CW1G 系列隔离开关

CW1G SERIES SWITCH-DISCONNECTOR

常熟开关　持续超越

- 国家创新型试点企业
- 国家重点高新技术企业
- 全国企事业知识产权示范单位
- 全国守合同重信用企业
- 国家科学技术进步二等奖获得者

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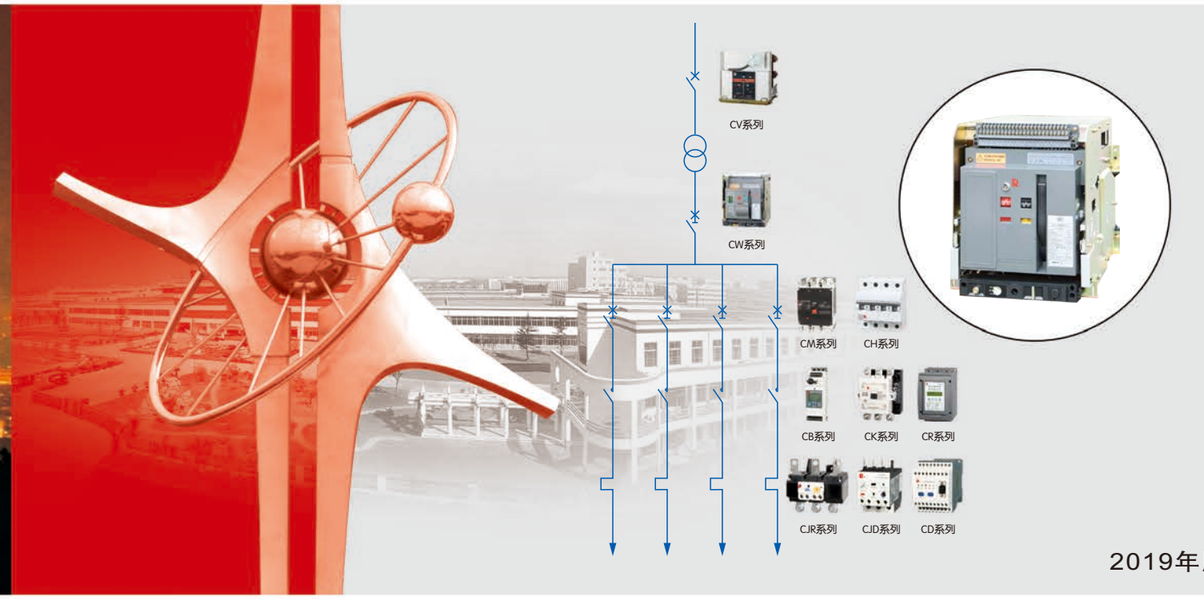

2019年版

常熟开关制造有限公司(原常熟开关厂)

CHANGSHU SWITCHGEAR MFG. CO., LTD.（FORMER CHANGSHU SWITCHGEAR PLANT）

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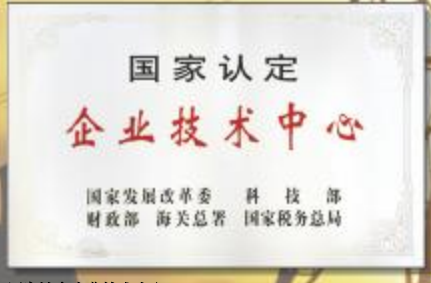
The Innovation Achievement of Management Modernization of National Enterprise



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Postdoctoral Technical Innovation Centre

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公司简介

Introduction

常熟开关制造有限公司是国有参股的电器研发制造领军企业，注册资本3.8亿，现有员工1700人，专业研发和制造中低压配电电器、工业控制电器、中低压成套装置、光伏逆变器及光伏发电配套电器和智能配电监控系统及配套测控器件。产品广泛应用于电力、机械、矿山、冶金、石化、建筑、船舶、核电和新能源发电等领域。

常熟开关坚持自主创新，持续完善创新平台，不断提升公司的创新能力。2002年起，公司建立“博士后科研工作站”；2010年，公司被国家科技部评为“国家创新型试点企业”；2011年，公司技术中心获国家发展改革委员会、科技部、财政部、海关总署、国家税务总局联合颁发的“国家认定企业技术中心”；2013年，公司获批建立“江苏省智能电网配用电关键技术研究重点实验室”。公司拥有一支300多人的创新团队，所研发的技术和产品先后获得多项省市级以上荣誉，其中“低压保护电器关键技术的研究应用”项目和“开关电器大容量开断关键技术及应用”项目荣获国务院颁发的国家科学技术进步二等奖。

常熟开关坚持质量第一，注重全过程的质量管理，拥有一批先进的智能化、数字化的研发和制造管理系统和设备，公司检测中心获中国合格评定国家认可委员会颁发的认可证书。公司产品以优秀的性能和品质，深受用户好评，多次获得省部级质量奖。公司从1994年起参加的产品质量责任保险，至今无一理赔。

常熟开关致力于为用户提供精品电器产品，为社会、客户创造更高价值，打造一流的民族电器品牌。

Changshu Switchgear MFG. Co., Ltd. (Former Changshu Switchgear Plant), a national-leading enterprise with state-owned equity, registered capital of 0.38 billion RMB and 1700 staffs, professionally researches, develops and manufactures medium and low voltage power distribution electrical appliances, industrial control products, medium and low voltage complete sets of equipments, photovoltaic inverters & power generation equipments and intelligent power distribution monitoring system & supporting devices for observation and control, all of which are widely used in the fields of electric power, machinery, mining, metallurgy, petrochemical, construction, shipbuilding, nuclear power and new energy power generation,etc.

Changshu Switchgear insists on independent innovation, continuously improves the innovation platform and constantly improve the innovation capability. In 2002, the Post-doctoral scientific research workstation was set up. In 2010, an honor of the National Innovative Pilot Enterprise, issued by the National Ministry of Science and Technology, was awarded. In 2011, the National Development and Reform Commission, the Ministry of Science and Technology, the Ministry of Finance, the General Administration of Customs and the State Administration of Taxation jointly recognized the company’s technology center as the National-level Enterprise Technique Center. In 2013, the company was approved to establish the Key laboratory for Research on Key Technology of Intelligent Grid Power Distribution in Jiangsu Province.

The technology and products, developed by the innovation team consist of 300 engineers and technicians, have won a number of provincial and municipal honors, in which “The research and application on key technology of low voltage protection electrical device” and “The key technology and application of large capacity breaking of switching devices” have won the second prize of the National Science and Technology Progress Award.

Changshu Switchgear insists Quality-first and pays great attention on the quality management of the whole process. Advanced intelligent digital systems and equipments have been brought in for R & D and manufacture management. The company’s testing center has been rewarded the accreditation certificate issued by the China National Accreditation Service for Conformity Assessment. The products have won praise from users and also several provincial or ministerial quality awards for the excellent performance and quality. Meanwhile, no claims arise since 1994 when the product quality liability insurance was been covered for all the products.

Changshu Switchgear is committed to providing customers with high-quality electrical products, creating higher value for society and customers and shaping a leading national electrical brand.

常熟开关制造有限公司
为您提供电气系统完整的解决方案

高压真空断路器


CV1-12/CVR1-12系列
高压真空断路器


CV2-12系列
高压真空断路器


CV1-24/CV2-24系列
高压真空断路器


CV1-40.5/CV2-40.5系列
高压真空断路器

智能型万能式断路器


CW1系列
智能型万能式断路器


CW2系列
智能型万能式断路器


CW3系列
智能型万能式断路器


CW3X-1600系列
智能型万能式断路器


CW3R系列
智能型万能式断路器


CW3F-2500系列
智能型万能式断路器


CW3V系列
智能型真空万能式断路器

塑料外壳式断路器


CM3系列
塑料外壳式断路器


CM3E系列
电子式塑壳断路器


CM3L系列
带剩余电流保护塑壳断路器


CM3Z系列
智能型塑壳断路器


CM3ZL系列
带剩余电流保护塑壳断路器


CM3ZL/ZH自动重合闸
带剩余电流保护塑壳断路器


CM5系列
塑料外壳式断路器


CM5Z系列
智能型塑壳断路器


CM5Z-1600
智能型塑壳断路器


CM5L系列
带剩余电流保护塑壳断路器


CM5ZL系列
带剩余电流保护智能型塑壳断路器


CM5X-125塑料外壳式断路器
CM5XL-125带剩余电流保护塑壳断路器

常熟开关制造有限公司
为您提供电气系统完整的解决方案

自动转换开关


CA1/CA1B系列自动转换开关(CB级)


CAP1系列自动转换开关(PC级)



CAP2系列自动转换开关(PC级)


CAP3系列自动转换开关

接触器和过载继电器


CK3/CK3B系列接触器


CJR3/CJR3B系列热过载继电器


CJD3系列电子过载继电器

剩余电流动作继电器


CLJ3 剩余电流动作继电器

电动机软起动器


CR1系列电动机软起动器


CR2系列智能型电动机软起动器

电动机保护器


CD3系列电动机控制保护器


CD4系列电动机控制保护器

控制和保护电器


CB1系列控制和保护开关电器(CPS)

光伏发电用产品


CW3G系列隔离开关（AC，DC）


CW3DC系列直流万能式断路器


CM3DC系列直流塑壳断路器

小型断路器


CH系列小型断路器

电力质量和系统自动化器件


AD128系列信号灯
LA168系列按钮


CI1系列远程智能I/O模块


CN1DP-MP
CN1DP-MD
CN1DP-MC
通信适配器
CN1EG以太网适配器


FDM3
短消息通知模块



FWX1无线温度测量模块

智能化通信低压配电网络监控系列


Riyear-PowerNet配电监控系统


CEPA3智能配电一体机

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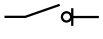
概　述　OUTLINE

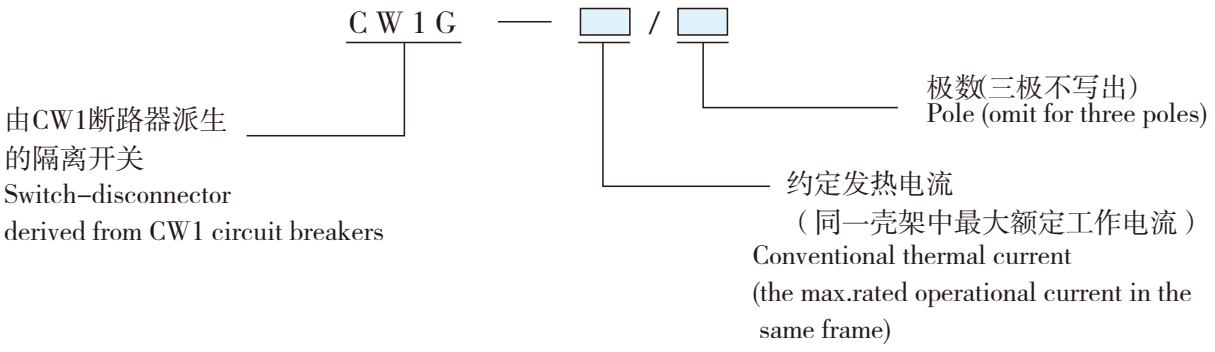
CW1G系列隔离开关是由相应的CW1系列断路器派生并保持了相同的外形尺寸及安装尺寸，主要安装在低压配电电路中作主电路的接通和断开，并可起隔离作用。其符号表示为“  ”

- 交流额定工作电流630A～5000A；
- 额定工作电压AC690V及以下；
- 具有3极和4极；
- 抽屉式和固定式；
- 可倒进线安装；
- 使用类别为AC-22A、AC-23A；
- 执行IEC60947-3、GB/T14048.3-2017标准。
- 本产品获国家强制性产品认证“CCC”标志。

CW1G series switch-disconnector is derived from the corresponding CW1 series circuit-breaker, and it keeps the same outline dimensions and mounting dimensions of CW1. The switch is installed in the low voltage distribution circuits, to make the main circuit closed and opened. The switch also plays isolated role, its corresponding symbol is shown as “  ”.

- Rated operational current: 630A ~ 5000A AC;
- Rated operational voltage: 690V or below;
- Three or four poles;
- Draw-out type or fixed type;
- Can be in adverse direction;
- Utilization category AC-22A，AC-23A；
- Comply with the demands of the following standards:IEC 60947-3, GB/T14048.3-2017.
- The product is permitted to use the CCC marking of CQC.

型号含义　TYPE AND ITS MEANING



正常工作条件和安装条件 ENVIRONMENT CONDITIONS FOR OPERATION AND INSTALLATION

- 周围空气温度-5℃～+40℃；
- 安装地点的海拔不超过2000m；
- 空气的相对湿度在最高温度为+40℃时不超过50%，在较低温度下可以有较高的相对湿度，例如20℃时达90%，对由于温度变化偶尔产生的凝露应采取特殊的措施；
- 污染等级为3级；
- 隔离开关通过GB/T2423.10试验要求可耐受频率为2Hz~13.2Hz、位移为±1mm及频率为13.2Hz~100Hz、加速度为±0.7g的机械振动；
- 隔离开关主电路安装类别为IV，其余辅助电路、控制电路安装类别为III；
- 隔离开关适用于电磁环境A；
- 湿热带型（TH型）隔离开关通过GB/T2423.4、GB/T2423.18试验要求，能耐受潮湿空气、盐雾、油雾、霉菌的影响；
- 隔离开关安装的垂直倾斜度不超过5°；
- 隔离开关应安装在无爆炸危险和无导电尘埃、无足以腐蚀金属和破坏绝缘的地方；
- 隔离开关安装在柜体小室内，且加装门框，防护等级达IP40;
- 可运行条件：

隔离开关通过GB/T 2423.1和GB/T 2423.2的试验要求，周围空气温度可低至-25℃、高至+70℃（超过+40℃降容使用，详见本样本中的隔离开关功耗及降容系数）；

隔离开关通过GB/T 2423.4试验Db（温度+55℃、相对湿度95%）要求；

海拔超过2000m降容使用，详见本样本中的高海拔降容；

- 储存条件：周围空气温度为-25℃~+70℃。

- Ambient temperature: -5℃~+40℃；
- Elevation≤2000m；
- Relative humidity: not exceed 50% at the maximum ambient temperature of +40℃, but higher relative humidity at the lower temperature, for example, 90% at 20℃. Special measures should be taken considering the dews on product surface due to temperature change；
- Pollution protection: 3 grade；
- The switch-disconnector is tested by GB/T2423.10, can withstand vibration of frequency range 2Hz~13.2Hz, displacement 1mm and frequency range 13.2Hz~100Hz, acceleration 0.7g.
- Installing categories: IV for the main circuit; III for other auxiliary and control circuits；
- The switch-disconnector is suitable in electromagnetic environment A;
- Damp heat type（TH）switch-disconnector is tested by GB/T2423.4、GB/T2423.18, can bear the influence of moisture in the air of salt fog and oil fog or mould.
- The vertical gradient isn't more than 5°；
- There must be not any explosive medium, and there must be not any gas which would corrode metal or any conducting dust which would destory the insulation；
- The switch-disconnector should be installed in the compartment of switchgear cabinet and doorframe should be fixed additionally. Protection grade up to Ip40.
- Sevice condition:

The switch-disconnector is tested by GB/T 2423.1 and GB/T2423.2, ambient temperature lower -25℃, higher +70℃（temperature over +40℃, the switch-disconnector is used by reducing capacity; please seeing "power consumption and capacity lowering coefficient"）；

The switch-disconnector is tested by GB/T 2423.4 test Db（temperature +55℃, relative humidity 95%）；

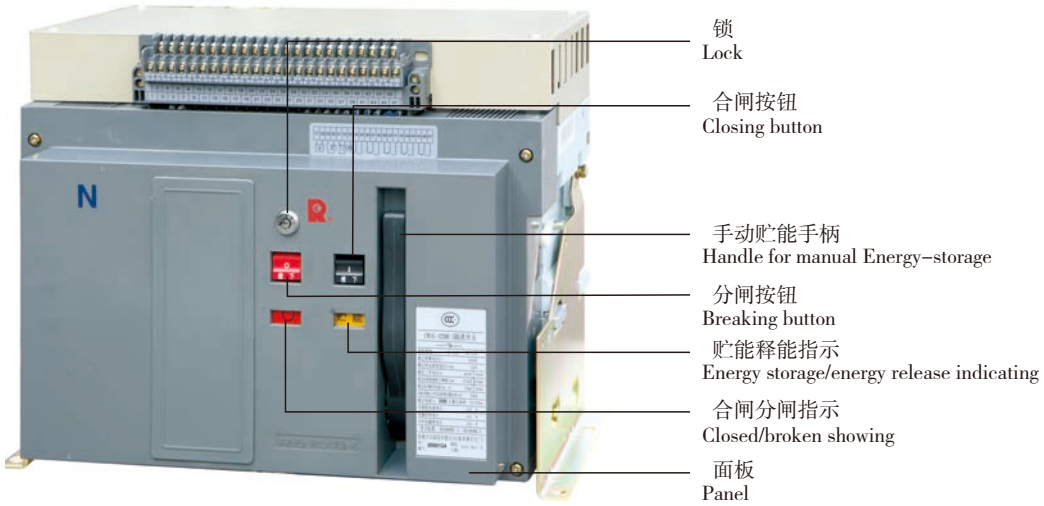
Elevation over 2000m, the switch-disconnector is used by reducing capacity, please seeing "capacity-reducing for high-elevation".

- Storage condiction:ambient temperature -25℃~+70℃.

结构简介 SYNOPSIS OF STRUCTURE

● 隔离开关正面指示

● Front View of the Switch–disconnector



结构简介 SYNOPSIS OF STRUCTURE

● 结构特点

● 隔离开关有固定式和抽屉式之分。开关由触头系统、操动机构、辅助开关、二次插接件、分励脱扣器等部件组成（其中抽屉式隔离开关还含有抽屉座）；抽屉座由带有导轨的左右侧板、底座和横梁等组成。

● 触头系统

● 采用一挡触头系统，在同一触头的不同部位，触头单元既具有主触头的功能，也具有弧触头的功能；

● 采用新型耐弧的触头材料，使触头在分断额定电流时不致过分发热而引起温升过高；

● 触头系统采用多路并联，降低了电动斥力，提高触头系统的电动稳定性；

● 隔离开关在断开状态时，动静触头的间距远大于IEC60947–3标准对隔离性能的规定，极大地提高了开关的介电性能；

● 触头位置指示不仅有明显的闭合指示“｜”和断开指示“○”，而且触头在断开位置时指示可靠，并且只有在断开时才能锁住，使开关不能被闭合；

● Structure feature

● The switch–disconnector could be classified two types: fixed type and draw–out type.The main body of switch consists of contacts system、 operating device、 auxiliary switch、 secondary plug and shunt release, etc. The draw–out socket is made up of the rightside plate and leftside plate(with guided way)、 base and cross member.

● Contacts system

● One–gear system: The different part of the same contact has different function. The contact unit is both with main contact function and arc–contact function;

● The new–type arc–resistant material is to be chosen for making contacts. After breaking the rated current, the contacts wouldn’ t be overheat to make the temperature overrising.

● The contacts systerm is made of the multiple way parallel style, to reduce the electric repulsion and to rise the electric steady ability.

● When the switch–disconnector is on breaking state, the space between motional contact and static contact is far large than the isolated distance which prescribed by IEC 60947–3 standard, so it promotes the switch’ s dielectric properties.

● The position indication of contacts has two indications: " " closing indication “ and breaking indication “O” . When the contacts are on breaking position, the indication is credibility, at the same time the contacts can be locked, making the switch not to be closed.

● 操作机构和电动操作机构

机构位于开关正面。操作机构采用五连杆的自由脱扣机构，并设计成预贮能形式。在使用过程中，机构可处于预贮能位置，只要一接到合闸命令，开关就能立即瞬时闭合。预贮能的释放可用手动合闸按钮或合闸电磁铁来完成。电动操作机构采用模块化设计，与操作机构连接配合，装拆方便。

● Operating device and motor-driven transmitting device

The device is sitted on the front of the switch. The free-release device, with five connecting rods, is used in the operating device, and it is designed energy-storage form. The device is always on energy-storage position, the switch would be closed instantaneously as soon as the switch is ordered to be closed. To release the pre-stored energy, it may be by means of pushing the release energy button manually or using the closing electromagnet. The motor-driven transmitting device has the systerm of its own, linking the energy-storage shaft and main shaft movably with tenon and mortise, easily to assemble or disassemble.

● 抽屉座

抽屉座由带有导轨的左右侧板、底座和横梁等组成，底座上设有推进机构，并装有位置指示，抽屉座的上方装有辅助电路静隔离触头。桥式主回路触头前方设置安全隔板。

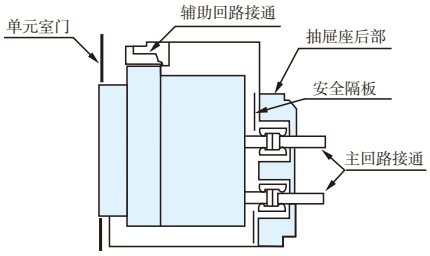
隔离开关本体在抽屉座内的运动具有三个“位置”：

● Draw-out socket

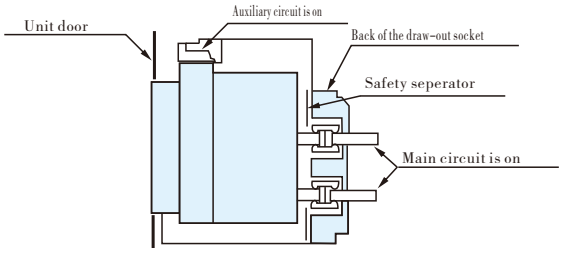
The draw-out socket is made up of the rightside and leftside plates (with guided way),base and cross member.There are pushing device and position indicator on the base.There are static seperated contacts for auxiliary circuit on the top of the base.The safety seperator is set on the front of the bridge main contacts.

It has three “position” for the main body of switch-disconnector moving in the draw-out socket;

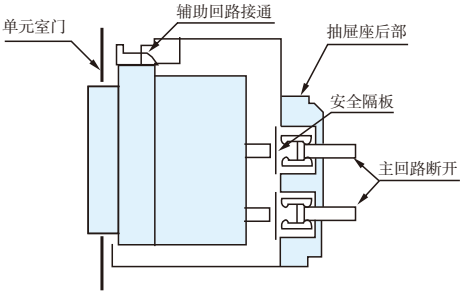
- “连接”位置：主回路和辅助回路均接通，此时隔离板开启；



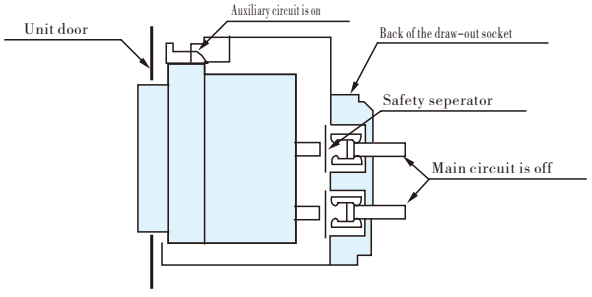
- "LINK" position:there are all "ON" for main circuit and auxiliary circuit.The seperator is open;



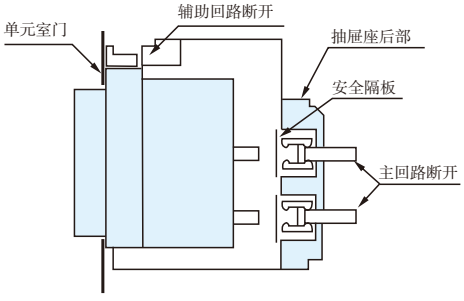
- “试验”位置：主回路断开，安全隔板关闭，仅辅助回路接通，可进行必要的动作试验；



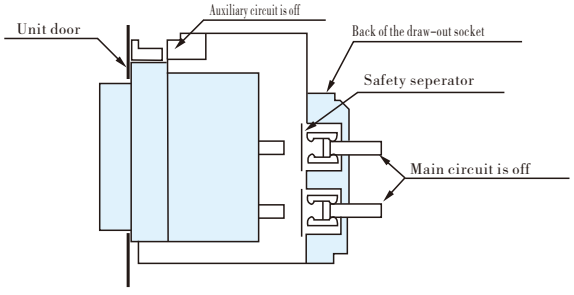
- "TEST" position:The main circuit is "OFF",safety seperator is closed.Only auxiliary circuit is "ON",the necessary action test could be done;



- “分离”位置：主回路与辅助回路全部断开，安全隔板关闭。

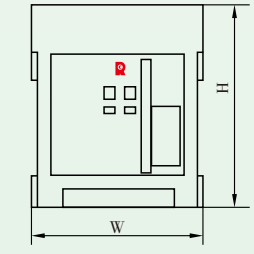


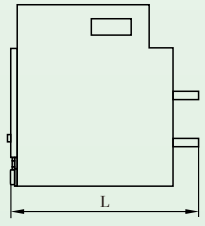
- "SEPERATED" position:The main circuit and auxiliary circuit are all "OFF",safety seperator is closed.



主要技术指标 MAIN TECHNICAL PARAMETERS

型号 Type				CW1G–2000	CW1G–3200	CW1G–4000	CW1G–5000
约定发热电流Ith (A) Conventional thermal current Ith(A)				2000	3200	4000	5000
额定工作电流Ie(A) Rated operational current Ie (A)				630、800、1000、1250、1600、2000	2000、2500、2900、3200	3600、4000	4000、5000
额定工作电压Ue(V) Rated operational voltage Ue(V)				AC400，690 50Hz/60Hz			
额定绝缘电压Ui(V) Rated insulation voltage Ui (V)				1000			
额定冲击耐受电压 Uimp (V) Rated impulse withstand voltage Uimp (V)				12000			
极数 Poles				3、4			3
N极额定工作电流 Rated operational current of N–pole				100%Ie			
额定短路接通能力Icm(kA)(峰值) Rated short–circuit making capacity Icm (kA) (peak)	AC400V			84	105	143	143
	AC690V			84	105	143	143
额定短时耐受电流(1s)Icw(kA)(有效值) Rated short–time withstand current Icw (kA) (effective value)	AC400V			40	50	65	65
	AC690V			40	50	65	65
具有外部保护继电器，最大延时0.4s极限分断能力(kA)(AC400V) Limited breaking capacity at max. delay time 0.4s (with exterior protect relay) (kA) (AC400V)				50	65	–	–
电气寿命*（次times） Electrical durability	AC400V			Ie=630A～1000A：15000 Ie=1250A～1600A：10000 Ie=2000A：8000	Ie=2000A～2500A：6000 Ie=2900A～3200A：5000	Ie=3600A：4000 Ie=4000A：3000	Ie=4000A：3000 Ie=5000A：2000
	AC690V			Ie=630A～1000A：10000 Ie=1250A～1600A：6500 Ie=2000A：5000	Ie=2000A～2500A：3000 Ie=2900A～3200A：2500	Ie=3600A：2500 Ie=4000A：1500	Ie=4000A：1500 Ie=5000A：1000
机械寿命*（次times） Mechanical durability	免维护 Non–maintenance			15000	10000	10000(三)/5000(四)	4000
	有维护 Maintenance			30000	20000	20000(三)10000(四)	8000
安装 Installation	联接方式 Connection pattern			水平 Horizontal 垂直 Vertical	水平 Horizontal	水平 Horizontal	水平 Horizontal
	型式 Pattern	抽屉式 Draw–out		○ ○	○	○	○
		固定式 Fixed		○ ○	○	○	○
	外形尺寸(mm) H×W×L Outline dimensions (mm)			H W L	H W L	H W L	H W L
	抽屉式 Draw–out	水平联接 Horizontal	3P	后置 Back set	438 375 451	438 429 492	438 544 492	438 799 492
			4P	后置 Back set	438 470 451	438 544 492	438 799 492	
		垂直联接 Vertical	3P	前置 Front set	438 375 425			
				后置 Back set	438 375 446			
			4P	前置 Front set	438 470 425			
				后置 Back set	438 470 446			
	固定式 Fixed	水平联接 Horizontal	3P	后置 Back set	395 362 351	395 414 371	395 527 424	395 782 424
			4P	后置 Back set	395 457 351	395 527 371	395 782 424	
		垂直联接 Vertical	3P	前置 Front set	395 362 325			
				后置 Back set	395 362 375			
			4P	前置 Front set	395 457 325			
				后置 Back set	395 457 375			





*注：免维护寿命指电器在修理或更换部件前能完成的操作循环次数的期望值。

*Note：Non–maintenance durability expresses the expectancy of the number of operating cycles which can be performed by the equipment before repair or replacement parts.

功耗及降容系数 POWER CONSUMPTION AND REDUCING CAPACITY LOWER COEFFICIENT

● 功耗（环境温度+40℃）
Power consumption (Ambient temp.+40)

型 号 Type	三极/四极功 耗（W） Three poles/four poles power loss	
	固定式 Fixed Type	抽屉式 Draw-out Type
CW1G-2000	393	455
CW1G-3200	695	879
CW1G-4000	1075	1258
CW1G-5000	849	1222

功耗是在隔离开关通以约定发热电流Ith情况下测量的总的损耗。
Power loss is the overall consunption measured with the switch-disconnector which is electrified with current Ith.

● 降容系数 Reducing Capacity Coefficient

下表表示隔离开关在所处周围工作环境温度且满足GB/T14048.3中约定发热条件下持续承载电流的能力。

The following table shows continual current-loading capacity of switch-disconnector at different ambient environment temperature and under the conditions of the satisfaction of conventional heating in GB/T14048.3

型 号 Type	额定工作电流(A) Rated operational current	周围环境温度(℃) Ambient environment temperature						
		+40	+45	+50	+55	+60	+65	+70
CW1G-2000	630	1	1	1	1	1	1	1
	800	1	1	1	1	1	1	1
	1000	1	1	1	1	1	1	1
	1250	1	1	1	1	1	1	1
	1600	1	1	1	1	1	1	0.94
	2000	1	1	1	1	1	0.94	0.89
CW1G-3200	2000	1	1	1	1	1	0.98	0.92
	2500	1	1	1	0.98	0.93	0.88	0.83
	2900	1	1	1	0.99	0.94	0.89	0.84
	3200	1	1	1	0.97	0.93	0.88	0.83
CW1G-4000	3600	1	1	1	0.99	0.94	0.89	0.84
	4000	1	1	0.95	0.91	0.86	0.82	0.77
CW1G-5000	4000	1	1	1	1	1	0.96	0.90
	5000	1	1	1	0.99	0.95	0.90	0.84

注:
1、表中参数仅作为一般选型指导，鉴于开关柜形式和使用条件的多样性，实际应用中不同的解决方案必须进行试验验证。
2、表中参数是基于推荐接线铜排规格参考表，隔离开关主回路接线端子温度为120℃。

1、Parameter listed in the table is only for ordinary select guide, since switchgears have various forms and use condition, different soulutions in real applications must be tested before.
2、Parameter listed in table is based on the recommended wiring copper bus bar, and wiring terminal temperature of switch-disconnector's main circuit is 120℃.

高海拔降容 CAPACITY-REDUCING FOR HIGH-ELEVATION

海拔超过适用工作环境的2000m，隔离开关电气性能可参照下表修正：

If elevation exceeds work environment 2000m, electric property of switch-disconnector can correct according to following table:

海拔(m) Altitude		2000	3000	4000	4500	5000
工频耐压(V) Power freq-uency withstand voltage		3500	3500	3000	2500	2200
最大额定工作电压(V) MAX rated operational voltage		690	690	690	690	560
工作电流修正系数 Correction factor of operational current	Inm=2000A	1	1	1	1	0.97
	Inm=3200A	1	0.93	0.88	0.85	0.82
	Inm=4000A	1	0.93	0.88	0.85	0.82
	Inm=5000A	1	0.98	0.93	0.9	0.87

主回路接线铜排规格参考表 REFENCE TABLE OF MAIN CIRCUIT WIRING COPPER BAR

型号 type	额定工作电流(A) rated operational current	铜排规格 Specifications of copper bars	
		根数 Number	尺寸（mm × mm） Size
CW1G-2000	630	2	50 × 5
	800	2	60 × 5
	1000	2	60 × 5
	1250	3	60 × 5
	1600	2	60 × 10
	2000	3	60 × 10
CW1G-3200	2000	3	100 × 5
	2500	4	100 × 5
	2900	3	100 × 10
	3200	4	100 × 10
CW1G-4000	3600	4	100 × 10
	4000	4	120 × 10
CW1G-5000	4000	4	120 × 10
	5000	6	100 × 10

表中规格为隔离开关处于周围环境温度最高40℃，敞开安装且满足GB/T14048.3中约定发热条件。

The specifications of copper bars in the above table are introduced under which the switch-disconnector by open installation are at maximum ambient environment temperature of 40℃ and satisfy conventional heating in GB/T14048.3.

主回路端子至外接铜排支架最大允许距离参考表
MAX DISTANCE REFERENCE TABLE OF TERMINALS TO EXTERNAL COPPER BAR HOLDER

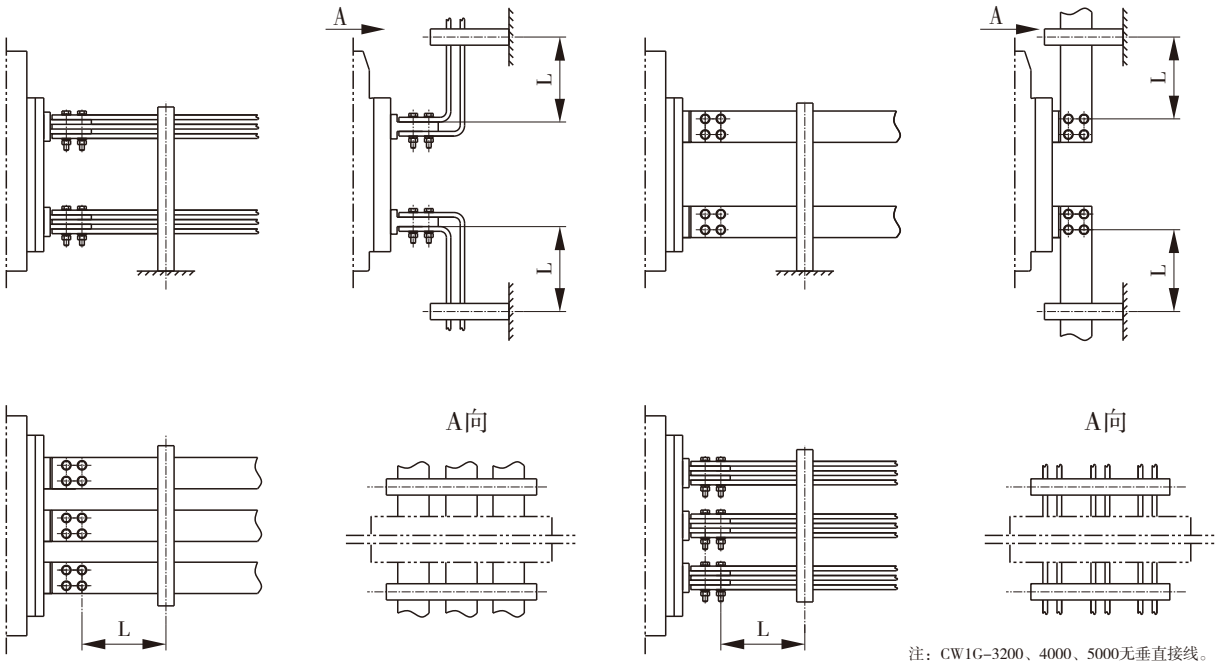
主电路端子至母线支架的最大允许距离 Max. Distance Of Main Circuit Terminals To Copper Bar Holder				
短路电流（kA Short Circuit Current		42	55	65
L（mm）	CW1G–2000	300	200	150
	CW1G–3200 CW1G–4000	350	250	150
	CW1G–5000	350	300	250

● CW1G–2000 ~ 5000

水平接线
Horizontally Wire

垂直接线
Vertically Wire

情形1　情形2　情形1　情形2



注：CW1G–3200、4000、5000无垂直接线。
Note：no vertically wire for CW1G–3200、4000、5000.

分励脱扣器
Shunt Release

- 可远距离操纵使隔离开关断开
- 特性
- It is available for operating remotely to break away.
- Features

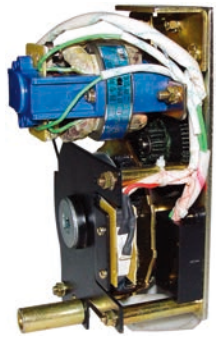
型号 Type	FFT/W120
配用隔离开关 Fitting switch-disconnector	CW1G-2000/3200/4000/5000
额定控制电源电压Us(V) Rated voltage of control power supply 瞬时电流(A) Instantaneous current	AC400 | AC230 | DC220 | DC110 0.7 | 1.3 | 1.3 | 2.4
动作电压(V) Operating voltage	（0.7~1.1）Us
分闸时间(ms) Opening time	不大于40 No more than 40

合闸电磁铁
Closing Electromagnet

- 贮能结束后，合闸电磁铁能使操作机构的贮能弹簧力瞬间释放，使隔离开关快速闭合。
- After the motor ended its energy stored, the closing electromagnet would make the charging spring to release its energy instantaneously, then to close the switch-disconnector quickly.
- 特性 Features

型号 Type	FHD/W120
配用隔离开关 Fitting switch-disconnector	CW1G-2000/3200/4000/5000
额定控制电源电压Us(V) Rated voltage of control power supply 瞬时电流(A) Instantaneous current	AC400 | AC230 | DC220 | DC110 0.7 | 1.3 | 1.3 | 2.4
动作电压(V) Operating voltage	（0.85~1.1）Us
合闸时间(ms) Closing time	不大于70 No more than 70

电动操作机构
Motor-driven energy -storage systerm



- 具有电动机贮能及自动再贮能功能;
- 也可手动贮能。
- The motor-driven energy-storage systerm has the fuctions of motor-driven to store energy and to restore energy automatively.
- The energy-storage of the device could be also done with manual.

- 特性 Features

型号 Type	FDC/W120	FDC/W132	FDC/W140	FDC/W150
配用隔离开关 Fitting switch-disconnector	CW1G-2000 三极/四极 Three poles/ four poles	CW1G-3200 三极 three poles	CW1G-3200 四极 four poles CW1G-4000 三极 three poles	CW1G-4000 四极 four poles CW1G-5000 三极 three poles
额定控制电源电压Us(V) Rated voltage of control power supply	AC400/AC230/DC220/DC110			
动作电压(V) Operating voltage	（0.85~1.1）Us			
功耗(VA/W) Power consumption	192			
储能时间(s) Charging time	不大于5 No more than 5			

辅助开关
Auxiliary switch

- 额定值
- Rated value

型号 Type	FFC/W1204Z	FFC/W12044	FFC/W12062	FFC/W12026	FFC/W12033
型式 Specification	4组转换触头 4 groups of changeover contacts	4常开4常闭 4 pieces of normally-opened contacts(NO) and 4 pieces of normally-closed contacts(NC)	6常开2常闭 6 pieces of normally-opened contacts(NO) and 2 pieces of normally-closed contacts(NC)	2常开6常闭 2 pieces of normally-opened contacts(NO) and 6 pieces of normally-closed contacts(NC)	3常开3常闭 3 pieces of normally-opened contacts(NO) and 3 pieces of normally-closed contacts(NC)
配用隔离开关 Fitting switch-disconnector	CW1G-2000/3200/4000/5000				
额定工作电压 (V) Rated operational voltage / 额定控制容量 (VA/W) Rated capacity	AC400: 300 / AC230: 300 / DC220: 60 / DC110: 60				
约定发热电流Ith (A) Conventional thermal current	6				

注：辅助开关标准型式为4组转换触头，特殊型式为4常开4常闭、6常开2常闭、2常开6常闭、3常开3常闭。
Note: For the normal type of auxiliary switch, there are four pairs of change-over contacts. For the special type of auxiliary contacts, they are of 4NO(normal open) 4NC(normal close), 6NO2NC, 2NO6NC and 3NO3NC.

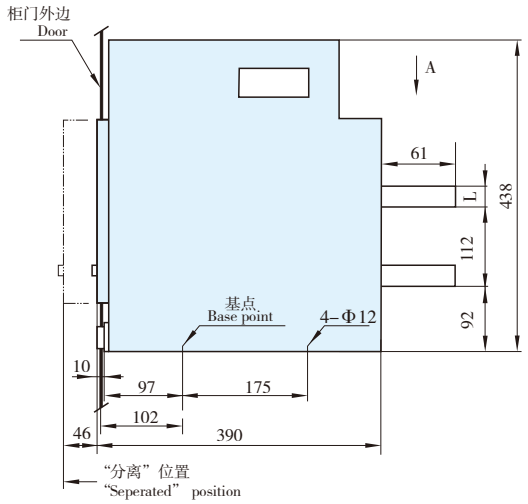
- “分闸”锁定装置
- “BREAKOFF” locked device

- “分闸”锁定装置可将隔离开关（抽屉式或固定式）的断开按钮锁定在分闸位置上，此时，开关不能进行闭合操作。
- The “BREAKOFF” locked device could lock the “OFF” button of the switch-disconnector (draw-out or fixed type) on the opening position,making the switch not to be closed.

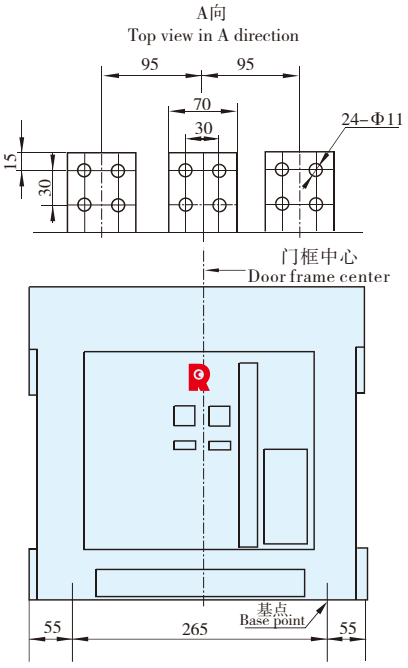
- 抽屉式隔离开关“分离”位置安全挂锁装置
- “DISCONNECT” position locked with padlock for draw-out switch-disconnector

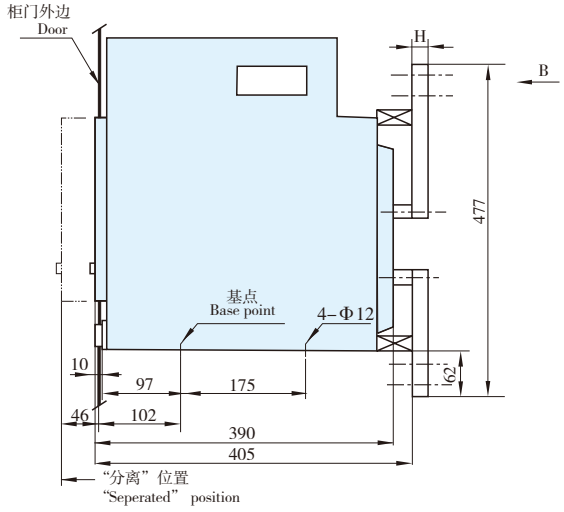
- 抽屉式隔离开关处于“分离”位置时，可拔出锁杆用挂锁来锁定，锁定后开关本体无法摇至“试验”或“连接”位置；
- 挂锁用户自备，锁杆直径φ4mm-φ8mm。
- When the draw-out switch-disconnector is on “DISCONNECT” position, the lock rod of the switch-disconnector could be pulled out and locked with a pad lock, after locking action the main body of the switch-disconnector wouldn’t be driven into “TEST” or “CONNECT” position.
- The padlock would be prepared by users, and its rod diameter should be in between φ4mm to φ8mm.

电流规格 Current spec	L(mm)	H(mm)	A(mm)
2000A	20	20	30
800 ~ 1600A	15	15	25
630A	10	15	25

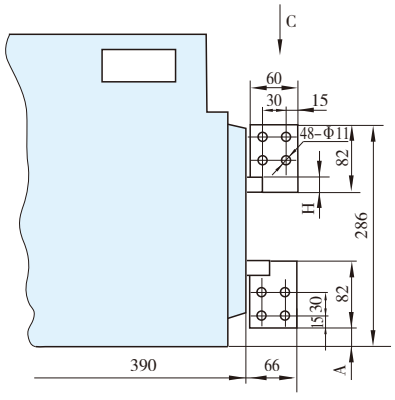


水平（后置）
Horizontally (back set)

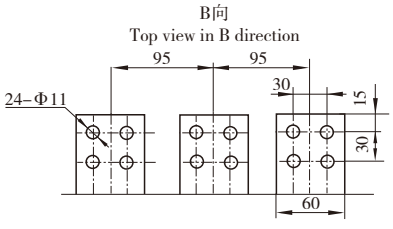


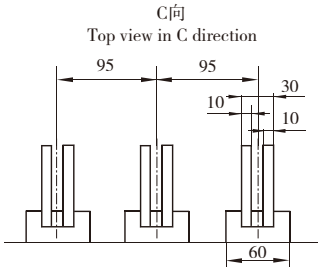


垂直（前置）
Vertically (front set)



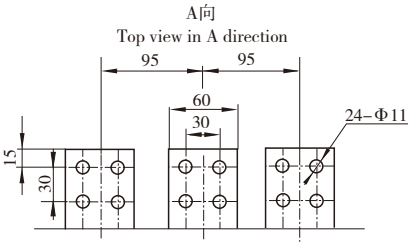
垂直（后置）
Vertically (back set)

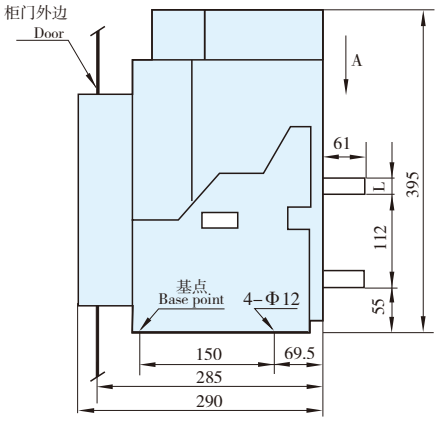




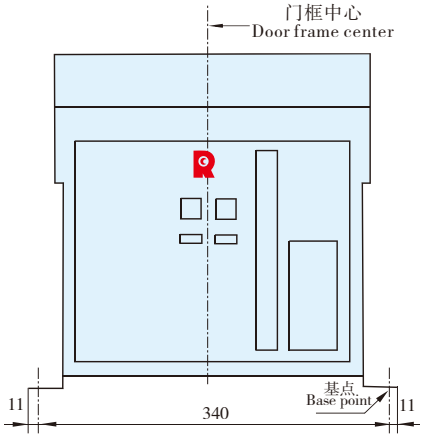
CW1G–2000三极隔离开关(抽屉式)
CW1G–2000 switch–disconnector, 3–poles (draw–out)

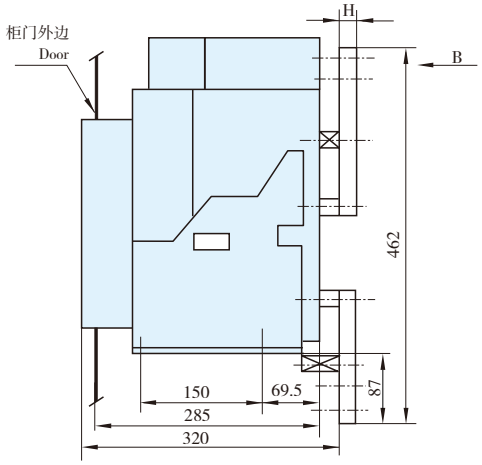
电流规格 Current spec	L(mm)	H(mm)	A(mm)	W(mm)	B(mm)
2000A	20	20	269	20	13
800 ~ 1600A	15	15	264	15	3
630A	10	15	264	15	3



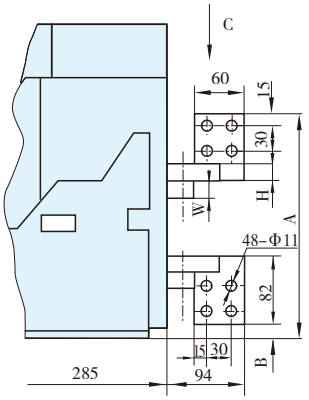


水平（后置）
Horizontally (back set)

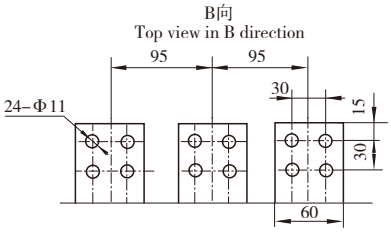


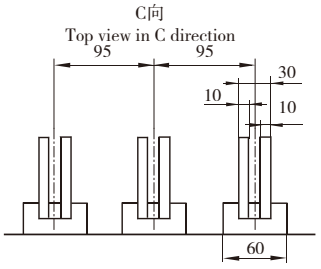


垂直（前置）
Vertically (front set)



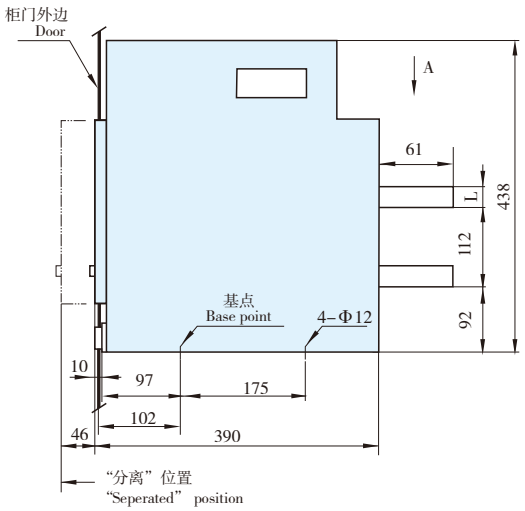
垂直（后置）
Vertically (back set)



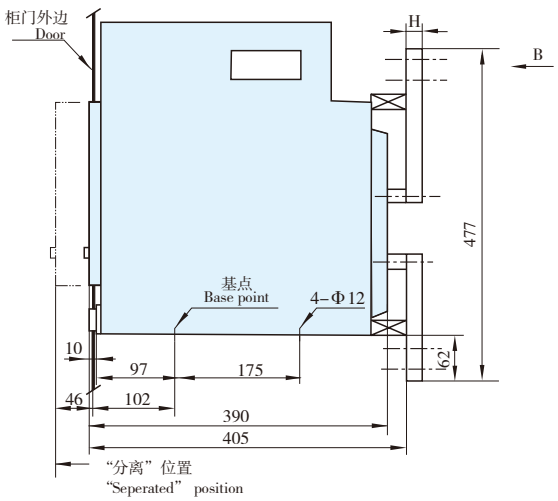


CW1G–2000三极隔离开关(固定式)
CW1G–2000 switch–disconnector, 3–poles (fixed)

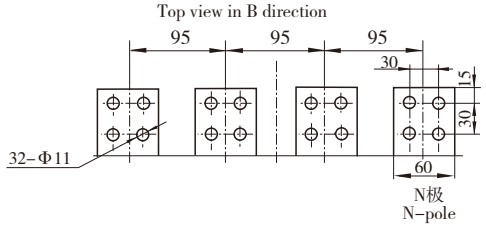
电流规格 Current spec	L(mm)	H(mm)	A(mm)
2000A	20	20	30
800 ~ 1600A	15	15	25
630A	10	15	25

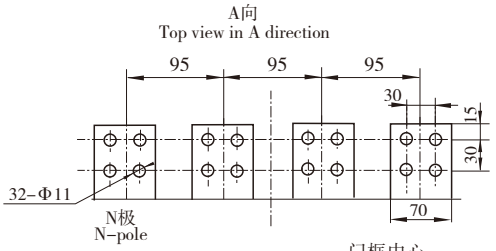


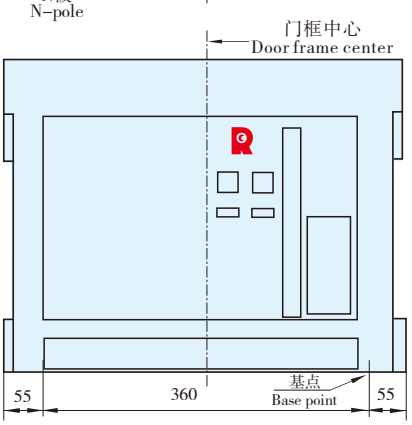
水平（后置）
Horizontally (back set)

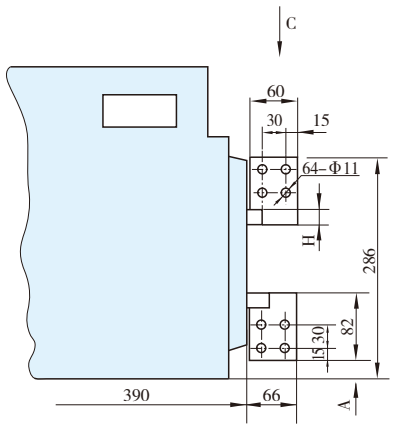


垂直（前置）
Vertically (front set)

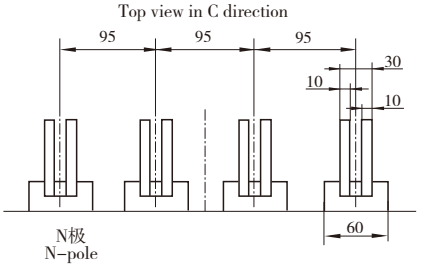






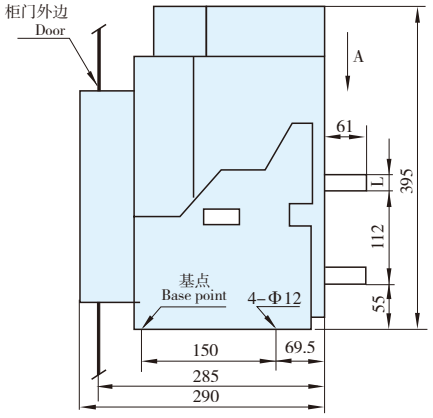


垂直（后置）
Vertically (back set)

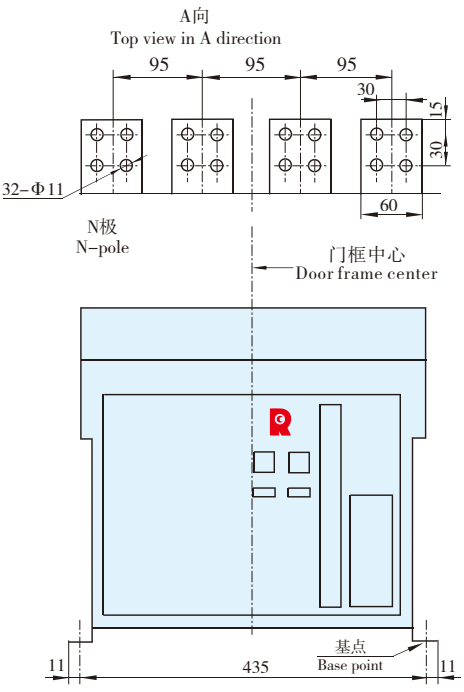


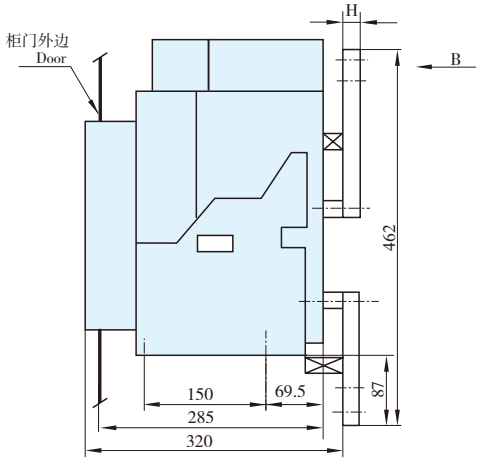
CW1G–2000四极隔离开关(抽屉式)
CW1G–2000 switch–disconnector, 4–poles (draw–out)

电流规格 Current spec	L(mm)	H(mm)	A(mm)	W(mm)	B(mm)
2000A	20	20	269	20	13
800 ~ 1600A	15	15	264	15	3
630A	10	15	264	15	3

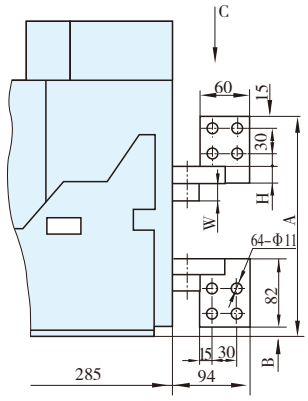


水平（后置）
Horizontally (back set)

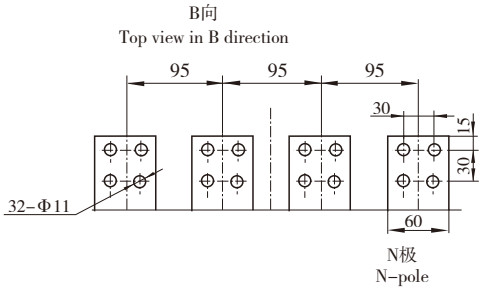


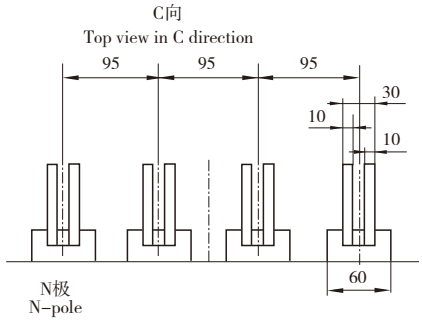


垂直（前置）
Vertically (front set)

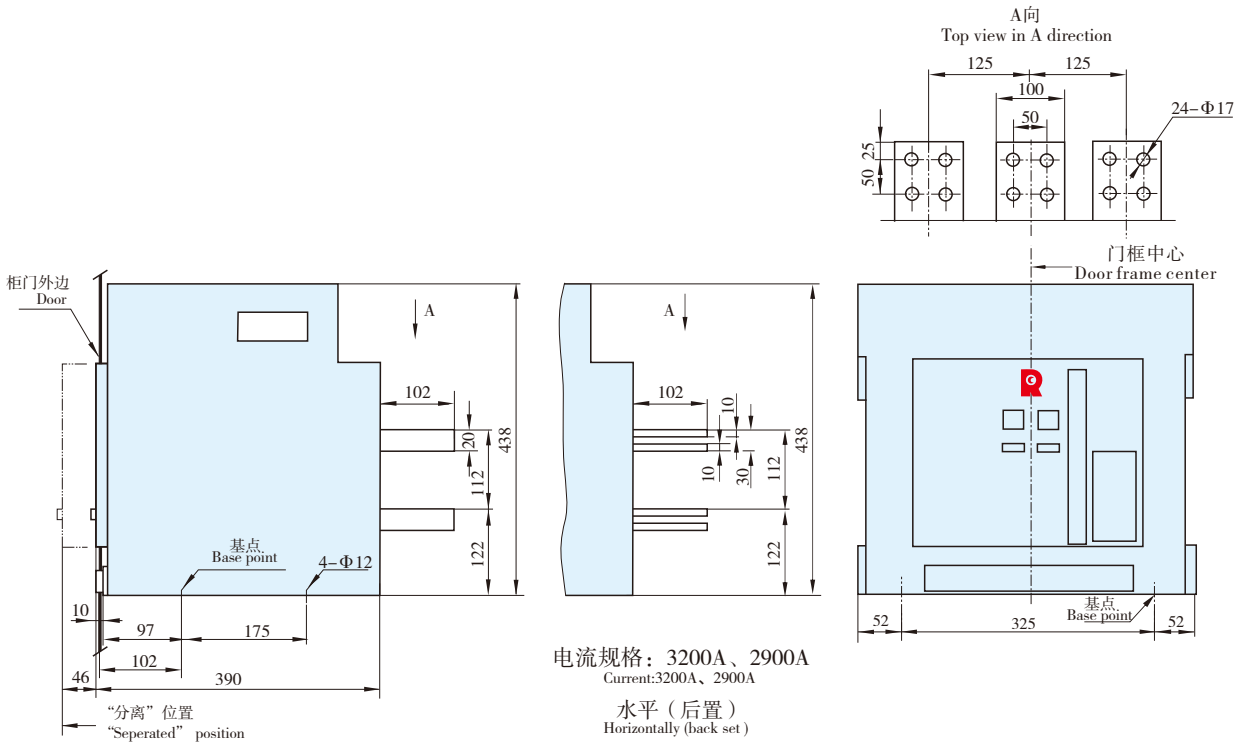


垂直（后置）
Vertically (back set)





CW1G-2000四极隔离开关(固定式)
CW1G-2000 switch-disconnector, 4-poles (fixed)



电流规格：2500A、2000A
Current:2500A、2000A

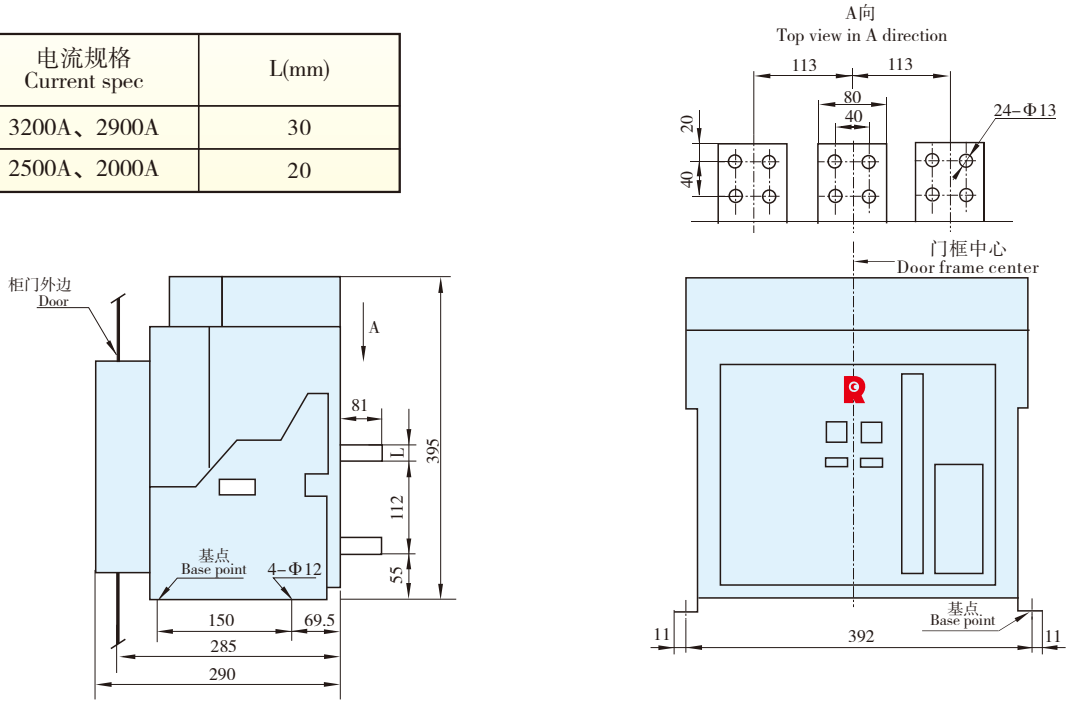
水平（后置）
Horizontally (back set)

电流规格：3200A、2900A
Current:3200A、2900A

水平（后置）
Horizontally (back set)

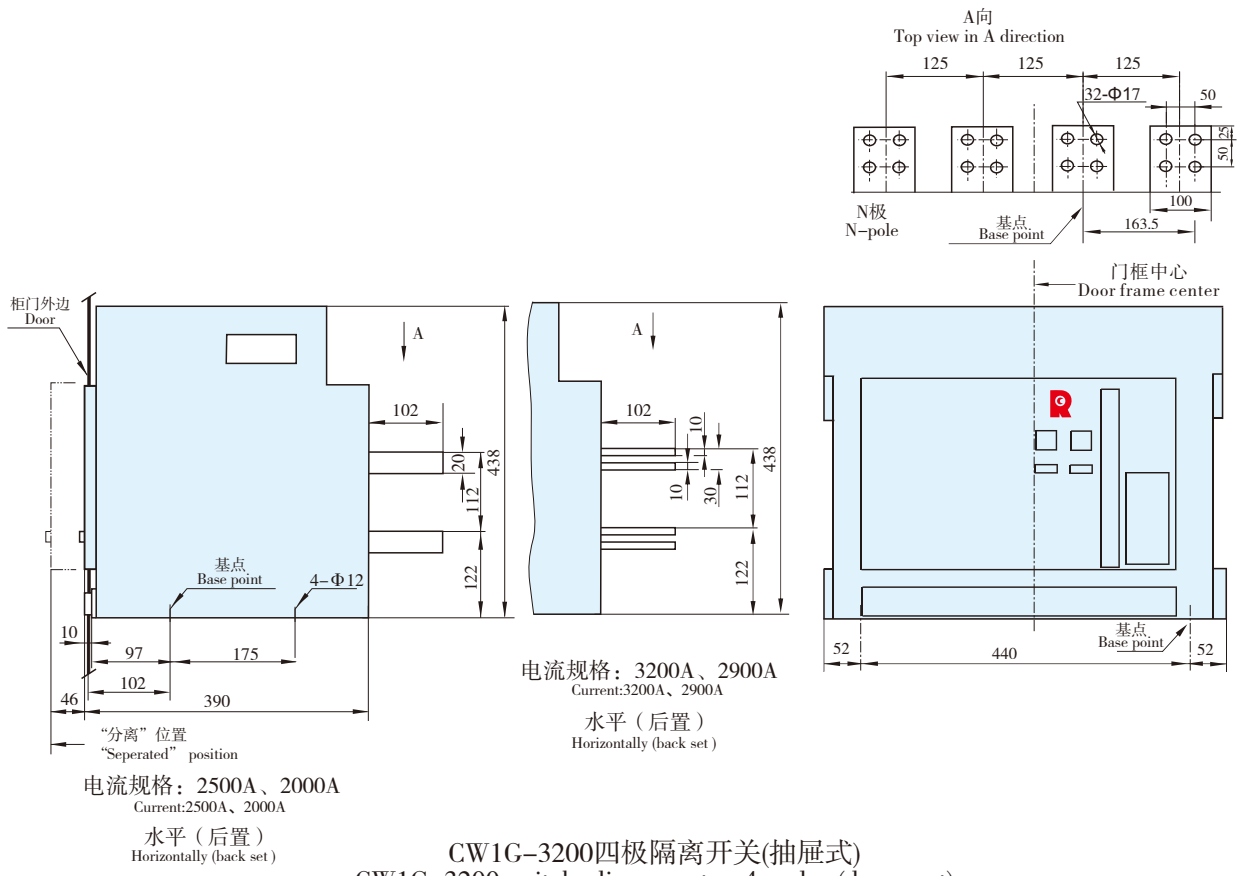
CW1G-3200三极隔离开关(抽屉式)
CW1G-3200 switch-disconnector, 3-poles (draw-out)

电流规格 Current spec	L(mm)
3200A、2900A	30
2500A、2000A	20



水平（后置）
Horizontally (back set)

CW1G-3200三极隔离开关(固定式)
CW1G-3200 switch-disconnector, 3-poles (fixed)



电流规格：2500A、2000A
Current:2500A、2000A

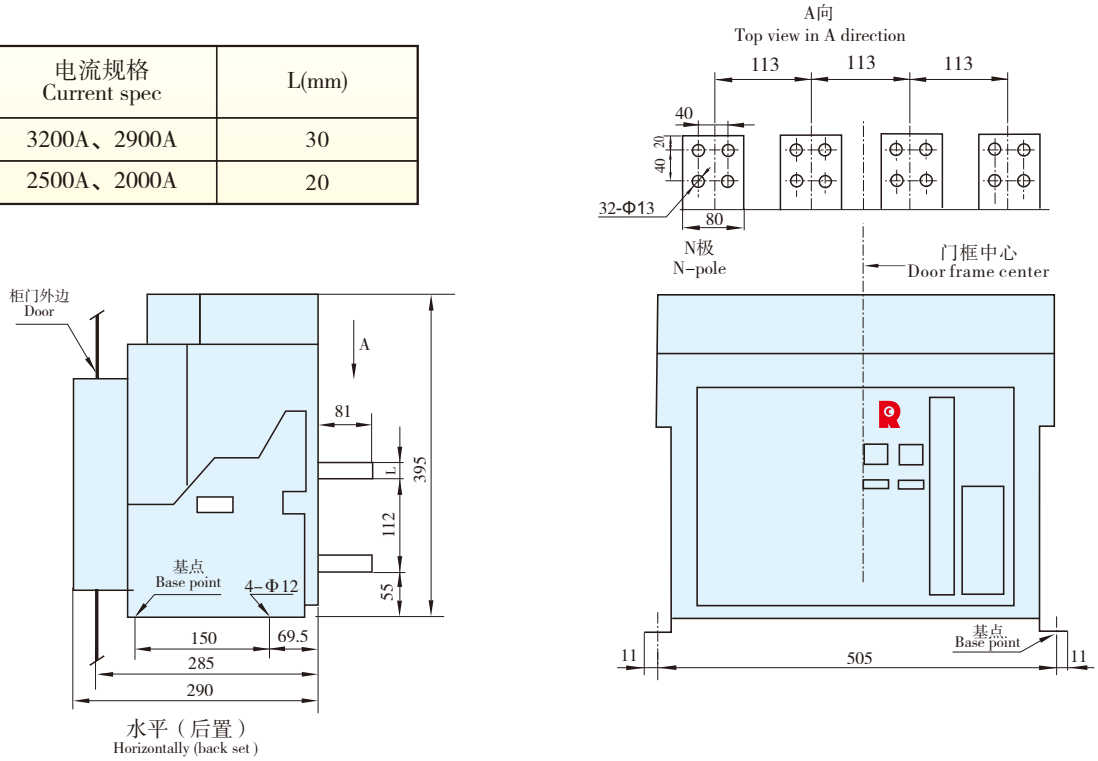
水平（后置）
Horizontally (back set)

电流规格：3200A、2900A
Current:3200A、2900A

水平（后置）
Horizontally (back set)

CW1G-3200四极隔离开关(抽屉式)
CW1G-3200 switch-disconnector, 4-poles (draw-out)

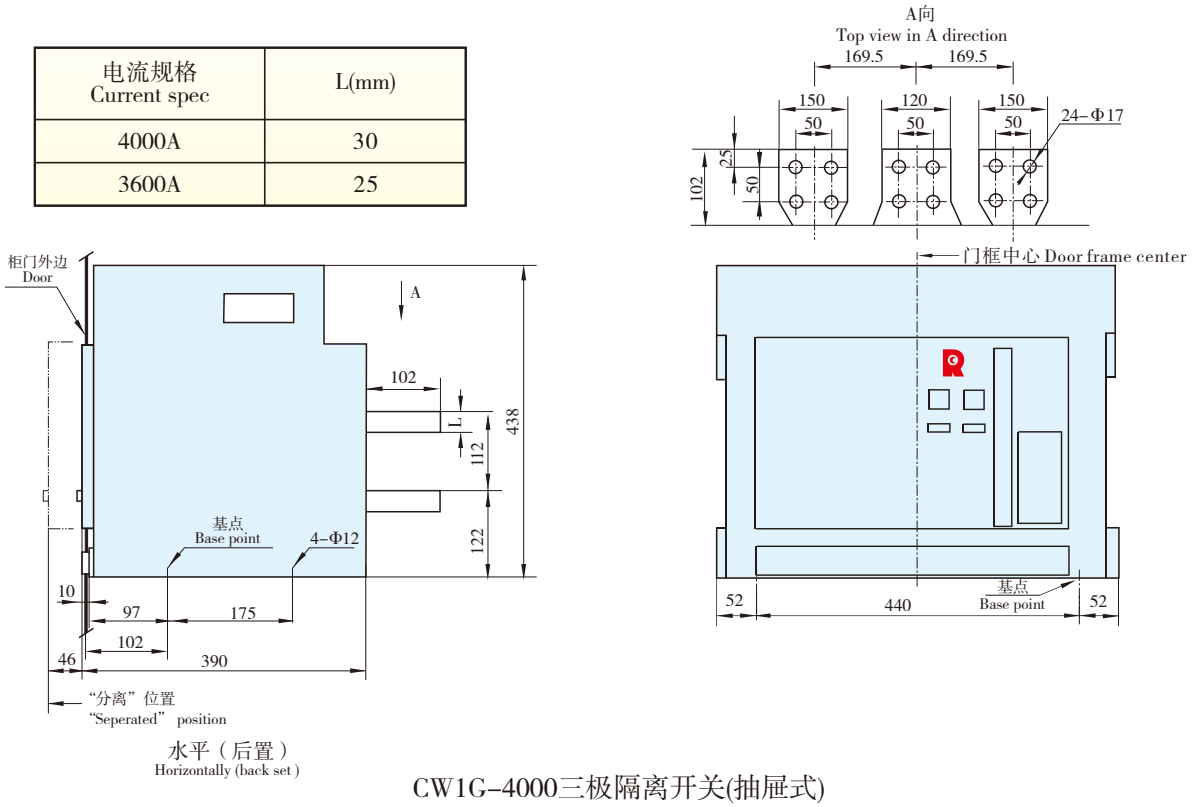
电流规格 Current spec	L(mm)
3200A、2900A	30
2500A、2000A	20



水平（后置）
Horizontally (back set)

CW1G-3200四极隔离开关(固定式)
CW1G-3200 switch-disconnector, 4-poles (fixed)

电流规格 Current spec	L(mm)
4000A	30
3600A	25

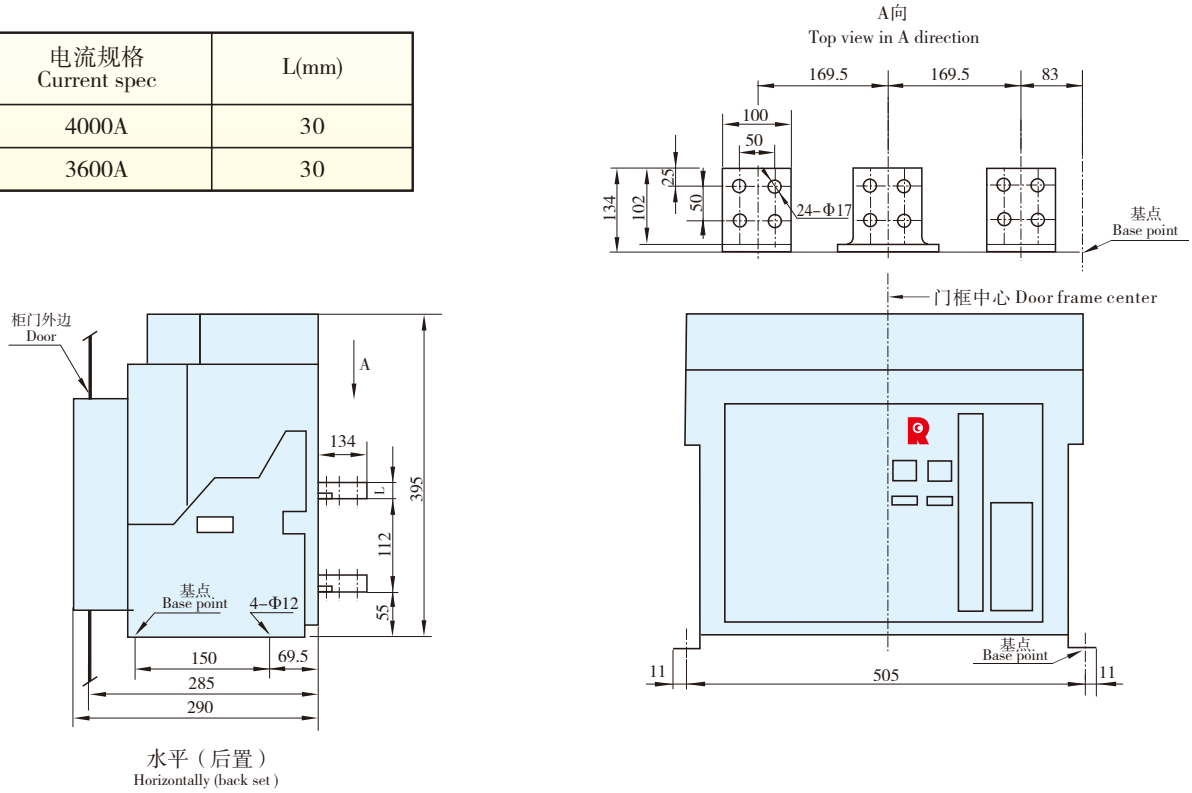


水平（后置）
Horizontally (back set)

CW1G–4000三极隔离开关(抽屉式)

CW1G–4000 switch–disconnector, 3–poles (draw–out)

电流规格 Current spec	L(mm)
4000A	30
3600A	30

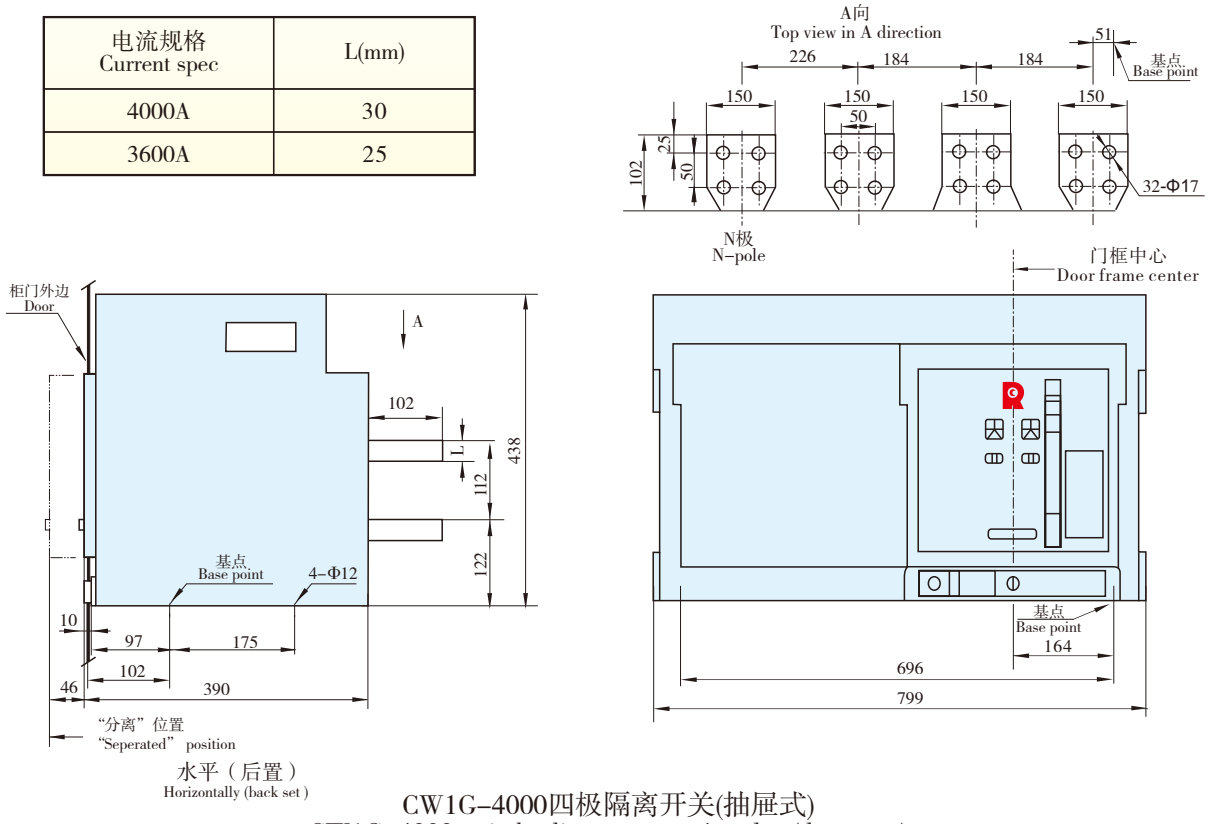


水平（后置）
Horizontally (back set)

CW1G–4000三极隔离开关(固定式)

CW1G–4000 switch–disconnector, 3–poles (fixed)

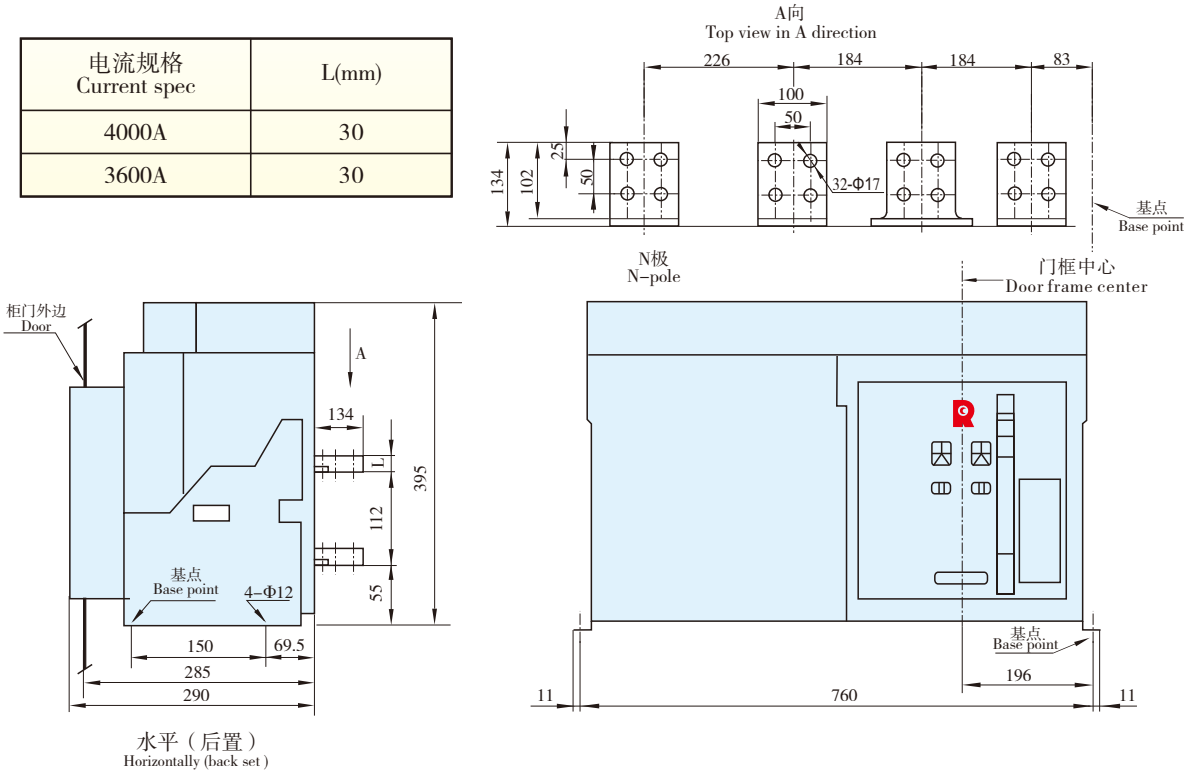
电流规格 Current spec	L(mm)
4000A	30
3600A	25



水平（后置）
Horizontally (back set)

CW1G-4000四极隔离开关(抽屉式)
CW1G-4000 switch-disconnector, 4-poles (draw-out)

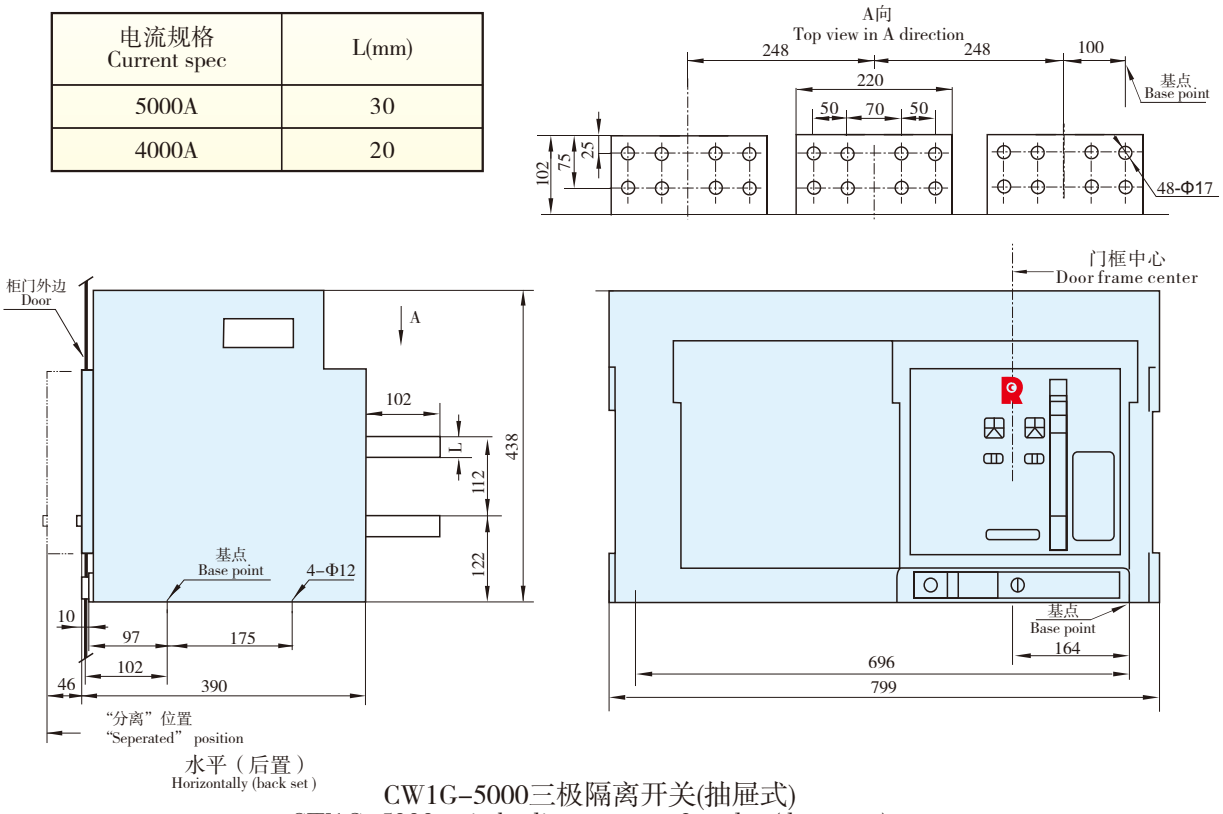
电流规格 Current spec	L(mm)
4000A	30
3600A	30



水平（后置）
Horizontally (back set)

CW1G-4000四极隔离开关(固定式)
CW1G-4000 switch-disconnector, 4-poles (fixed)

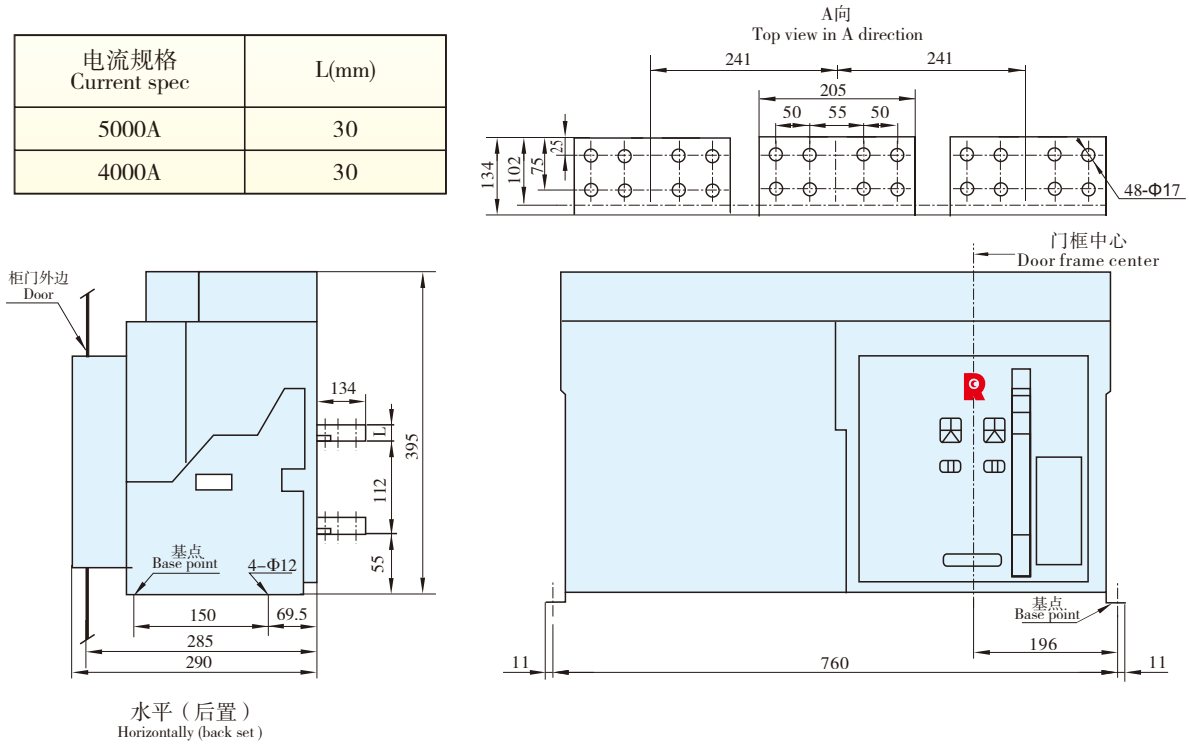
电流规格 Current spec	L(mm)
5000A	30
4000A	20



水平（后置）
Horizontally (back set)

CW1G-5000三极隔离开关(抽屉式)
CW1G-5000 switch-disconnector, 3-poles (draw-out)

电流规格 Current spec	L(mm)
5000A	30
4000A	30



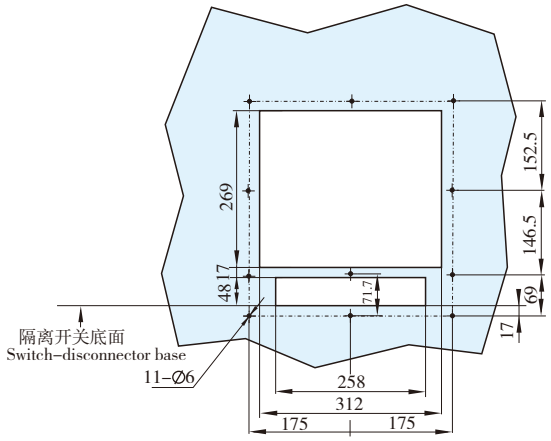
水平（后置）
Horizontally (back set)

CW1G-5000三极隔离开关(固定式)
CW1G-5000 switch-disconnector, 3-poles (fixed)

CW1G–2000三极隔离开关(抽屉式)
CW1G–2000switch–disconnector, 3–poles (draw–out)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

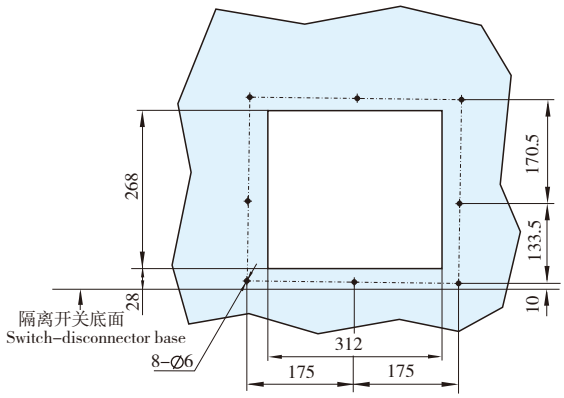
面板中心离柜门右铰链最小距离为256mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 256mm.



CW1G–2000三极隔离开关(固定式)
CW1G–2000 switch–disconnector, 3–poles (fixed)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

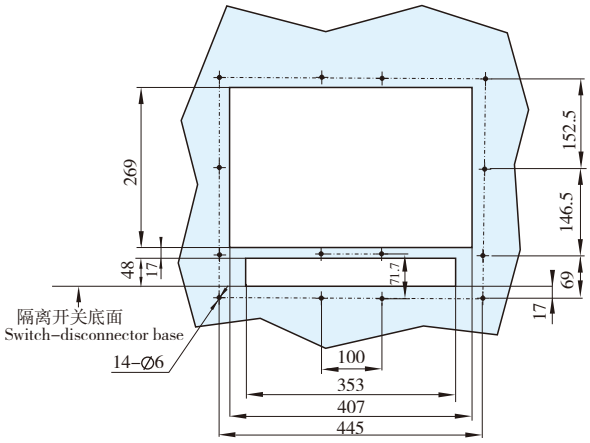
面板中心离柜门右铰链最小距离为256mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 256mm.



CW1G–2000四极隔离开关(抽屉式)
CW1G–2000switch–disconnector, 4–poles (draw–out)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

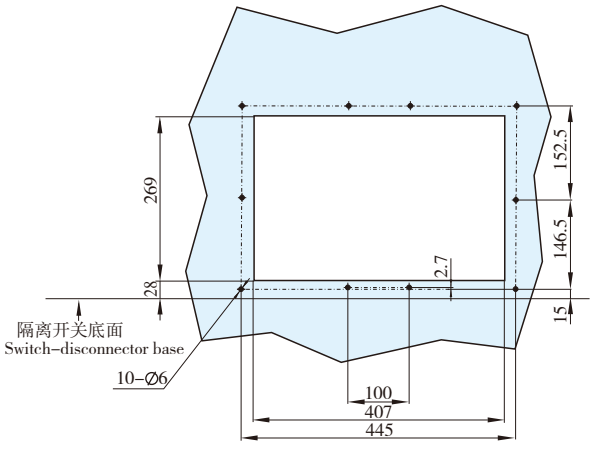
面板中心离柜门右铰链最小距离为303.5mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 303.5mm.



CW1G–2000四极隔离开关(固定式)
CW1G–2000 switch–disconnector, 4–poles (fixed)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

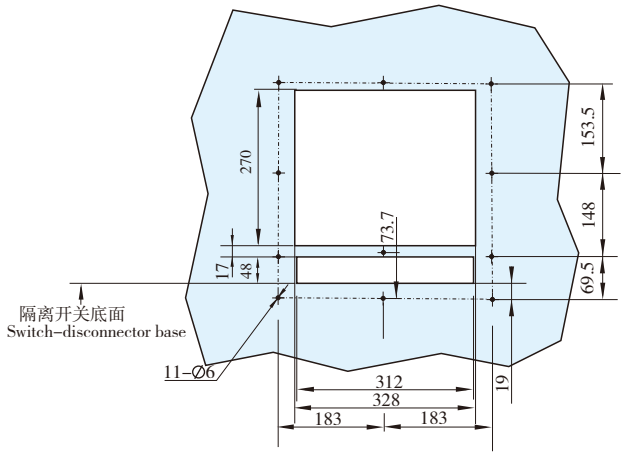
面板中心离柜门右铰链最小距离为303.5mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 303.5mm.



CW1G–3200三极隔离开关(抽屉式)
CW1G–3200switch–disconnector, 3–poles (draw–out)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

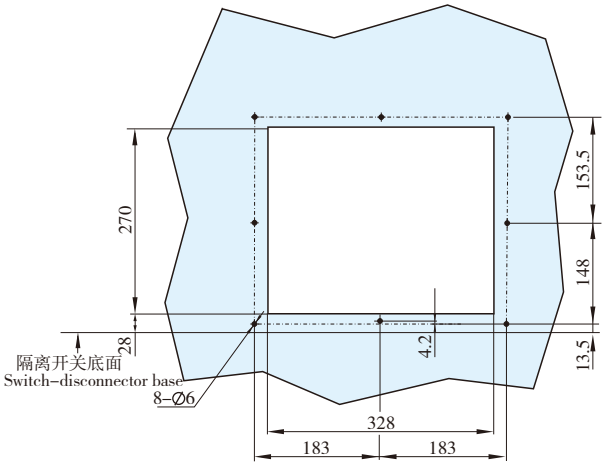
面板中心离柜门右铰链最小距离为264mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 264mm.



CW1G–3200三极隔离开关(固定式)
CW1G–3200 switch–disconnector, 3–poles (fixed)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

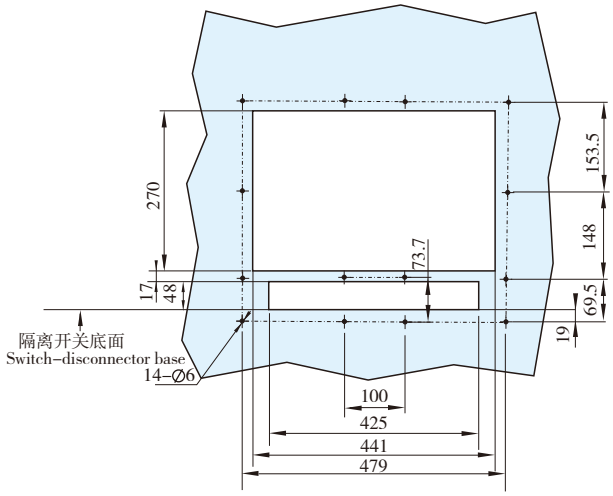
面板中心离柜门右铰链最小距离为264mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 264mm.



CW1G–3200四极隔离开关(抽屉式)
CW1G–3200switch–disconnector, 4–poles (draw–out)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

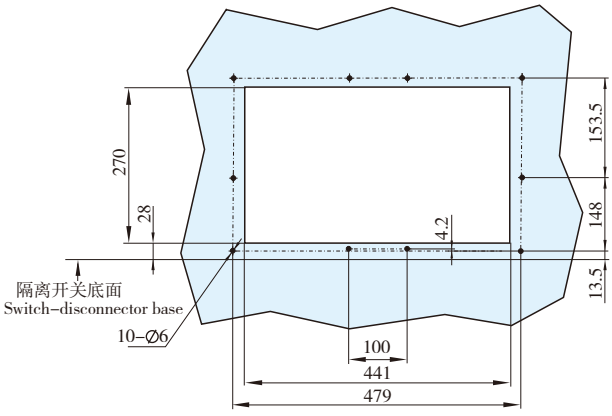
面板中心离柜门右铰链最小距离为320.5mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 320.5mm.



CW1G–3200四极隔离开关(固定式)
CW1G–3200 switch–disconnector, 4–poles (fixed)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

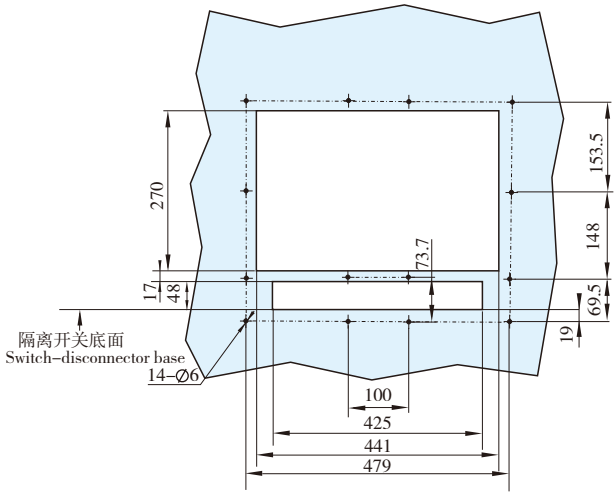
面板中心离柜门右铰链最小距离为320.5mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 320.5mm.



CW1G–4000三极隔离开关(抽屉式)
CW1G–4000switch–disconnector, 3–poles (draw–out)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

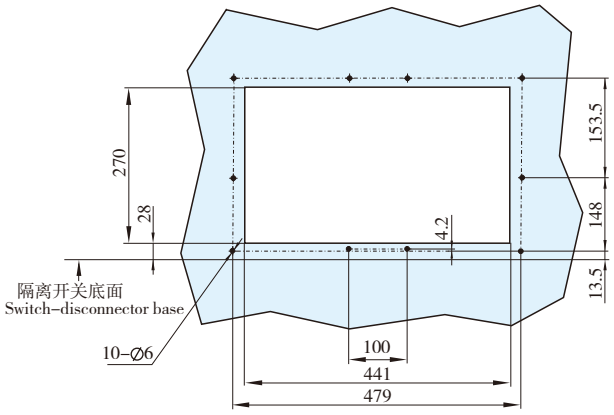
面板中心离柜门右铰链最小距离为320.5mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 320.5mm.



CW1G–4000三极隔离开关(固定式)
CW1G–4000 switch–disconnector, 3–poles (fixed)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

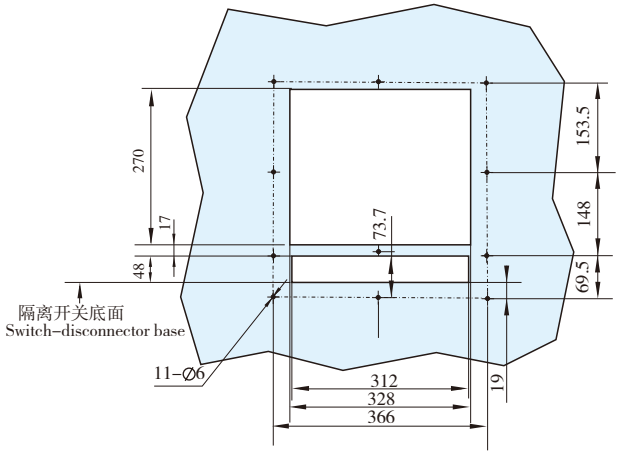
面板中心离柜门右铰链最小距离为320.5mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 320.5mm.



CW1G–4000四极隔离开关(抽屉式)
CW1G–4000switch–disconnector, 4–poles (draw–out)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

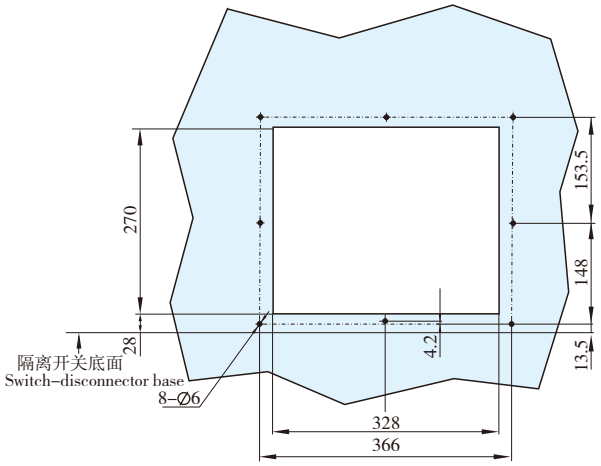
面板中心离柜门右铰链最小距离为264mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 264mm.



CW1G–4000四极隔离开关固定式)
CW1G–4000 switch–disconnector, 4–poles (fixed)

安装门框前盖开孔图
Mounting door frame front
cover holing dimensions drawing

面板中心离柜门右铰链最小距离为264mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 264mm.

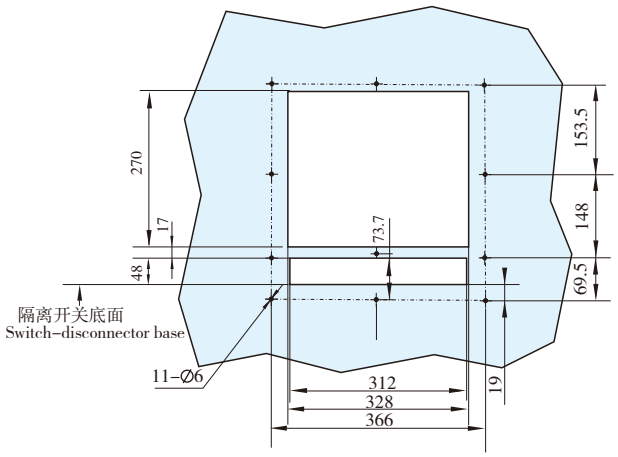


门框开孔尺寸 HOLING DIMENSION FOR MOUNTING DOOR FRAME

CW1G–5000三极隔离开关(抽屉式)
CW1G–5000switch–disconnector, 3–poles (draw–out)

安装门框前盖开孔图
Mounting door frame front cover holing dimensions drawing

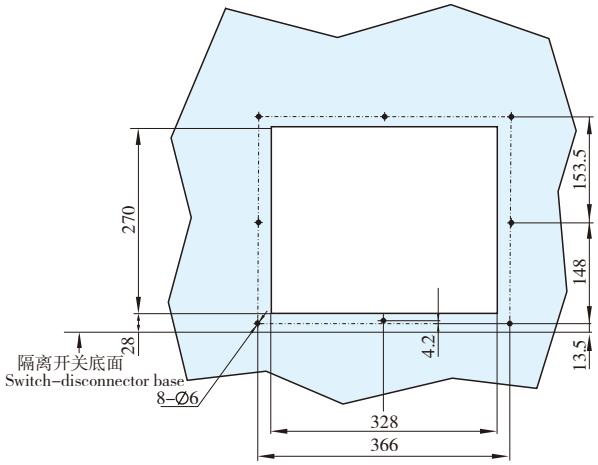
面板中心离柜门右铰链最小距离为264mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 264mm.



CW1G–5000三极隔离开关(固定式)
CW1G–5000 switch–disconnector, 3–poles (fixed)

安装门框前盖开孔图
Mounting door frame front cover holing dimensions drawing

面板中心离柜门右铰链最小距离为264mm
Distance from the panel center of the switch–disconnector to the right hinge of switchboard door should be at least 264mm.



安装使用 INSTALLATION AND APPLICATION

安装前先检查隔离开关的规格是否符合订货要求。并以DC1000V兆欧表测量隔离开关绝缘电阻，在周围介质温度20℃ ± 5℃和相对湿度50% ~ 70%应不小于20MΩ。

安装完毕，并按相应接线图连接好二次线后，对抽屉式隔离开关应抽出两侧导轨，将开关本体可靠放入导轨中，推动隔离开关本体至分离位置，将手柄插入进出装置孔内，顺时针摇动手柄至试验位置，然后进行下列操作试验：

a.检查分励脱扣器、合闸电磁铁及电动操作机构的外接辅助电源额定电压与所接电源电压是否相符，然后接通二次回路；

b.隔离开关手动及电动贮能试验：

对手动贮能需上下扳动面板上手柄直至听到“咔嗒”声，面板上显示“贮能”，即贮能结束。对电动贮能，亦听到“咔嗒”声，面板上显示“贮能”，即贮能结束。

此时按“I”按钮或使合闸电磁铁通电，均可使隔离开关可靠合闸，电动贮能机构自动再贮能。

c.隔离开关合闸后，按“O”按钮或使分励脱扣器通电，均可使隔离开关分闸。

Check the specification of switch–disconnector IN or OUT accordance with the requirements of order before installation. Measure the insulating resistance with a 1000V DC megameter, the resistance should not be less than 20MΩ when ambient temperature is 20℃ ± 5℃ and relative humidity is 50% ~ 70%.

After finished installation, and wiring the secondary circuit according with the corresponding wiring diagram, for draw–out switch–disconnector, pull out the rails in two sides, push the main body of the switch to separated position, insert the handle into the hole of device, shake it clockwise, make it to the test position and do following operation test.

a. Check shunt release、closing electromagnet and motor–driven energy–storage systerm, auxiliary power supply (external) is ON or OUT accordance with the voltage of power supply, then energize the secondary circuit.

b. The manual and motor–driven energy–storage tests of switch–disconnector.

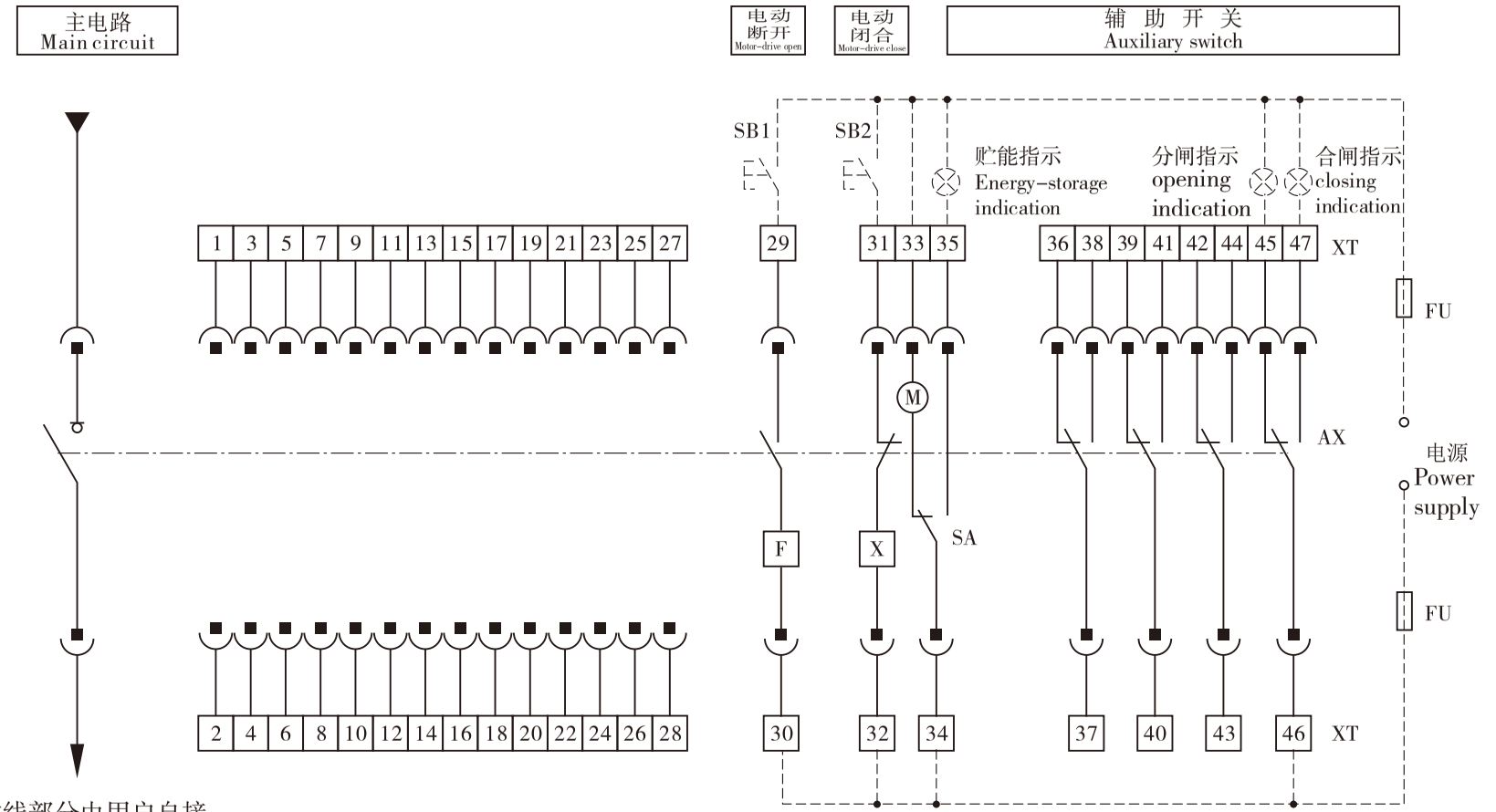
For manual energy–storage, turn the handle on face until a click comes and indicator shows “energy–storage” that it tells the energy–storage process finished.

At this time, press the button “ ” or energize the closing electromagnet, the switch–disconnector could be closed reliably. For motor–driven systerm, it would be recharged automatically.

c. As the switch–disconnector closed, you could make the switch–disconnector released by using button “O” or making shunt release switched on.

隔离开关二次回路接线图（辅助电源为交流电源）辅助开关为四组转换触头

Wiring Diagram of the secondary circuit of the switch-disconnector (auxiliary power supply is AC)



虚线部分由用户自接

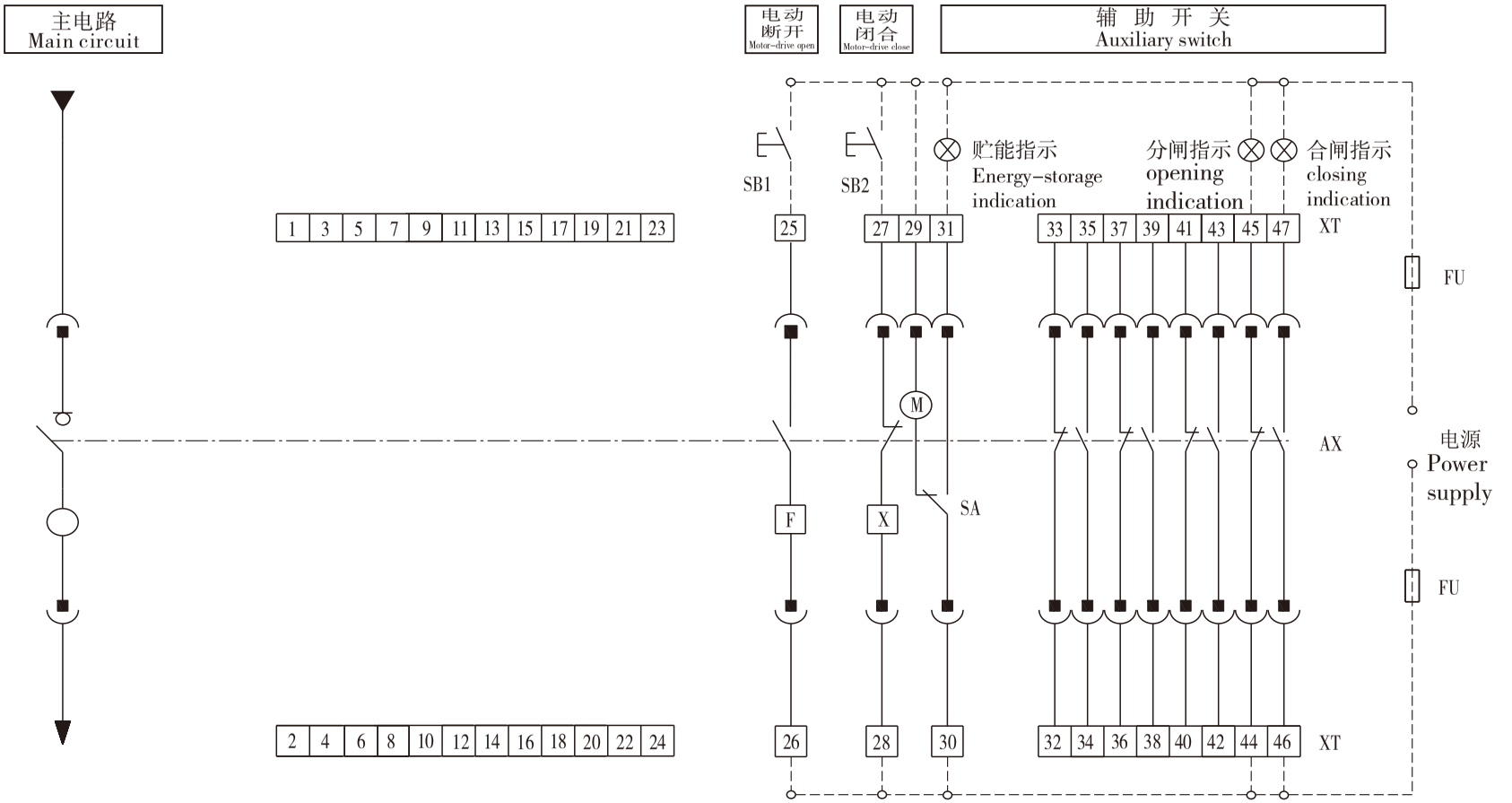
33，34可直接接电源（自动预贮能）也可串接常开按钮后接电源（手动预贮能）电源 若F，X，M的控制电源电压不同时可分别接不同电源

Wiring for the dashed lines should be completed by users themselves. 33,34 to power supply directly (auto energy prestore) or to power supply with a normal open button simultaneously (manual energy pre-store) power supply-different power supply for different rated voltage of processing unit F,X and M.

AX	断路器辅助开关	Auxiliary switch
SB1	分励按钮	Shunt button
SB2	合闸按钮	Closing button
Q	欠电压脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
Fu	熔断器	Fuse

隔离开关二次回路接线图（辅助电源为交流电源）辅助开关为四常开四常闭

Wiring Diagram of the secondary circuit of the switch-disconnector (auxiliary power supply is AC)



虚线部分由用户自接

33，34可直接接电源（自动预贮能）也可串接常开按钮后接电源（手动预贮能）电源 若F，X，M的控制电源电压不同时可分别接不同电源

Wiring for the dashed lines should be completed by users themselves. 33,34 to power supply directly (auto energy prestore) or to power supply with a normal open button simultaneously (manual energy pre-store) power supply-different power supply for different rated voltage of processing unit F,X and M.

AX	断路器辅助开关	Auxiliary switch
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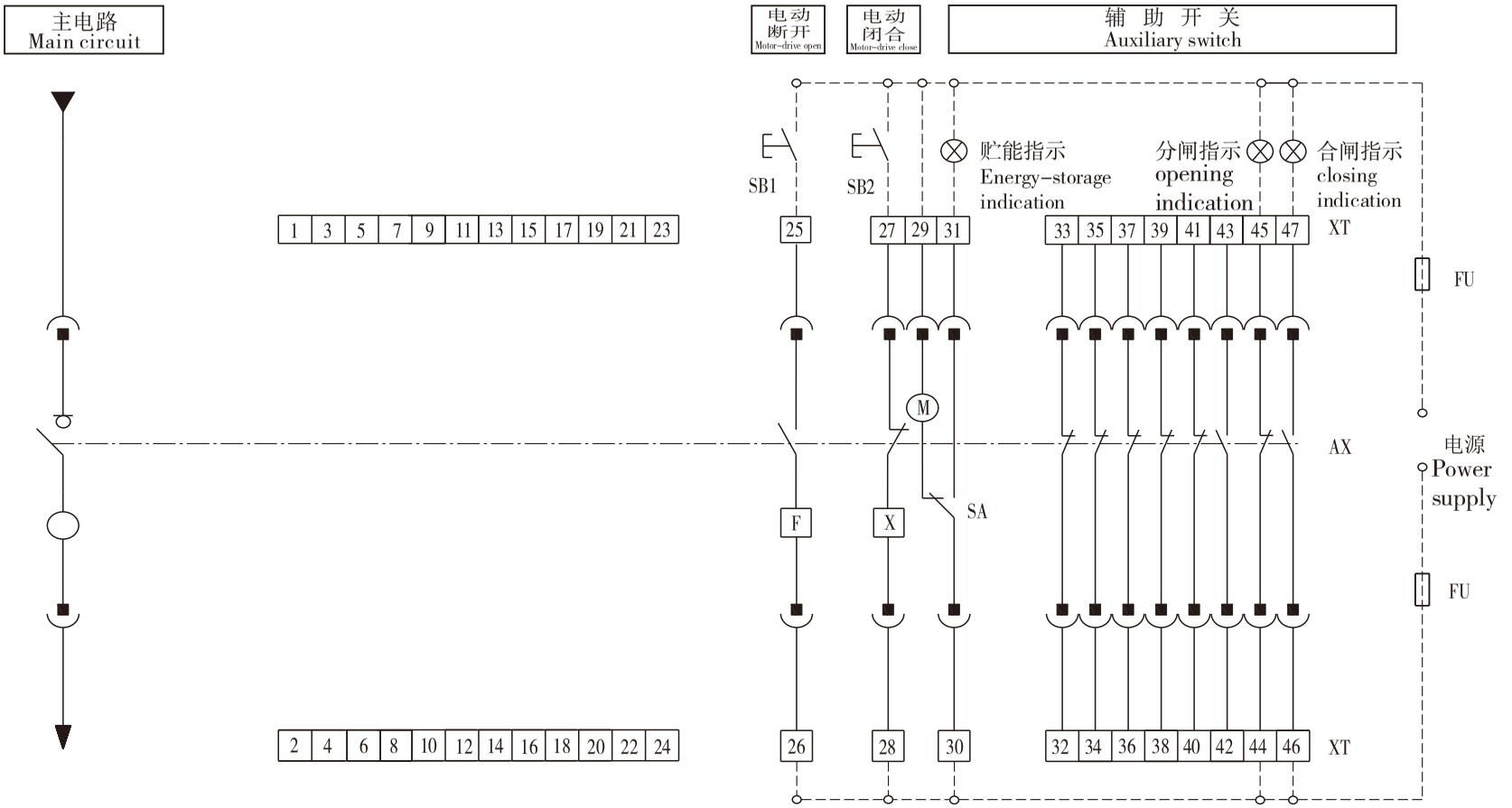
SB2	合闸按钮	Closing button
Q	欠电压脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
Fu	熔断器	Fuse

隔离开关二次回路接线图（辅助电源为交流电源）辅助开关为二常开六常闭

Wiring Diagram of the secondary circuit of the switch-disconnector (auxiliary power supply is AC)



虚线部分由用户自接

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Wiring for the dashed lines should be completed by users themselves. 33,34 to power supply directly (auto energy prestore) or to power supply with a normal open button simultaneously (manual energy pre-store) power supply-different power supply for different rated voltage of processing unit F,X and M.

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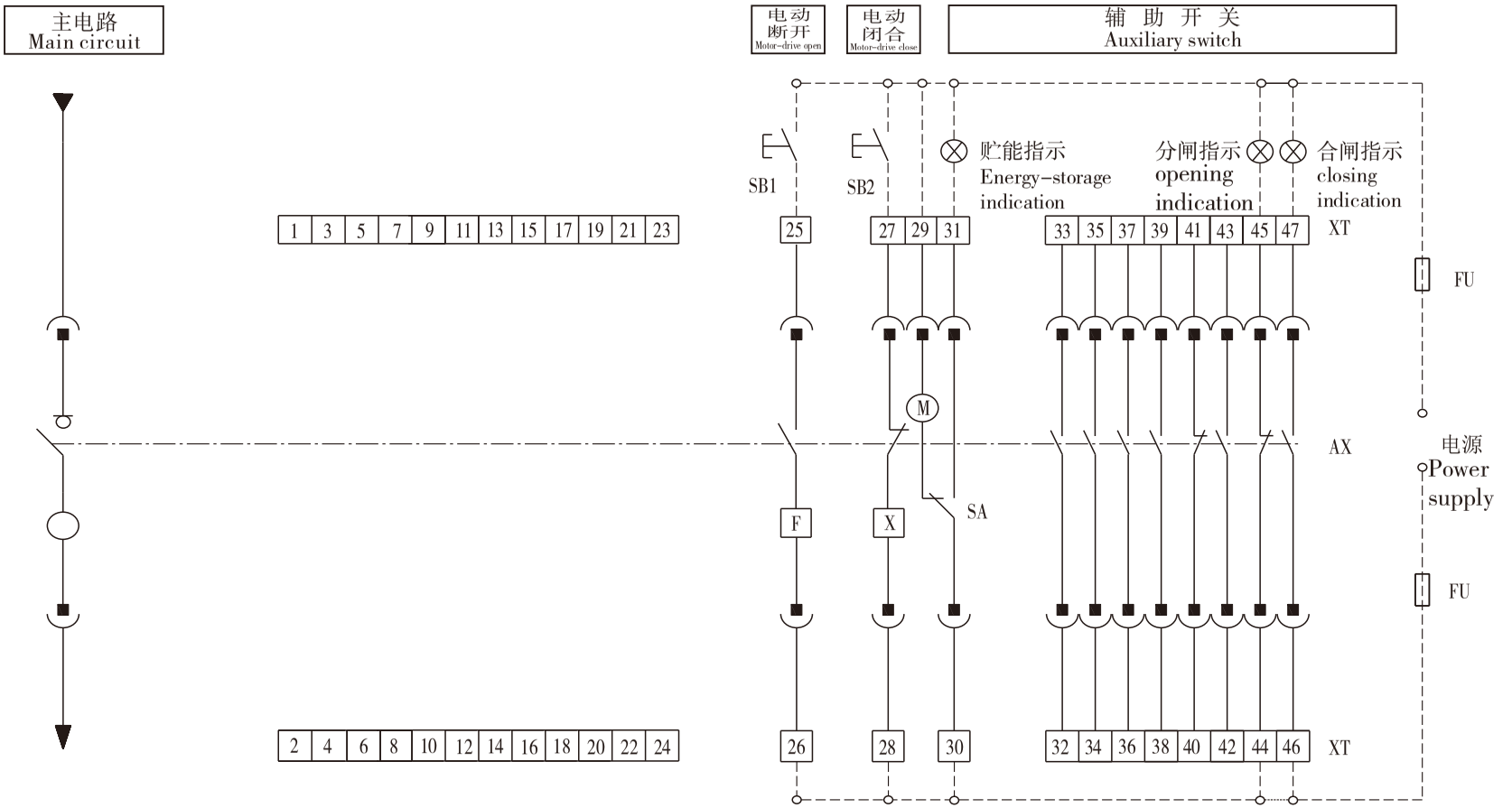
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
Fu	熔断器	Fuse

隔离开关二次回路接线图（辅助电源为交流电源）
辅助开关为六常开二常闭

Wiring Diagram of the secondary circuit of the switch-disconnector (auxiliary power supply is AC)



虚线部分由用户自接

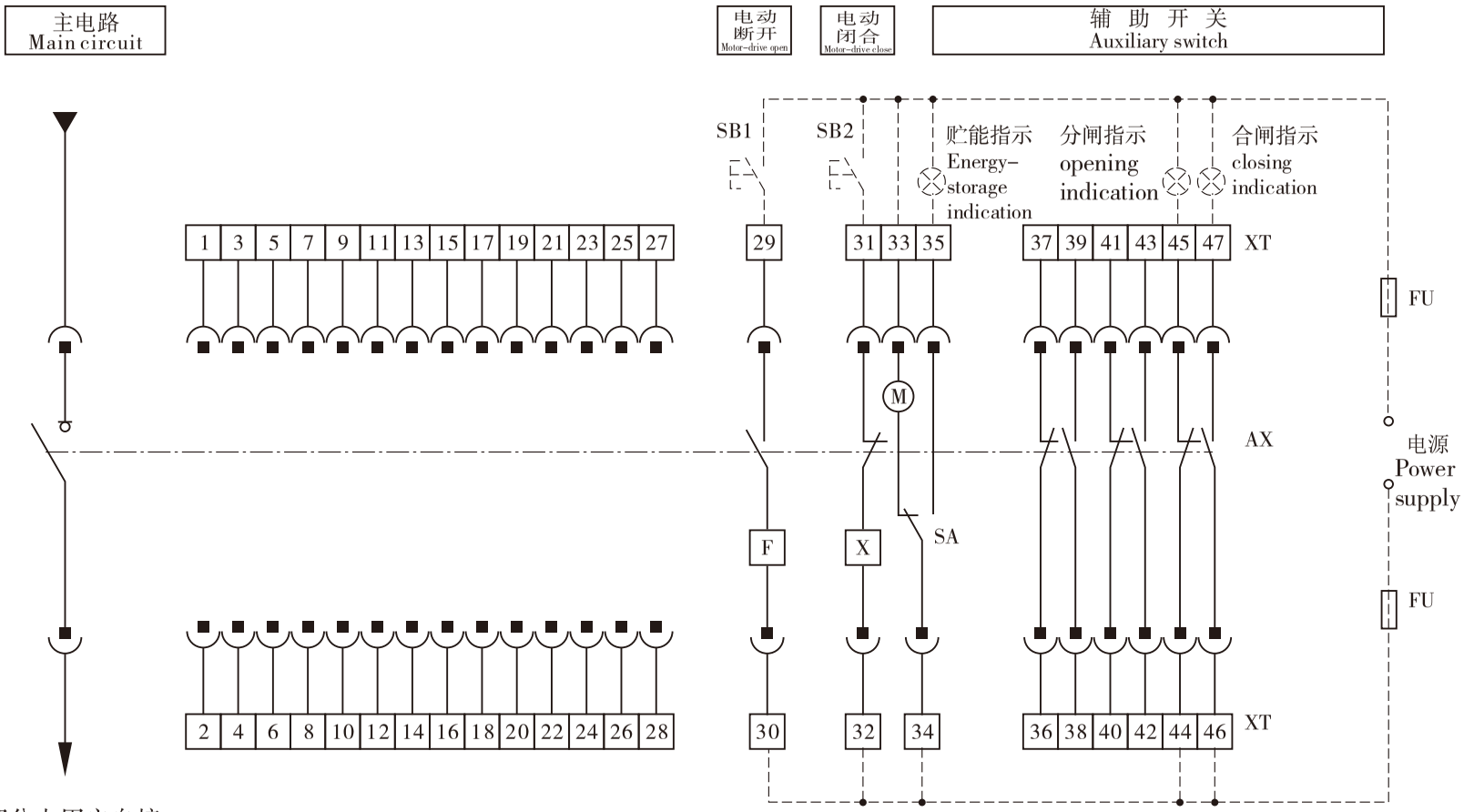
33，34可直接接电源（自动预贮能）也可串接常开按钮后接电源（手动预贮能）电源 若F，X，M的控制电源电压不同时可分别接不同电源

Wiring for the dashed lines should be completed by users themselves. 33,34 to power supply directly (auto energy prestore) or to power supply with a normal open button simultaneously (manual energy pre-store) power supply-different power supply for different rated voltage of processing unit F,X and M.

AX	断路器辅助开关	Auxiliary switch
SB1	分励按钮	Shunt button
SB2	合闸按钮	Closing button
Q	欠电压脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
Fu	熔断器	Fuse

隔离开关二次回路接线图（辅助电源为直流电源）

Wiring Diagram of the secondary circuit of the switch-disconnector (auxiliary power supply is DC)



虚线部分由用户自接

33，34可直接接电源（自动预贮能）也可串接常开按钮后接电源（手动预贮能）电源 若F，X，M的控制电源电压不同时可分别接不同电源

Wiring for the dashed lines should be completed by users themselves. 33,34 to power supply directly (auto energy prestore) or to power supply with a normal open button simultaneously (manual energy pre-store) power supply-different power supply for different rated voltage of processing unit F,X and M.

AX	断路器辅助开关	Auxiliary switch
SB1	分励按钮	Shunt button
SB2	合闸按钮	Closing button
Q	欠电压脱扣器	Under-voltage release
F	分励脱扣器	Shunt release
X	合闸电磁铁	Closing electromagnet
M	贮能电机	Charging motor
SA	电动机行程开关	Limit switch
XT	断路器两次回路接线端子	Terminals
Fu	熔断器	Fuse

订 货 规 范
Order Form

(请在□内填上数字,□打√)
(Please filled figures in □ or sign √ in □)

用户单位 Name		订货台数 Order amount		订货日期 Date	
型 号 Type	CW1G- □				
极 数 Pole quality	□三极 Three-poles	□四极 Four-poles			
额定工作电压 Rated operational voltage	□ AC 400V	□ AC 690V			
额定工作电流 Rated operational current	Ie= □ A				
连 接 Connection type	固定式 Fixed □水平（后置）Horizontal (back set) □垂直（前置）Vertical (front set) □垂直（后置）Vertical (back set)				注：垂直（前置）、垂直（后置）仅供Ith=2000A的隔离开关 Note:only for the switch-disconnector with Ith 2000A, connection types are vertical(front set) and vertical(back set)
	抽屉式 Draw-out □水平（后置）Horizontal (back set) □垂直（前置）Vertical (front set) □垂直（后置）Vertical (back set)				
附件 Accessories	FFT分励脱扣器 Shunt release	□AC230V	□AC400V	□DC220V	□DC110V
	FHD合闸电磁铁 Closing electromagnet	□AC230V	□AC400V	□DC220V	□DC110V
	FDC电动操作机构 Motor operator	□AC230V	□AC400V	□DC220V	□DC110V
	FFC辅助开关 Auxiliary switch	标准形式 □4组转换触头 Four pairs of change-over contacts	特殊形式 □4常开4常闭 4NO4NC	□6常开2常闭	□2常开6常闭 □3常开3常闭
备注 Note	如用户订货的产品技术要求超出本规范表，请与本公司协商解决 If users order the switch-disconnector with technical demands beyond range of this order form, please contact with us.				

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石家庄市晓赛电气设备贸易有限公司 13803115659
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