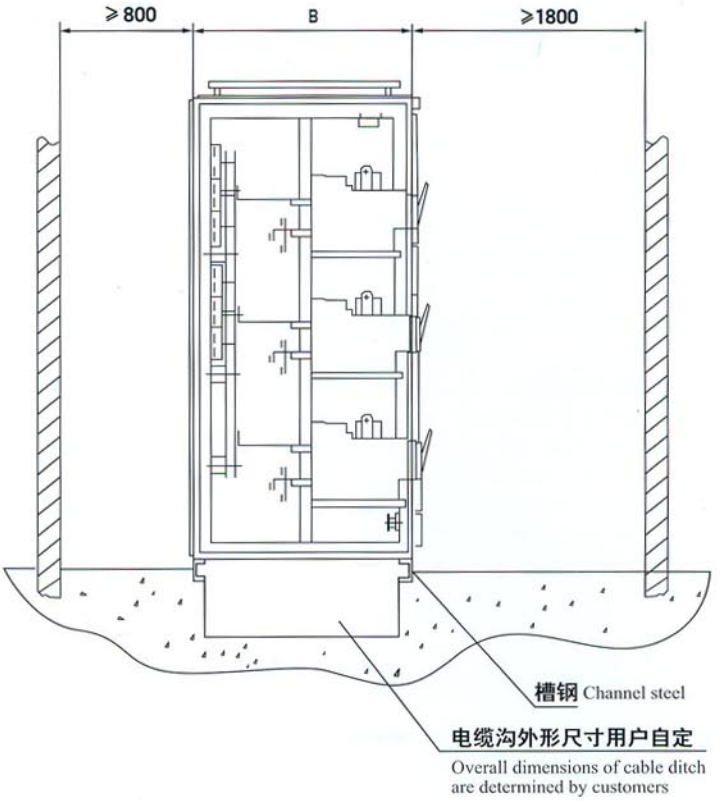


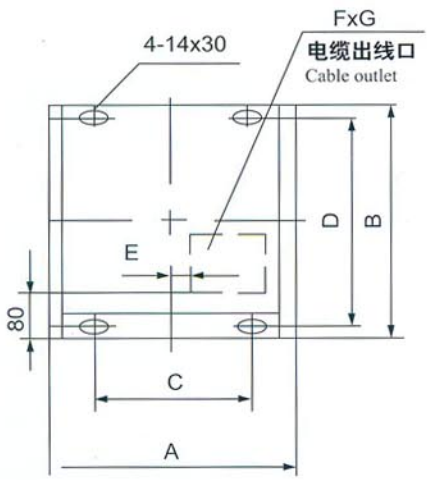


通用柜代号 Cubicle code	A	B	C	D	备注 Remarks
GCS－TG1010－4	1000	1000	850	956	联络柜 Coupling cubicle
GCS－TG0810－4	800	1000	650	956	受电柜 Acceptance cubicle
GCS－TG0808－4	800	800	650	756	受电柜 Acceptance cubicle
GCS－TG0608－4	600	800	450	756	受电柜 Acceptance cubicle

图一 受电、联络柜安装示意图
Fig.1 Installation schematic drawing of electricity acceptance and coupling cubicle

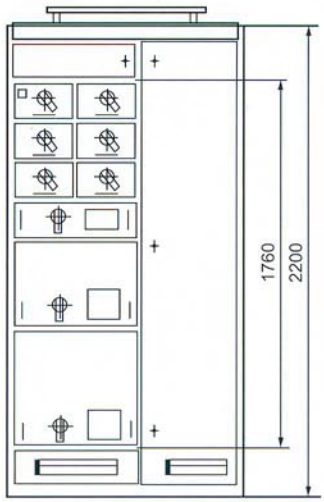


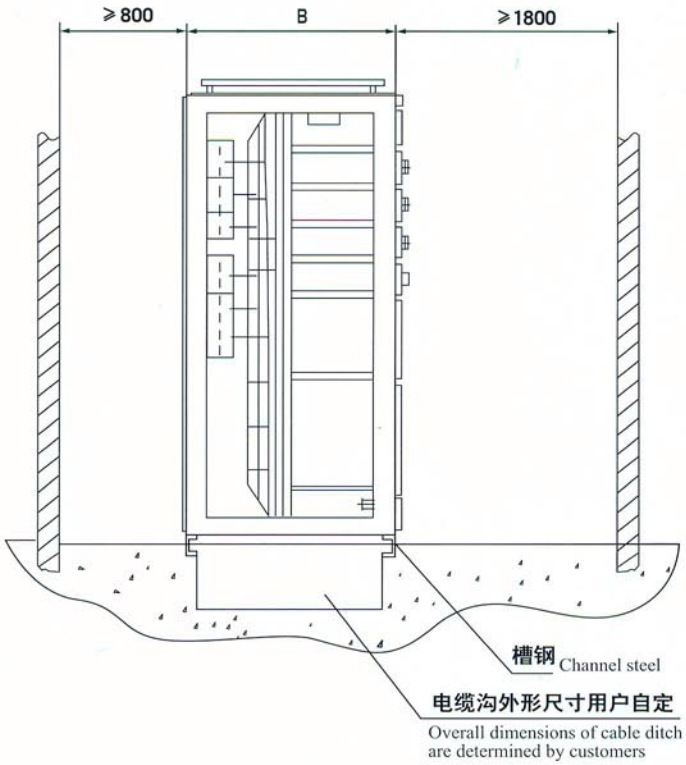


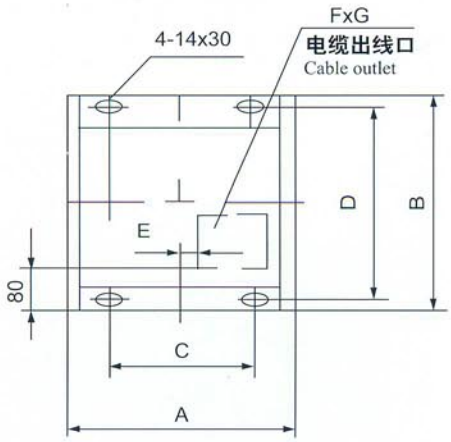


通用柜代号 Cubicle code	A	B	C	D	E	F×G
GCS－TG1010－2	1000	1000	850	956	60	400×400
GCS－TG0810－2	800	1000	650	956	160	200×400
GCS－TG1008－2	1000	800	850	756	60	400×400
GCS－TG0808－2	800	800	650	756	160	200×400

图二 PC柜安装示意图
Fig.2 Installation schematic drawing of PC cubicle



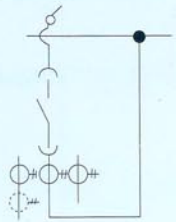
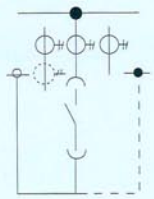
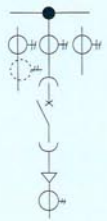
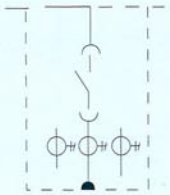
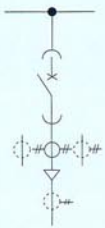


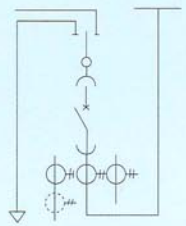
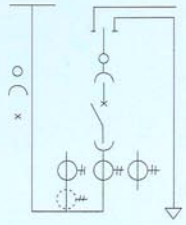
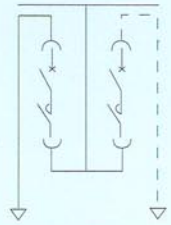
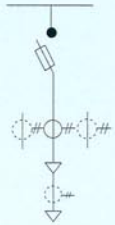


通用柜代号 Cubicle code	A	B	C	D	E	F×G
GCS－TG1006－1	1000	600	850	556	60	400×350
GCS－TG0806－1	800	600	650	556	160	200×350

图三　MCC柜安装示意图
Fig.3 Installation schematic drawing of MCC cubicle

主电路方案

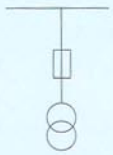
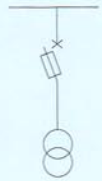
	主电路方案 Primary scheme No.	01	02	03	04	05	06
主电路方案	单线图 Single line diagram						
	用 途 Application	受电（上进线） Up incoming	受电（下侧进线） Down incoming	受电（电缆进线） Cable incoming	联 络 Liaison	母线转接 Busbar transverse connection	馈 电 Feeder
	规格序号 Specification serial number	A B C D E F G	A B C D E F G	A B C D E	A B C D E F G		A B C
	短时耐受电流 Short-time withstand current	60/176	60/176		60/176		
		50/105	50/105	50/105	50/105		50/150
	瞬时耐受电流 Instantaneous withstand current	30/63	30/63	30/63	30/63		30/63
	额定序号（A） Rated current	4000 3150 2500 2000 1600 1000 630	4000 3150 2500 2000 1600 1000 630	2500 2000 1600 1000 630	4000 3150 2500 2000 1600 1000 630		1600 1000 630
主电路电器设备选择 Main apparatus	AH-40C	1	1		1		
	AH-30C	1	1		1		
	AH-25C	1	1		1		
	AH-20C	1	1		1		
	AH-16B	1	1		1		1
	AH-10B	1	1		1		1
	AH-6B	1	1		1		1
	SDL-□		(1) (1) (1) (1) (1)				(1) (1) (1)
	AH-□ □/5	3(4) 3(4) 3(4) 3(4) 3(4) 3(4) 3(4)	3(4) 3(4) 3(4) 3(4) 3(4) 3(4) 3(4)	3(4) 3(4) 3(4) 3(4) 3(4)	3 3 3 3 3 3 3		1(3) 1(3) 1(3)
	柜宽 mm Cubicle width	1000 800 600	1000 800 600	600 600	1000 800 600	400(6000)	1000
	柜深 mm Cubicle depth	1000 800	1000 800	800	1000 800	800(1000)	800
	占用小室高度 mm Height occupied in compartment						640 640 640
	二次方案图号 Drawing No. of secondary scheme						
	备注 Note	**1**. AN是主选断路器，还可以选用AE，DW40，DW48，3WE，ME等断路器替代。**2**. 馈电方案可以加装零序保护，零序电流互感器装入电缆隔室。**3**. 04方案2500A及以下时在本柜内翻排，可以左翻或右翻，不需要05方案转换。**4**. SDL，SDH是GCS柜专用电流互感器。 1. AN Circuit Breaker is the first preference in choice whereas AE, DW40, DW48, 3WE, ME Circuit Breaker are also made for choice instead. 2. Zero sequence protection may be added for feeder scheme with a zero sequence current transformer mounted in cable compartment.3. When rated current is 2500A or below, the arrangement in Scheme 04 may be in left or in right without need of conversion Scheme 05.4. SDL and SDH are specially designed current transformers for GCS Switchgear.					

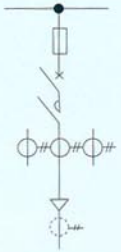
	主电路方案 Primary scheme No.	07	08	09	10	11	12
主电路方案	单线图 Single line diagram						
用 途 Application		双电源手动切换 Double power supply manual switchover	双电源手动切换 Double power supply manual switchover	双电源切换 Double power supply switchover	馈电 Feeder	馈电 Feeder	限流电抗器 Current limiting reactor
规格序号 Specification serial number		A B	A B	A B C D	A B C		
短时耐受电流 Short-time withstand current		50/105	50/105	50/105	50/105	50/105	
瞬时耐受电流 Instantaneous withstand current		30/63	30/63	30/63	30/63	30/63	
额定电流（A） Rated current		1000 630	1000 630	400 250	630 400 250 160	400 200 100	600
主电路电器设备选择 Main apparatus	AH-10B	1	1				
	AH-6B	1	1				
	QPS-1000	1	1				
	-630	1	1				
	QSA-630				1		
	-400				1		
	-250				1		
	-160				1		
	限流电抗量 Current limiting reactance						3
	B370			1			
	B250			1			
	TG-400BD或CM1-400L			1 1		1	
	TG-225BD或-225M					1	
	TG-100BD或-100M					1	
	SDL-□				(1) (1) (1) (1)	(1) (1) (1)	
	SDH-□ □/5	3(4) 3(4)	3(4) 3(4)		1(3) 1(3) 1(3) 1(3)	1(3) 1 1	
柜宽 mm Cubicle width		1000	1000	800	800	800	800
柜深 mm Cubicle depth		800	800	600	600	600	600
占用小室高度 mm Height occupied in compartment		960	960	480X2	480 320	240 240 160	1760
二次方案图号 Drawing No. of secondary scheme							

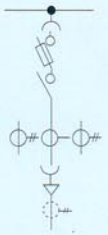
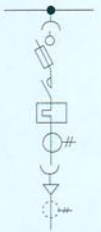
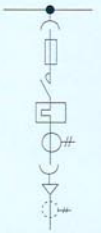
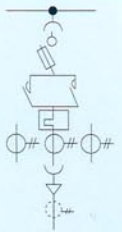
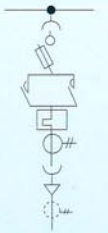
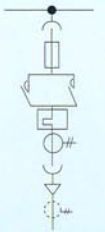
备注 Note

馈线方案可以加装零序保护，零序电流互感器装入电缆隔室

Zero sequence protection may be added for feeder scheme with a zero sequence current transformer mounted in cable compartment.

	主电路方案 Primary scheme No.	13	14	15
主电路方案	单线图 Single line diagram			
	用 途 Application	电压互感器 Potential transformer	电压互感器 Potential transformer	电压互感器 Potential transformer
	规格序号 Specification serial number			
	额定序号（A） Rated current			
主电路电器设备选择 Main apparatus	QPS -1000			
	-630			
	QSA -630			
	-400			
	-250			
	-160			
	-63		1	1
	NT00-□			
	JDG-0.5 380/100	2	2	
	JSGW-0.5			1
	SDH-□ □/5			
	柜宽 mm Cubicle width	（不占间隔，装在受电柜内接在分支母线上）	800	800
	柜深 mm Cubicle depth		1000(800,600)	1000(800,600)
	占用小室高度 mm Height occupied in compartment		800	800
	二次方案图号 Drawing No. of secondary scheme			
	备注 Note			

	主电路方案 Primary scheme No.	28
主电路方案	单线图 Single line diagram	
	用 途 Application	电动机（不可逆） Motor (Not reversible)
	规格序号 Specification serial number	A B
	短时耐受电流 Short-time withstand current	50/105
	瞬时耐受电流 Instantaneous withstand current	30/63
	最大控制电动机功率 The maximum power of motor to be controllable	200 160
主电路电器设备选择 Main apparatus	NT2-□	3
	NT2-□	3
	CM1-630L或TG-600BD	1
	CM1-400L或TG-400BD	1
	CM1-225M或TG-226BD	
	CM1-100M或TG-100BD	
	B370	1 1
	B170-B105	
	B85	
	T16	1 1
	LJZ-□	(1) (1)
	SDH-□ □/5	3 3
	柜宽 mm Cubicle width	800
	柜深 mm Cubicle depth	600
	占用小室高度 mm Height occupied in compartment	880
	二次方案图号 Drawing No. of secondary scheme	
	备注 Note	B系列接触器为首选，还可以选用D系列，3TB系列，CJ20系列 Whereas B Series Contactors are of first preference for choice, the D Series, 3TB Series and CJ20 Series are also selectable.

	主电路方案 Primary scheme No.	16	17	18	19	20	21
主电路方案	单线图 Single line diagram						
用途 Application		电动机（不可逆） Motor (Not reversible)	电动机（不可逆） Motor (Not reversible)	电动机（不可逆） Motor (Not reversible)	电动机（不可逆） Motor (Not reversible)	电动机（可逆） Motor (reversible)	电动机（可逆） Motor (reversible)
规格序号 Specification serial number		A B	A B		A B C	A B	
短时耐受电流 Short-time withstand current		50/105	50/105	50/105	50/105	50/105	50/105
瞬时耐受电流 Instantaneous withstand current		30/63	30/63	30/63	30/63	30/63	30/63
最大控制电动机功率 The maximum power of motor to be controllable		100 75 55	37 15	7.5	100 75 55	37 15	7.5
主电路电器设备选择 Main apparatus	QSA-250	1			1		
	QSA-160	1			1		
	QSA-125	1	1		1	1	
	HH17-63		1			1	
	NTOO-□			3			3
	B250	1			2		
	B170~105	1 1			2 2		
	BB5或-LC1-D80		1			2	
	B45或-LC1-D32或3TB44		1	1		2	
	B16或-LC1-D18或3TB42						2
	T85					1	
	TSA45			1	1 1 1	1	
	T16	1 1 1					1
	SDL-□	(1) (1) (1)	(1) (1)	(1)	(1) (1) (1)	(1) (1)	(1)
	SDH-□ □/5	3 3 3	1 1	1	3 3 3	1 1	1
柜宽 mm Cubicle width		1000	800	800 2	800	800	800 2
柜深 mm Cubicle depth		800	600	600	600	600	600
占用小室高度 mm Height occupied in compartment		320	240	160	480	240	160
二次方案图号 Drawing No. of secondary scheme							

备注 Note

B系列接触器为首选，还可以选用D系列，3TB系列，CJ20系列

Whereas B Series Contactors are of first preference for choice, the D Series, 3TB Series and CJ20 Series are also selectable.