

RENLE

上海雷诺尔科技股份有限公司

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放 眼 世 界 市 场

国 际 化 经 营

RNM1塑料外壳式断路器

RNM1 MOULDED CASE BREAKERS

Product Manual 产品手册



雷诺尔

成就梦想 启动未来

Accomplish the dream open a new future



雷诺尔
Shanghai RENLE
Science&Technology Co., Ltd.

励精图治，栉风沐雨，智慧和努力换来了上海雷诺尔无比骄人的业绩。时至今日，无论是宏大的企业规模，交口称赞的产品品质，遐迩闻名的品牌声誉，先进科学的内部管理，还是稳定强大的营销网络，都成为公司引以为豪的过人之处；然而，精益求精的雷诺尔人从不懈怠，在追求卓越的过程中不断提升。秉承造福社会、为用户负责的一贯宗旨，公司将一如既往地致力于自动化尖端领域的研究和开发，朝国际知名现代化大型企业的目标不懈奋进。旭日东升，朝气蓬勃，明天的雷诺尔公司将会以更加傲人的雄姿屹立于世界智能电气之林！

Arouse one's all efforts to make the enterprise prosperous, work despite of wind and rain. It is intelligence plus hard working that enables Shanghai RENLE to obtain the outstanding achievements. Today, we are proud of our superiority in the enterprise scale, excellent product quality, well-known brand standing, advanced management as well as the strong sales network; however, RENLE never stops her pace of making progress and striving for the best. With the tenet of bend fitting the society and being responsible for users, the company will continue to be engaged in developing the high technology field of soft start. Keep on towards the objective of becoming an international famous and large-scale modern enterprise. The morning sun rises in the east, shedding its rays in all directions. RENLE is confident to stand firm forever in the electrical field in the future!



企业荣誉 | Company Honor

RENLE 雷诺尔

- | | |
|--------------|--|
| ✓ 中国驰名商标 | Well-known Brand in China |
| ✓ 上海市名牌产品 | Name-brand Product in Shanghai |
| ✓ 上海市著名商标 | Famous Brand in Shanghai |
| ✓ 上海市名优产品 | Famous and Best Product in Shanghai |
| ✓ 上海市企业技术中心 | Enterprise Technology Center in Shanghai |
| ✓ 上海市小巨人科技企业 | Little Giant Scientific Technology Enterprise in Shanghai |
| ✓ 上海市高新技术企业 | High & New Technology Enterprise in Shanghai |
| ✓ 信用等级AAA级企业 | AAA Credit Rating Enterprise |
| ✓ 全国守合同重信用企业 | Enterprise of Observing Contract and Valuing Credit in China |



企业概况

上海雷诺尔科技股份有限公司成立于2008年(原上海雷诺尔电气有限公司),座落在上海市嘉定区国家级高新技术产业园区内,占地面积100000平方米,厂房85000平方米,总投资2.5亿元。公司专业生产高中低压电机软起动器、高中低压变频调速器、智能化电气和高压输变电成套设备,是集贸易、科研、生产为一体的高科技企业,是国内智能化电气传动行业之龙头企业。目前下设五大分公司,上海雷诺尔电力自动化有限公司、上海雷诺尔开关有限公司、上海雷诺尔电源有限公司、上海雷诺尔防爆电器有限公司、上海雷诺尔电子有限公司。

公司采用严格的科学管理模式,拥有一流的人才,一流的技术,一流的设备,具有颇具实力的新产品开发研究机构,产品技术一直处于国内领先地位,近年来,已有近三十项产品获国家级专利新产品。企业不断引进国际先进生产设备,并长期与国内知名电器科研机构联手开发新产品,提高了产品的科技含量。

公司在全国设有40多家分公司,120多个营销网点。产品广泛应用于火力发电、水电、输配电设备、冶金、化工、矿山、建筑等行业。公司严格控制产品质量,力争尽善尽美,构筑了坚实的质量系统工程,建立健全了质量管理体系和CAD、CAM技术中心,行业内率先通过了ISO9001质量管理体系认证、ISO14001环境体系认证、欧共体CE认证,公司所有产品均获得国家质检总局颁发的生产许可证,并全部通过“CCC”认证,产品均由中国人民保险公司质量承保。

多年来雷诺尔人艰苦奋斗、拼搏进取,企业逐步实现了生产现代化、管理集团化、产品专业化、技术领先化,并取得了大量的荣誉,企业被评为上海市高新技术企业、全国守合同重信用企业,技术精深的电机软起动器被评为2000年国家级火炬计划项目;其生产的“雷诺尔”牌产品成为“上海市名牌产品”、上海市重点新产品、上海市名优产品、国家重点新产品;企业连年被评为上海高新技术企业、上海市小巨人科技企业、上海市技术中心;雷诺尔商标被评为上海市著名商标、中国驰名商标等。

雷诺尔致力于和谐企业的建设,营造快乐和谐的工作氛围,发挥员工的潜能,让员工与公司共同成长。公司建立了完善的保障体系和人才培养制度,开展丰富的文体娱乐活动,把企业办成学校,把企业办成家庭,将员工自身的发展和企业的发展紧密联系在一起,快乐和谐地创造社会价值。

先进的管理模式动力十足的发展势头,雷诺尔科技股份朝着“管理科学化、产业多元化、经营规模化、品牌国际化”的百年企业目标奋力前进,秉承雷诺尔开拓创新的企业精神,在全球经济一体化的大潮中奔涌向前,成为享誉全球的智能电气专业供应商。

注:上海雷诺尔电气有限公司成立于1999年7月。

.....我们不断超越



Company Profile

Shanghai RENLE Science & Technology Co., Ltd., formerly known as Shanghai RENLE Electrical Co., Ltd., was established in 2008 with a total investment of 250 billion yuan. Located in the National High-tech Industrial Park in Jiading District, Shanghai, the company covers an area of 100,000 square meters, including 85,000 square meters of workshops. Specialized in the production of L/M/H voltage soft starter/frequency converter, intelligent electric and complete sets of L/M/H voltage transmission and transformation equipments, the company is a high-tech company integrating trade, R&D and production and is a leading enterprise in the intelligent electric transmission market in China. Under the company are 5 subsidiaries: Shanghai RENLE Power Automation Co., Ltd., Shanghai RENLE Switch Co., Ltd., Shanghai RENLE Power Supply Co., Ltd., Shanghai RENLE Explosion-Proof Electric Co., Ltd. and Shanghai RENLE Electronics Co., Ltd.

RENLE adopts a strict scientific management system and has the first-class talents, technologies and equipments as well as a competitive R&D institute for new products. Its technology has always been playing a leading role in the domestic market. In recent years, more than 30 new products have been awarded as the National New Patented Products. RENLE has continuously been adopting the international advanced technologies and has established a long-term cooperative relationship with the domestic famous electric appliance research institutes to develop new products so as to increase the technological level of the products.

RENLE has established more than 40 branch companies and 120 marketing centers throughout the country. Its products have been widely used in such industries as firepower generation, hydroelectric power, power transmission and distribution equipment, metallurgy, chemical engineering, mining, architecture etc. RENLE always lays emphasis on strict quality control, so as to establish a stable and complete quality control system and CAD/CAM Technical Centers. The Company takes the lead in its industry in passing the accreditation of ISO9001 Quality Management System, ISO14001 Environment System and CE of European Community. All the products of RENLE have been manufactured under the production license issued by General Administration of Quality Supervision, Inspection and Quarantine of P.R.C. and passed the "CCC" certification, with the quality insurance for all its products by PICC.

After years' hard struggle and aggressive efforts, RENLE has gradually realized production modernization, management collectivization, product specialization and technology improvement, and has won numerous honors. The Company has been honored as Shanghai High-tech Enterprise and Chinese Enterprise Abiding by Contract and Valuing Credit. Its soft starter for motor was honored as National Torch Plan in 2000; The products with the brand of RENLE had been awarded as the Shanghai Famous-brand Product, Shanghai Key New Product, Shanghai Famous-brand High-quality Product and National Key New Product; RENLE has been appraised as Shanghai High-tech Enterprise, Shanghai Little Giant Technology Enterprise, Shanghai Municipal Technical Center; RENLE trademark has been appraised as Shanghai Famous Trademark and China Famous Trademark and so on.

RENLE is dedicated to the construction of a harmonious enterprise, a happy working atmosphere, making full use of the employees' potential and letting the employees have the chance to develop together with the Company. RENLE has established a complete social security system and a personnel training system, and carries out various entertainment activities, so as to closely link the development of the employees and the Company together by changing the enterprise into a school, and a family to realize their social value happily and harmoniously.

The advanced management mode and energetic development momentum contributes to drive Shanghai Renle Science & Technology Co., Ltd. to win its way towards a times-honored enterprise integrating "scientific management, diverse industry, scale operation, and international brand". Adhering to the pioneering and innovative spirit, Renle surges forwards in the tide of global economic integration and becomes a world-renowned professional intelligent electrical supplier.

Note: Shanghai Renle Science & Technology Co., Ltd. was established in July 1999.

RNM1 | 塑料外壳式断路器

MOULDED CASE BREAKERS

品质触手可及



Create international
exquisite intelligent electric products
打造世界智能电气精品

These products are extensively used in a wide range of sectors, including electricity generation, electricity transmission & distribution equipment, metallurgy, chemical engineering, light manufacturing, mining, construction, textile, and shipbuilding etc.

产品广泛应用于电力、输配电设备、冶金、化工、轻工、矿山、建筑、纺织、船舶等领域。

适用范围 Application range

- RNM1系列塑料外壳式断路器(以下简称断路器), 是本公司采用国际先进设计、制造技术研制、开发的新型断路器之一。其额定绝缘电压为800V(RNM1-63为400V), 额定工作电流至800A的电路中作不频繁转换及电动机不频繁起动之用。断路器具有过载、短路和欠电压保护装置, 能保护线路和电源设备不受损坏。
- 断路器按照其额定极限短路分断能力(Icu)的高低, 分为
- L型(标准型)、M型(较高分断型)、H型(高分断型)四类。
- 该断路器具有体积小、分断高、飞弧短(部分规格零飞弧)、抗振动等特点, 更是陆地及船舶使用的理想产品。
- 本断路器可垂直安装(即竖装)。亦可水平安装(即横装)。
- 本断路器不能倒进线, 即只可1,3,5接电源, 2,4,6接负载。
- 本断路器具有隔离功能。

- 本断路器产品执行下列标准:
- IEC60947-1及GB14048.1总则
- IEC60947-2及GB14048.2低压断路器
- IEC60947-4及GB14048.4接触器和电动机起动器
- IEC60947-5.1及GB14048.5机电式控制电路电器

- RNM1 and CM1 moulded case breakers(hereafter referred to as simply breakers) are one of the new type breakers which have been developed by the plant using international advanced design and manufacturing technology. The rated insulation voltage of the breakers is 800V (RNM1-63 is 500V), suitable for turn-on or turn-off not frequently and starting a motor not frequently in the circuit of AC50Hz, rated working voltage 690V or below (RNM1-63 is 400V) (DC250V) or below rated working current up to 800A. The breakers have overload, short-circuit and under-voltage protection devices, so as to protect the circuit and the power equipment against damage.
- The breakers, according to the rated maximum value of short-circuit breaking ability(Icu), would be classified four kinds: L(typical type), M(second high breaking type) and H (high breaking type).
- The breakers are of the following characteristics: compact size, high breaking ability, short arc-over distance (some of the "0" arc-over distance) and shakeproof. Furthermore become the ideal products applied on land or ships.
- The breakers could be installed vertically(upright) or horizontally (transverse).
- **The breakers comply with the demands of the following standards:**
- IEC60947-1 and GB/T 14048.1 General
- IEC60947-2 and GB 14048.2 Low voltage breakers
- IEC60947-4 and GB 14048.4 Contactors and motor starters
- IEC60947-5.1 and GB 14048.5 Electrical equipments of electromechanical control circuit

适用工作环境 Applicable environment condition

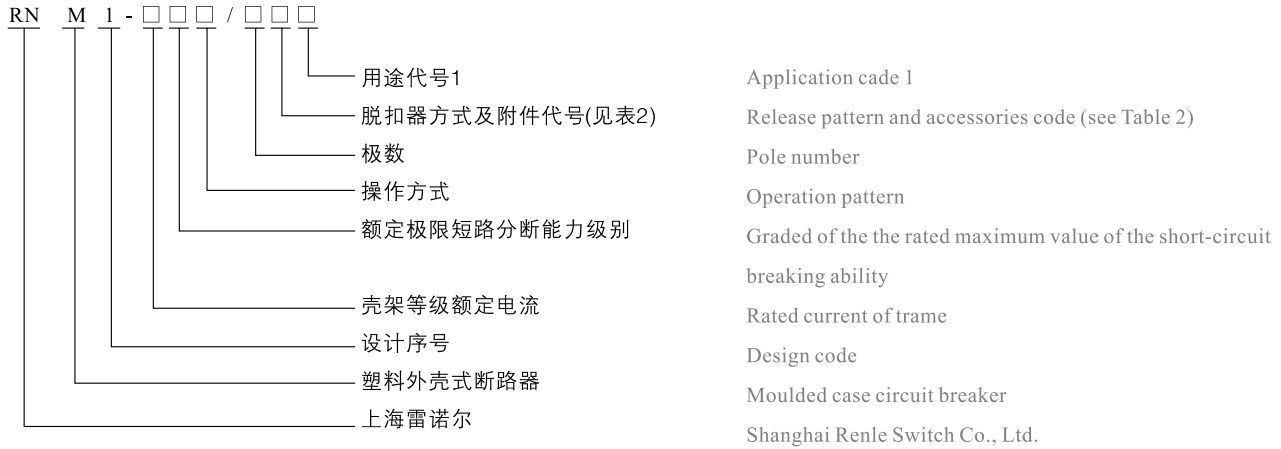
- 海拔高度2000m以下;
- 周围介质温度不高于+40℃(对船用产品为+45℃)和不低于-5℃;
- 能耐受潮湿空气的影响;
- 能耐受盐雾、油雾的影响;
- 能耐受霉菌的影响;
- 最大倾斜度为 $\pm 22.5^\circ$;
- 在受到船舶正常振动时能可靠工作;
- 在受到地震情况下(4g)能可靠工作;
- 在无爆炸危险的介质中, 且介质无足以腐蚀金属和破坏绝缘的气体与导电尘埃的地方;
- 在没有雨雪侵袭的地方。
- 污染等级为三级。

- Elevation $\leq 2000\text{m}$.
- Ambient temperature: $+40^\circ\text{C}$ (45°C for ships) $\sim -5^\circ\text{C}$.
- Be able to bear the influence of moisture in the air.
- Be able to bear the influence of salt fog and oil fog.
- Be able to bear the influence of mould.
- Be able to bear the influence of nuclear radiation.
- The gradient $\pm 22.5^\circ$
- Be working reliably under the condition of normal vibration on ship.
- Be working reliably when earthquake (4g) occurring.
- There must be not any explosive medium, and there must be not any gas which would corrode metal or any conducting dust which would destroy the insulation.
- The place would not be invaded by rain and snow.
- Pollution grade: III

RNM1塑料外壳式断路器

Moulded case breakers

型号说明 Code explanation



注：

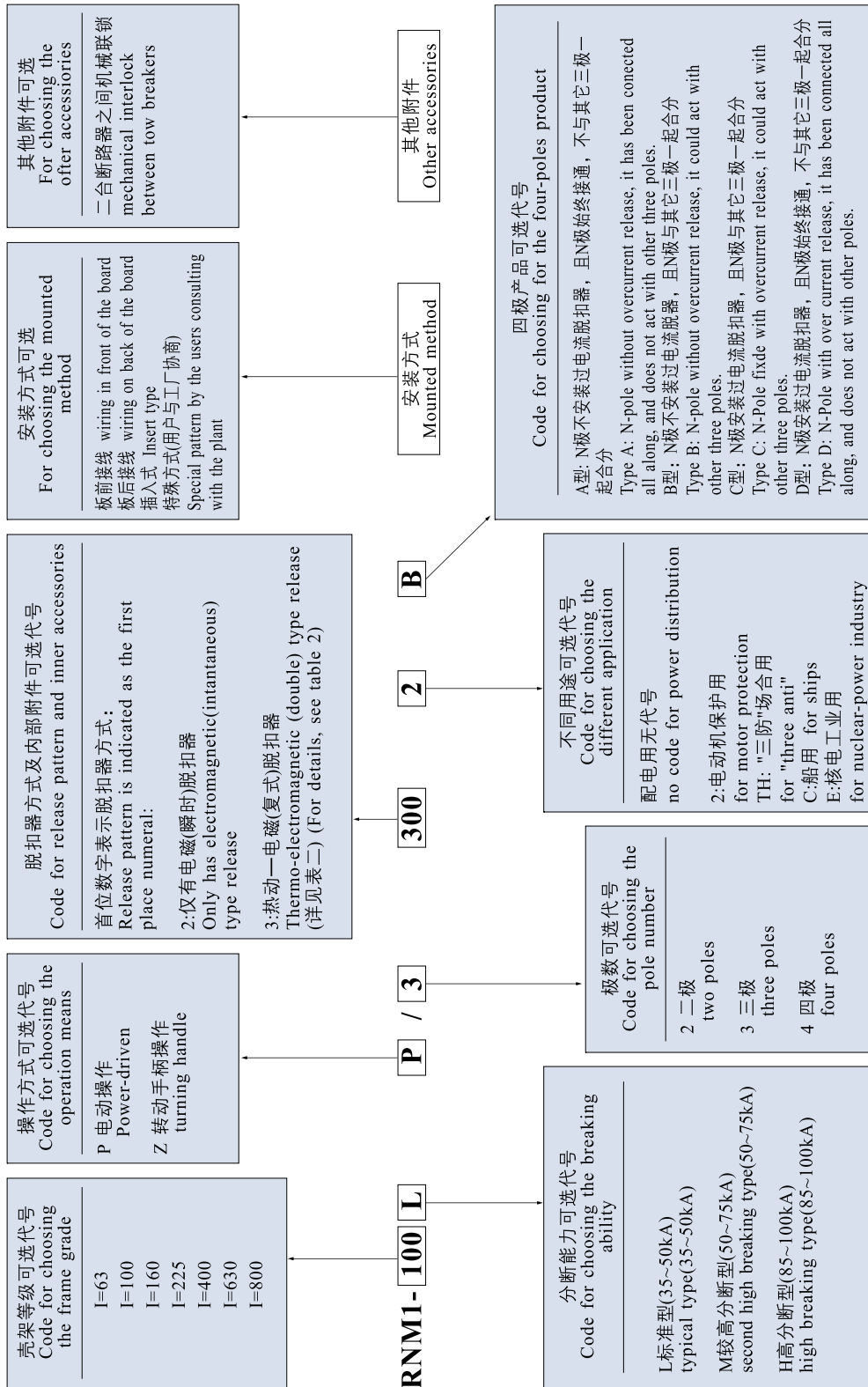
- 配电用断路器无代号：代护电动机用断路器以2表示。
- 手柄直接操和无代号：电动操作用P表示：转动手柄用Z表示。
- 按产品极分为二极(100A,160A,225A)、三极与四极(RNM1-800无四极)。四极产品中中性极(N极)的型式分四种：
A型：N极不安装过电流脱扣元件，且N极始终接通，不与其它三极一起合分；
B型：N极不安装过电流脱扣元件，且N极与其它三极一起合分；(N极先合后分)
C型：N极安装过电流脱扣元件，且N极与其它三极一起合分；(N极先合后分)
D型：N极安装过电流脱扣元件，且N极始终接通，不与其它三极一起合分。
- 按额定电流(A)分：RNM1-63为(6)、10、16、20、25、32、40、50、63A九级(6A规格无过载保护)；RNM1-100为(10)、16、20、25、32、40、50、63、80、100A等级；RNM1-160为100、125、140、160四级；RNM1-225为100、125、140、160、180、200、225A七级；RNM1-400为225、250、315、350、400A五级；RNM1-630为400、500、630A三级；RNM1-800为630、700、800三级。[带()为不推荐规格]
- 按接线方式分为板前接线、接后接线、插入式三种。
- 按过电流脱扣器型式分热动—电磁(复式)型、电磁(瞬时)型两种。
- 按附件装置分带附件装置和不带附件装置两种：
附件装置分内部装置和外部装置：内部装置有分励脱扣器、欠电压脱扣器、辅助触头、报警触头四种，外部装置有转动手柄操作机构、电动操作机构、联锁机构及辅助装置的接线端子等。

Note:

- No code for current distribution, 2 means for motor protection.
- No code for operating directly with handle, P for power-driven and Z for turning handle manually.
- According to the pole number of product, it classifies two-poled (100A, 160A,225A), three-and four-poles (no four-poles type for RNM1-800). The neutral pole(N-pole) of the four-poles products has four types:
Type A: N-pole without over-current release unit, it has been connected all along, and doe not act with other three poles to turn on or off.
Type B: N-pole without over-current release unit, it could act with other three poles. (N-pole turns-on prior to turnsoff).
Type C: N-pole fixed with over-current release unit, it could act with other three poles. (N-pole turns-on prior to turns-off.)
Type D: N-pole fixed with over-current release unit, it has been connected all along, and does not act with other three poles to turn on or off.
- Classification according to rated current(A): RNM1-63 has nime grades: (6),10,16,20,25,32,40,50,63A(6A without over-load protection); RNM1-100 has ten:(10),16,20,25,32,40,50,63,80,100A; RNM1-160 has four: 100,125,140,160; RMN1-225 has seven: 100, 125,140,160,180,200, 225A; RNM1-400 has five: 225, 250, 315, 350, 400A; RNM1-630 has three: 400, 500, 630A; and RNM1-800 has three: 630,700,800A; [specifications in brackets is not recommend].
- The wiring method has three ways: wiring in front of the board, wiring on back of the board and insertion type.
- According to the over-current release pattern, it would be divided two types: thermo-electromagnetic(double) type and electro magnetic (instantaneous) type.
- According to the outfit, it also has two types:
- With or without outfit. The outfit include inner accessories and outside accessories:
The inner accessores have shunt release, under-voltage release, auxiliary contact and alarm contacts four kinds.
The outside accessories are turning handle operation mechanism, power-driven operation mechanism, interlocking mechanism and the service's wiring contact.

快速选用表 Table for choosing quickly

快速选用表见表一 For choosing quickly, see following table 1 please.



表一 Table 1

For example: (1) If place an order for RNM1-100M, three poles, for motor protection, rated current 80A, with shunt release and auxiliary contact, wiring in front of the board, mechanical interlock between two breakers, it would be written-in "To order RNM1-100M/33402, In=80A, wiring in front of the board, mechanical interlock between tow breakers."
(2) If place and order for RNM1-225, four poles, for power distribution, rated current 180A with power-driven operation mechanism and shunt release, N-pole fixed with over current release and could act with other three poles, wiring on back of the board, ten breakers, it would be written-in "To order RNM1-225P/4310C type, In=180A, wring on back of the board, ten breakers."

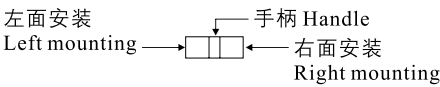
举例:
1 如订RNM1-100三极, 电动机保护用, 额定电流为80A 并带分励脱扣器、辅助触头, 板前接线且要求两合带机械联锁机构。即写为RNM1-100M/33402 In=80A, 板前接线2合机械联锁, 分励AC220V。
2 如订RNM1-225四极, 配电用, 额定电流为180A并带电动操作机构及分励脱扣器, N极安装过电流脱扣器, 且N极与其他三极一起合分形式, 板后接线10合。即可写为订RNM1-225P/4310L型, In=180A板后接线10合, 分励AC220V。

RNM1塑料外壳式断路器
Moulded case breakers

脱扣器方式及附件代号 Release parttern and accessories code

表二 table 2

附件 代号 Accessories Code	附件名称 Accessories Name	型号 Type 极数 Pole number	RNM1- 63 100		RNM1- 160 225		RNM1- 400 630		RNM1- 630H 800	
			3	4	3	4	3	4	3	4
208、308	报警触头 Alarm contact									
210、310	分励脱扣器 Shunt release									
220、320	辅助触头 Auxiliary contact									
230、330	欠电压脱扣器 Under voltage release									
240、340	分励脱扣器辅助触头 Shunt release,auxiliary contact									
250、350	分励脱扣器欠电压脱扣器 Shunt release,undervoltage release									
260、360	二组辅助触头 Two group of auxiliary contact									
270、370	辅助触头欠电压脱扣器 Auxiliary contact,undervoltage release									
218、318	分励脱扣器，报警触头 Shunt release, alarm contact									
228、328	辅助触头报警触头 Auxiliary contact, alarm contact									
238、338	欠电压脱扣器 报警触头 Undervoltage release, alarm contact									
248、348	分励脱扣器 辅助触头 报警触头 Shunt release,auxiliary contact, alarm contact									
268、368	二组辅助触头 报警触头 Two group of auxiliary contact, alarm contact									
278、378	辅助触头 欠电压脱扣器 报警触头 Auxiliary contact,Undervoltage release, alarm contact									



- 报警触头 Alarm contact
- 辅助触头 Auxiliary contact
- 分励脱扣器 Shunt release
- 欠电压脱扣器 Under-voltage release
- 引线方向 Lead direction

- 注：
- 200：表示仅有电磁脱扣器的断路器本体；300：表示带有热动—电磁脱扣器的断路器本体；000：不带脱扣器的断路器本体；
 - 对RNM1-100、225二极产品只有210、310、220、320、230、330；对RNM1-100及RNM1-160、225四极断路器，N极为A型和D型无240、340、360、218、318、248、348、268、368；
 - 对RNM1-400、RNM1-630及RNM1-800其中248,348,278,378规格中辅助触头为一对触头(即一常开，一常闭)，268、368规格中的辅助头为三对触头
 - 对RNM1-100、160及RNM1-630、225，其中220、230、240、340、270、370规格中辅助触头可供两对触头(即二常开二常闭)，260、360可供三对触头(三常开三常闭)，但订货时需注明。
- Note:
- 200: breaker only has electromagnetic release pattern 300: breaker has thermoelectromagnetic release pattern 000: breaker without release pattern;
 - For RNM1-100, 225 two-poles type, has only following accessories code: 210, 310, 220, 320, 230, 330; For RNM1-63,100 and RNM1-160, 225 fourpoles breaker of N-pole types A&D, has no the following accessories codes: 240, 340, 260, 360, 218, 318, 248, 348, 268,368;
 - For RNM1-400, RNM1-630 and RNM1-800, codes 248, 348, 278, 378 only have one pair of auxiliary contacts (a normal opened, a normal closed), but 268, 368 have three pairs of auxiliary contacts.
 - Regarding RNM1-100 160 and RNM1-630 225 the specifications of 220 230 240 340 270 370 can provide two pairs of auxiliary contacts (namely 2NO + 2NC), the specifications of 260, 360 can provide three pairs of auxiliary contacts (3NO +3NC), but it shall be noted when placing an order.

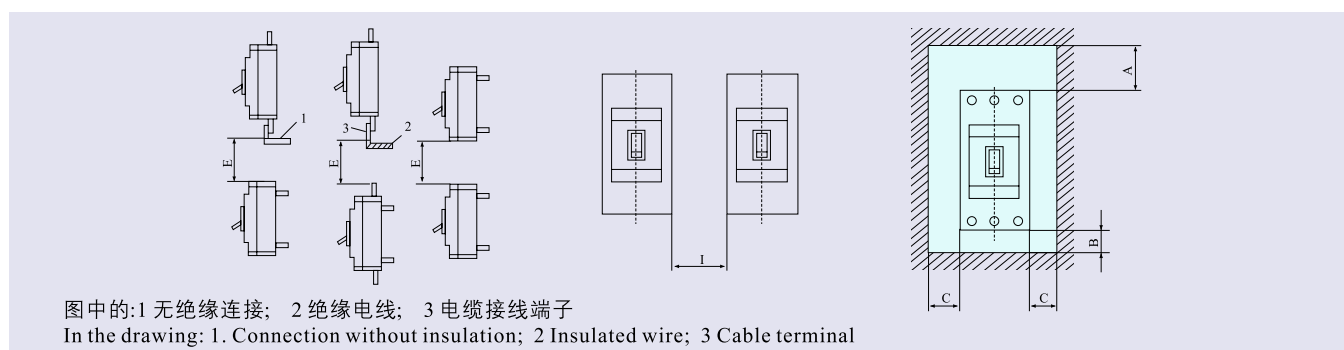
断路器主要技术性能指标 Main technical-performance index of the breaker

表三 Table 3

型号 Type	额定电流(A) Rated current(A)	极数 Pole number	额定绝缘电压 (V) Rated insulation voltage	额定工作电压 (V) Rated working voltage	飞弧距离(mm) Arc-over distance	极限短路分断能力(KA) Limiting short-circuit breaking ability	运行短路分断能力(KA) operating short-circuit breaking ability	操作性能(次) Operating performance(times)	
								通电ON	不通电OFF
RNM1-63L	(6)10,16,20,25 32,40,50,63	三四极 Three four pole	AC500V	AC400V	0	25	18	1500	8500
RNM1-63M					0	50	35		
RNM1-100L	(10)16,20,25 32,40,50 63,80,100		AC800V	AC400V AC690V	0(≤50)	35	22		
RNM1-100M					0(≥50)	50(10)	35(10)		
RNM1-100H					0(≥50)	85	50		
RNM1-160L	0(≥50)				35	25			
RNM1-160M					0(≥50)	50(10)	35(10)		
RNM1-160H					0(≥50)	85	50		
RNM1-225L	100,125,160 180,200,225				≥50	35	25		
RNM1-225M					≥50	50(10)	35(10)		
RNM1-225H					≥50	85	50		
RNM1-400L	225,250,315 350,400				≥50	50	35		
RNM1-400M					100	65(15)	42(15)		
RNM1-400H			100	100	65				
RNM1-630L	400,500,630		100	50	35				
RNM1-630M			100	65(15)	42(15)				
RNM1-630H			100	100	65				
RNM1-800M	630,700,800		100	75(20)	50(20)				
RNM1-800H			100	100	65				

注：括号内为690V NB: 690V for the model specified in bracket.

断路器安装时的安全距离 The safe distance of installing breaker



表四 Table 4

断路器型号 Breaker model	I	A	B	C	E
RNM1-63H 100H	30	50	20	25	50
RNM1-160H 225H	可以靠近 Accessible	50	20	25	50
RNM1-400H		100	20	25	60
RNM1-630H		100	20	25	60
RNM1-800H		100	20	25	60

RNM1塑料外壳式断路器

Moulded case breakers

保护特性 Protection feature

- 断路器热动型脱扣器具有反时限特性：电磁脱扣器为瞬时动作，特性见表五(配电用)及表六(保护电动机用)。
- The thermodynamic release of breakers are with the feature of anti-time-limit; the electro-magnetic releases act instantaneously, the features are in Table5(for power distribution) and table6 (for motor protection).

表五(配电用) Table5(for power distribution)

断路器额定电流(A) Rated current of breaker(A)	热动型脱扣器(环境温度陆用+40℃，船用+45℃) Thetmody namic release(ambient temp +40℃ for land,+45℃ for ship)		电磁脱扣器动作电流(A) Electromagnetic release action current(A)
	1.05In(冷态) 不动作时间(h) 1.05In(Cold state) not acting time(h)	1.30In(热态) 动作时间(h) 1.30n(hot state) acting time(h)	
10≤In≤63	1小时内不动作 Not acting within one hour	≤1	10In±20%
63≤In≤100	2小时内不动作 Not acting within two hour	≤2	
100≤In≤800	2小时内不动作 Not acting within two hour	≤2	5In±20% 10In±20%

注：RNM1-160及RNM1-225中的100A、125A、140A规格中5In电磁脱扣器
Note : There is no 5 In electromagnetic release in specification 100A,125A,140A of RNM1-160 and RNM1-225

表六(保护电动机用) table 6(for motor protection)

断路器壳架等级 额定电流(A) Rated frame graded current of breaker(A)	热动型脱扣器(环境温度陆用+40℃，船用+45℃) Thetmody namic release(ambient temp +40℃ for land,+45℃ for ship)					电磁脱扣器动作电流(A) Electromagnetic release action current(A)
	1.0In(冷态) 不动作时间(h) 1.0In(Cold state) not acting time(h)	1.20In(热态) 动作时间(h) 1.20In(hot state) acting time(h)	1.50In(热态) 动作时间(h) 1.50In(hot state) acting time(h)	7.2In(冷态) 动作时间(h) 7.2In(Cold state) acting time(h)	脱扣级别	
10≤In≤225	2小时内不动作 Not acting within two hour	≤2	4min	4s < Tp≤10s	10	12In±20%
225 < In≤800			8min	6s < Tp≤20s	20	

注：RNM1-800无电动机保护型
Note : Motor protection-free for RNM1-800

高海拔降容 CAPACITY-REDUCING FOR HIGH-ELEVATION

海拔超过适用工作环境的2000m，断路器电气性能可参照下表七：
If elevation exceeds work environment 2000m,electric property of circuit breaker can correct according to table7:

表七 Table7

海拔 (m) elevation	2000m	3000m	4000m	5000m
工频耐压 (V) Power-frequency withstand voltage	3000V	2500V	2000V	1800V
工作电流修正系数 Correction factor of operational current	1	0.94	0.88	0.83
短路分断能力修正系数 Corrcetion factor of short-circuit breaking capacity	1	0.83	0.71	0.33

功率及降容系数 POWER WASTAGE AND CAPACITY-REDUCING FACTOR

功率损耗见表八

Power consumption see following Table 8

表八 Table 8

型号 Type	通电电流(A) Electromotion current(A)	三极总功率损耗(W) The total power wastage of three poles(w)			
		板前、板后接线 Wiring in front or on back of the board	插入式板前接线 Insertion type in front of the board	插入式板后接线 Insertion type on back of the board	抽出式接线 Draw-out connection
RNM1-63直热式(10~25A) Direct-heated(10~25A)	25	28	—	32	—
RNM1-100直热式(10~25A) Direct-heated(10~25A)	25	40	42	45	—
RNM1-63间接热式(32~63A) Indirect-heated(32~63A)	63	20	—	24	—
RNM1-100间接热式(32~100A) Indirect-heated(32~100A)	100	35	37	40	—
RNM1-160	160	48	50	55	—
RNM1-225	225	62	66	70	—
RNM1-250	250	76	81	86	—
RNM1-400	400	115	120	125	128
RNM1-630	630	187	193	200	205
RNM1-800	800	262	—	—	—

环境温度变化的降容系数见表九

Capacity-reducing factor for ambient temperature change see following Table 9 please

表九 table 9

环境温度Temp 系数 Factor 型号 Type	+40℃(船用+45℃) for ship +45℃	+45℃(船用+50℃) for ship +50℃	+50℃(船用+55℃) for ship +55℃	+55℃(船用+60℃) for ship +60℃	+60℃(船用+65℃) for ship +65℃
	降容系数 Capacity-reducing factor	降容系数 Capacity-reducing factor	降容系数 Capacity-reducing factor	降容系数 Capacity-reducing factor	降容系数 Capacity-reducing factor
RNM1-63	1In	0.94In	0.88In	0.80In	0.72In
RNM1-100	1In	0.95In	0.89In	0.84In	0.76In
RNM1-160	1In	0.97In	0.93In	0.90In	0.86In
RNM1-225	1In	0.96In	0.91In	0.87In	0.82In
RNM1-250	1In	0.96In	0.91In	0.87In	0.82In
RNM1-400	1In	0.94In	0.87In	0.81In	0.73In
RNM1-630	1In	0.93In	0.88In	0.83In	0.76In
RNM1-800	1In	0.88In	0.83In	0.79In	0.76In

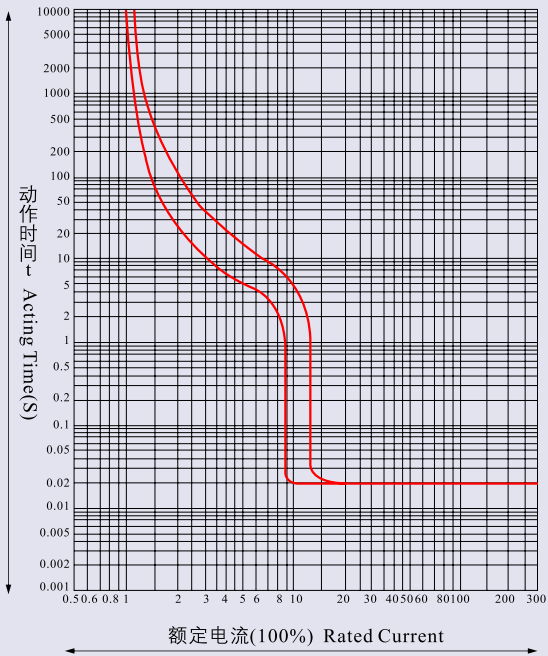
注：以上降容系数均在通于壳架额定电流下测得

Note : Above capacity-reducing factor are all achieved with rated frame current travelling through.

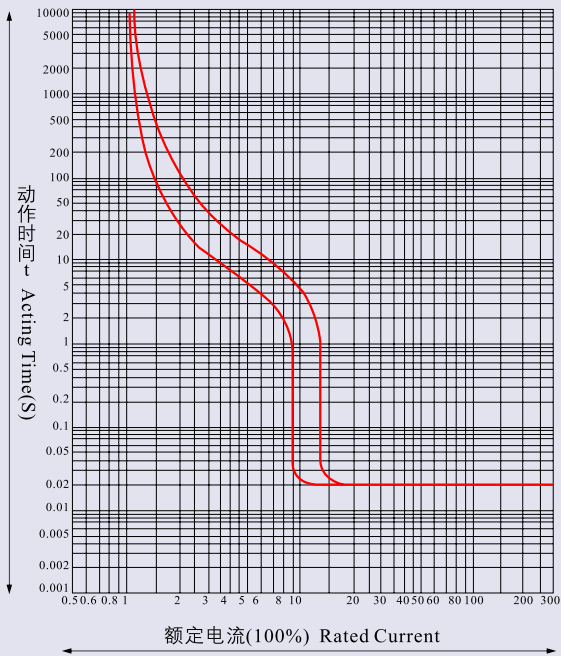
特性曲线

Characteristic curve

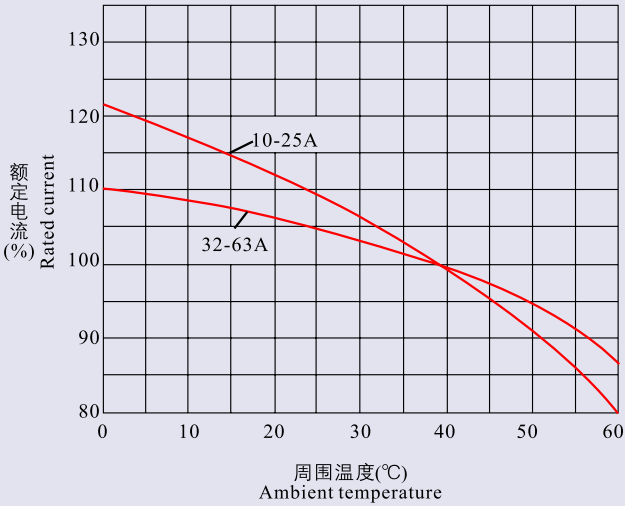
RNM1-63L、M时间/电流特性曲线
RNM1-63L、M Time/current characteristic curve



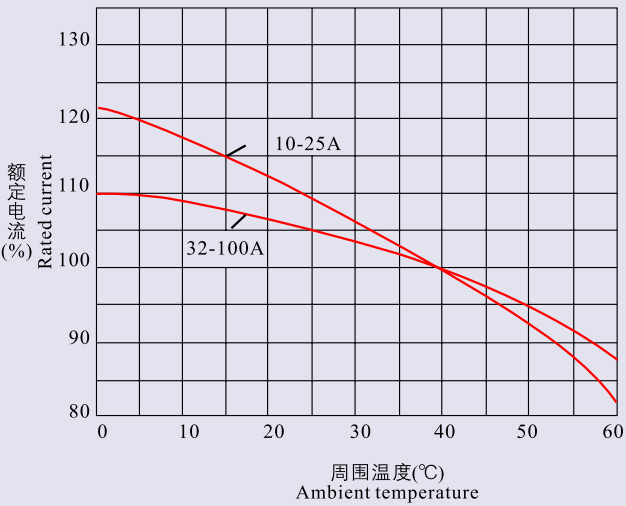
RNM1-100、L、M、H时间/电流特性曲线
RNM1-100、L、M、H Time/current characteristic curve



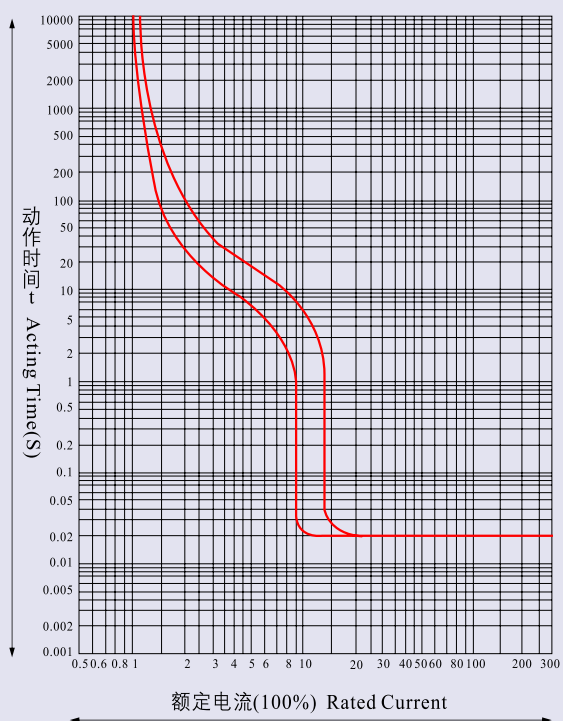
环境温度补偿
Environment Temperature compensation



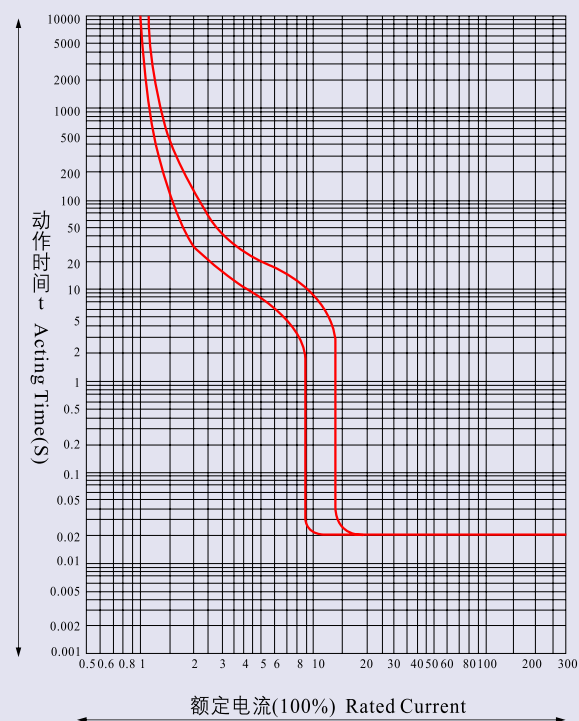
环境温度补偿
Environment Temperature compensation



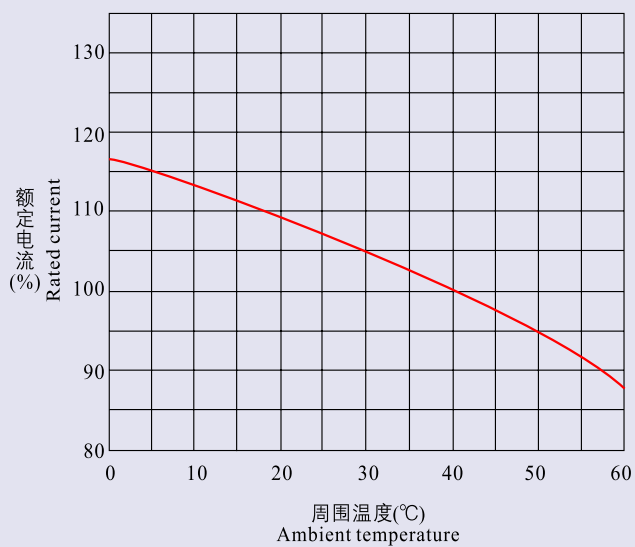
RNM1-160、225.L.M.H时间/电流特性曲线
RNM1-160、225.L.M.H Time/current characteristic curve



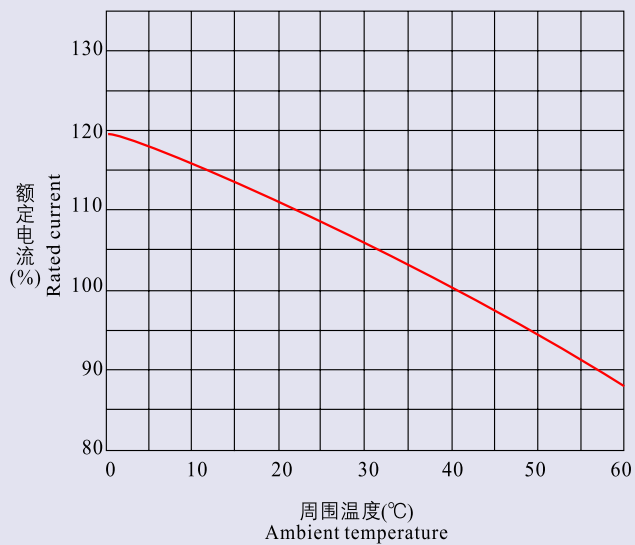
RNM1-400、L、M、H时间/电流特性曲线
RNM1-400、L、M、H Time/current characteristic curve



环境温度补偿
Environment Temperature compensation



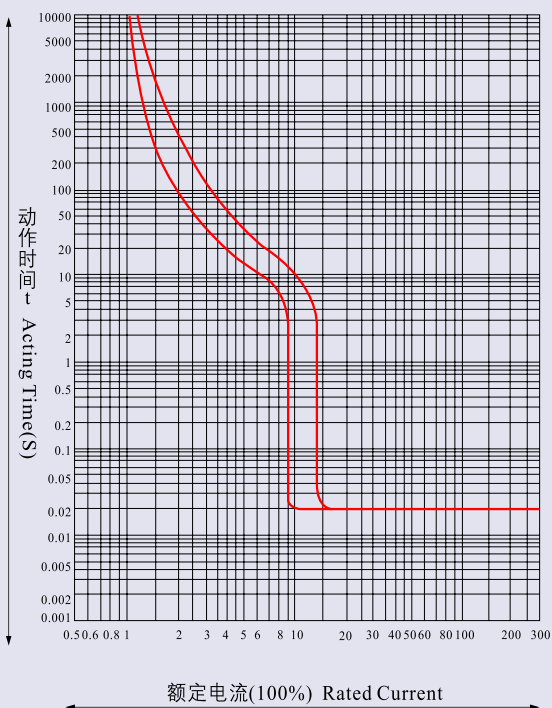
环境温度补偿
Environment Temperature compensation



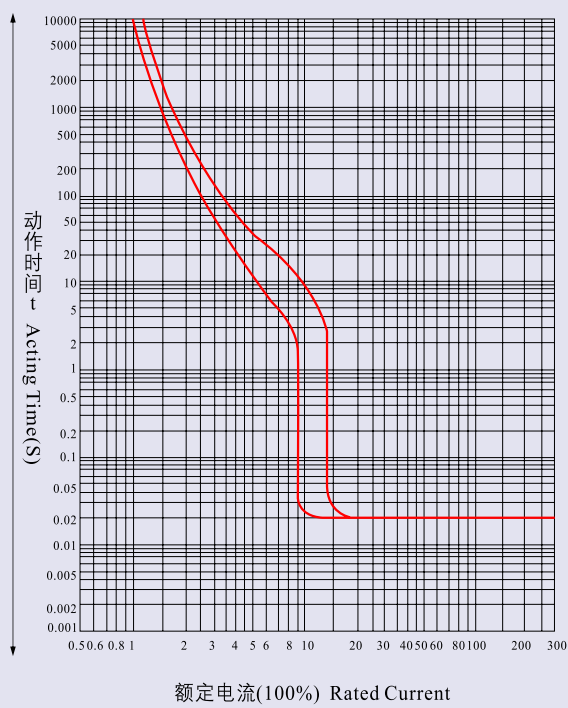
RNM1塑料外壳式断路器

Moulded case breakers

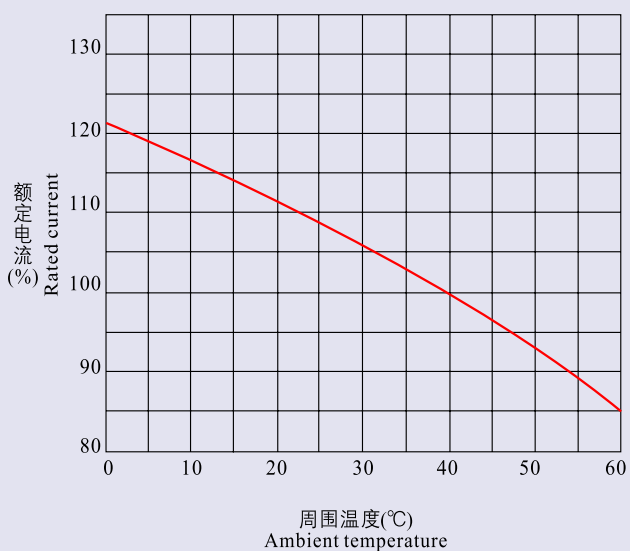
RNM1-630、L、M时间/电流特性曲线
RNM1-630、L、M Time/current characteristic curve



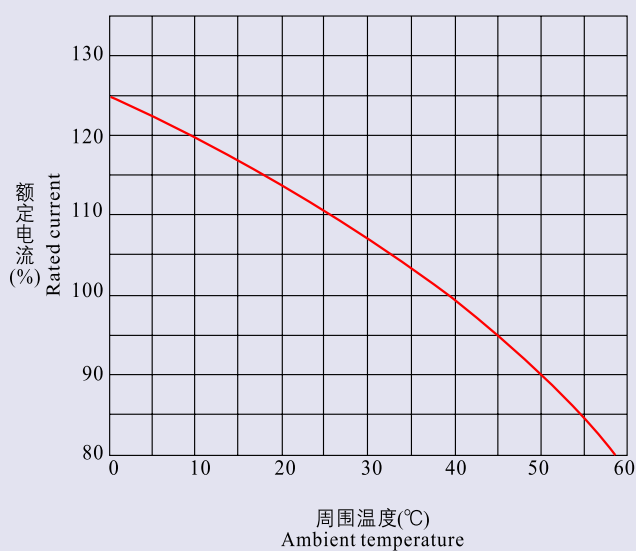
RNM1-630H、800M、H时间/电流特性曲线
RNM1-630H、800M、H Time/current characteristic curve



环境温度补偿
Environment Temperature compensation



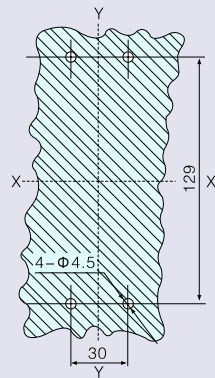
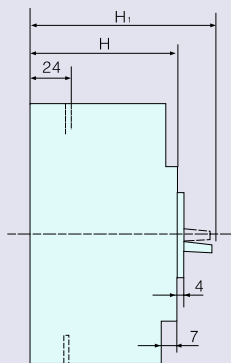
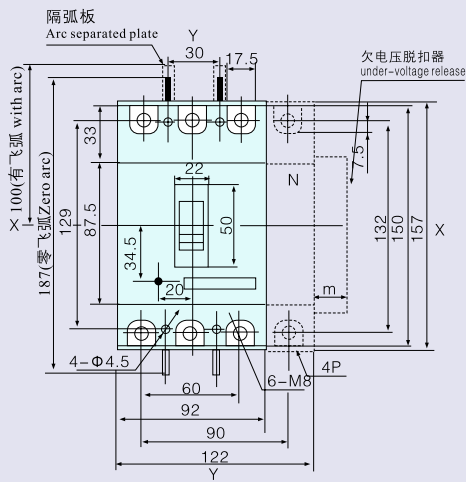
环境温度补偿
Environment Temperature compensation



RNM1塑料外壳式断路器

Moulded case breakers

RNM1-100(L、M、H)板前接线尺寸(三极、四极)X-X、Y-Y三极断路器中心
RNM1-100(L、M、H) dimensions of front wiring model (3P, 4P), X-X、Y-Y 3P breaker center.

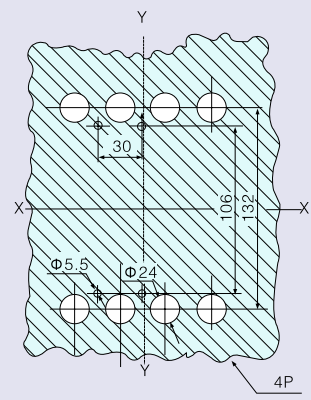
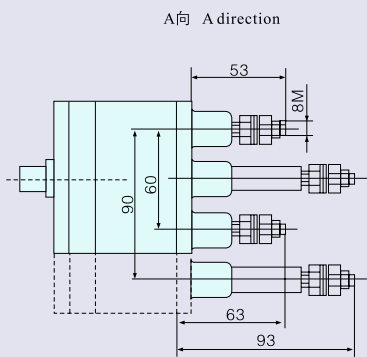
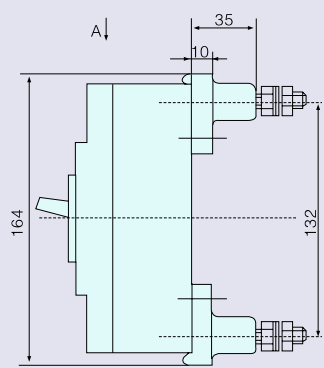


板前接线安装板开孔尺寸
Opening size of mounting plate for front wiring

型号 Model	H	H1
RNM1-100L	68	86
RNM1-100M、RNM1-100H	86	104

欠电压脱扣器厚度m: 对A型、B型为12, C型为21。
Under-voltage release thickness: A, B type: 12, C type: 21

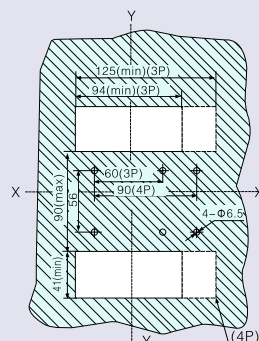
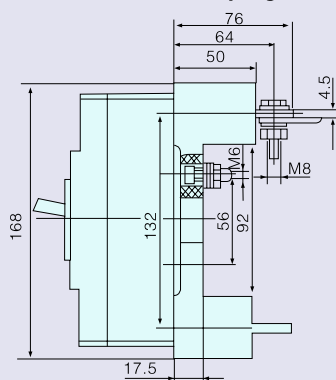
RNM1-100(L、M、H)板后接线尺寸(三极、四极)X-X、Y-Y三极断路器中心
RNM1-100(L、M、H) dimensions of rear wiring model (3P, 4P), X-X、Y-Y 3P breaker center.



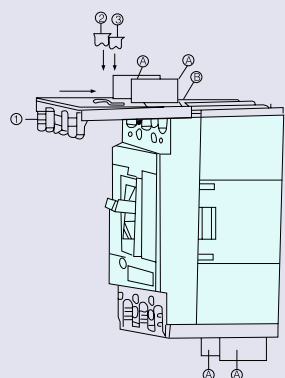
板后接线安装板开孔尺寸
Opening size of mounting plate for rear wiring

RNM1-100(L、M、H)插入式接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心

RNM1-100(L、M、H) dimensions of plug-in wiring model (3P, 4P), X-X、Y-Y 3P breaker center.



插入式安装板开孔尺寸
Opening size of mounting plate for plug-in wiring



RNM1-63、RNM1-100 “O” 飞弧产品使用说明：

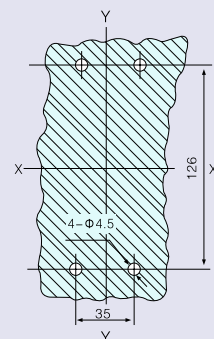
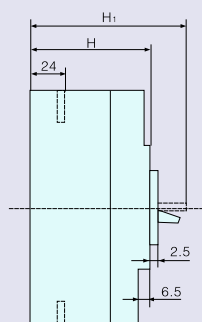
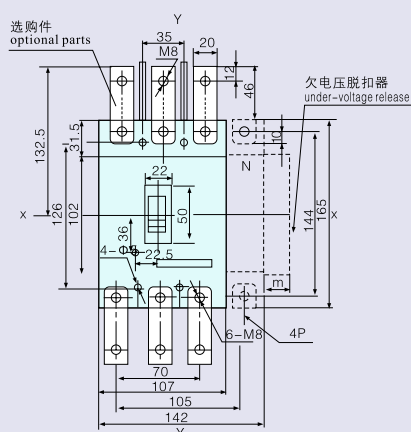
1. 将“O”飞弧隔弧罩(图中①)按箭头方向推入到底；
2. 将限制件(图中②、③)分别插入方孔中；
3. 零飞弧隔弧罩有两种，板前接线无图中B、板后接线无图中A。

Operation instruction of O arcing breaker RNM1-63、RNM1-100:

1. Push O arcing separated plate (①) into bottom as direction indicated by arrow
2. Plug limit part (②、③) into square hole respectively.
3. Two kinds of O arcing separated plate: B as drawing of front wiring model, A as drawing of rear wiring model

RNM1-160(L、M、H)板前接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心

RNM1-160(L、M、H) dimensions of front wiring model (3P, 4P), X-X、Y-Y 3P breaker center.



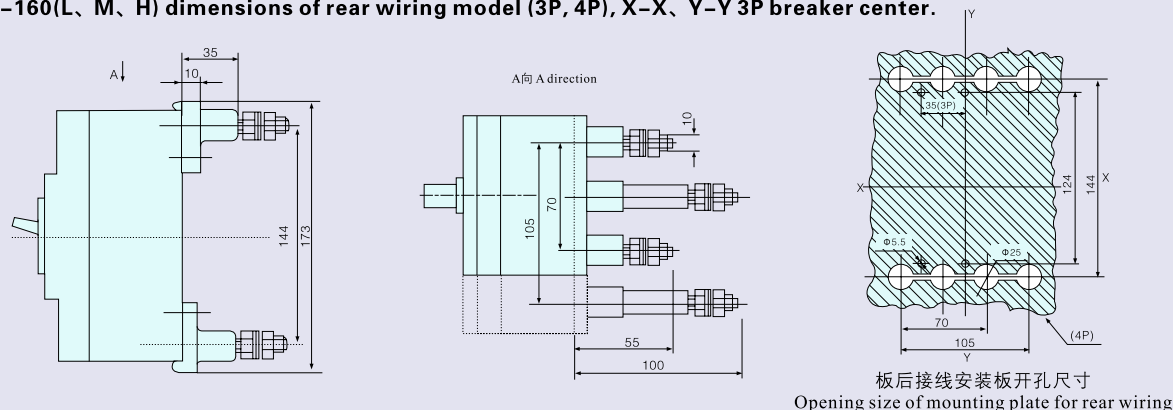
板前接线安装板开孔尺寸
Opening size of mounting plate for front wiring

型号 Model	H	H1
RNM1-160L	68	110
RNM1-160M、RNM1-160H	103	127

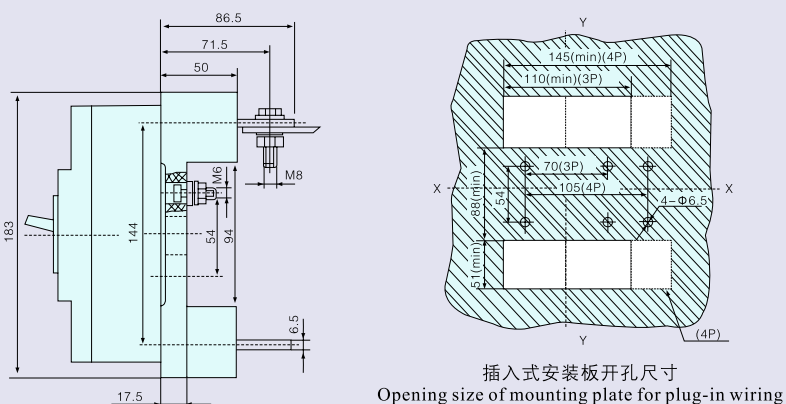
欠电压脱扣器厚度m: 对A型、B型为12, C型为21。
Under-voltage release thickness: A, B type: 12, C type: 21

RNM1塑料外壳式断路器 Moulded case breakers

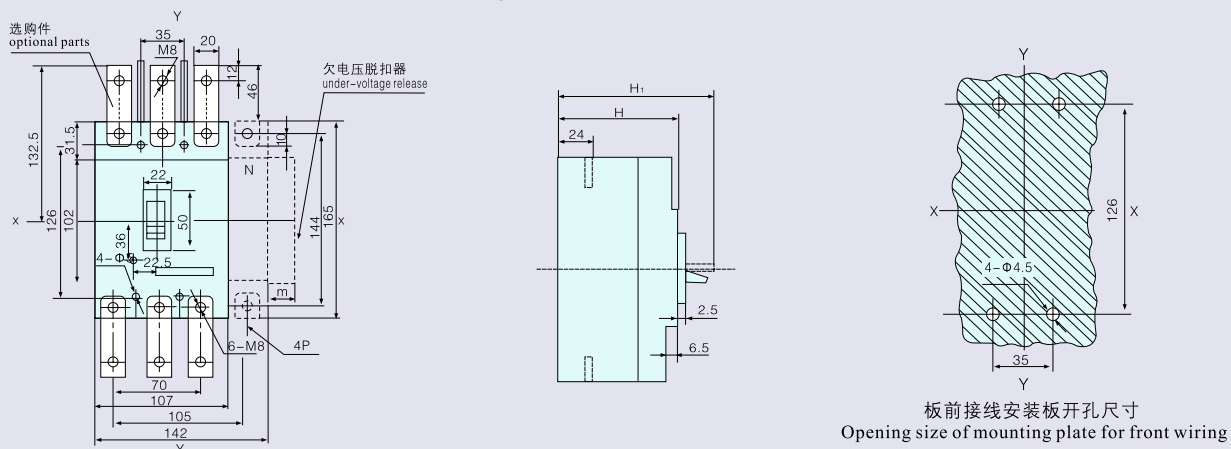
RNM1-160(L、M、H)板后接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心
RNM1-160(L、M、H) dimensions of rear wiring model (3P, 4P), X-X、Y-Y 3P breaker center.



RNM1-160(L、M、H)插入式接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心
RNM1-160(L、M、H) dimensions of plug-in wiring model (3P, 4P), X-X、Y-Y 3P breaker center.



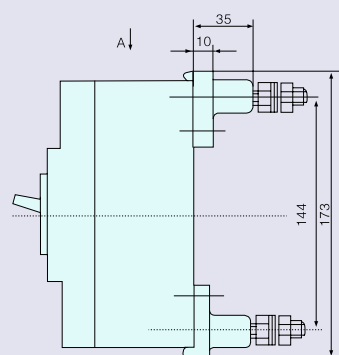
RNM1-225(L、M、H)板前接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心
RNM1-225(L、M、H) dimensions of front wiring model (3P, 4P), X-X、Y-Y 3P breaker center.



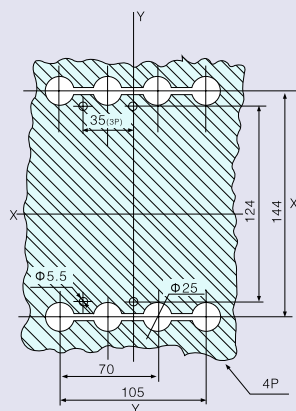
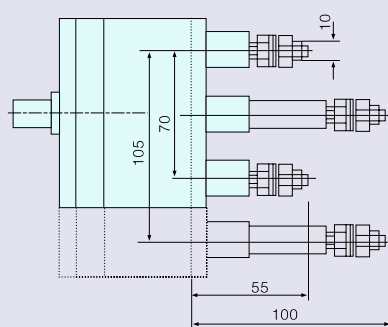
型号 Model	H	H1
RNM1-225L	68	110
RNM1-225M、RNM1-225H	103	127

欠电压脱扣器厚度m: 对A型、B型为12, C型为21。
 Under-voltage release thickness: A, B type: 12, C type: 21

RNM1-225(L、M、H)板后接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心
RNM1-225(L、M、H) dimensions of rear wiring model (3P, 4P), X-X、Y-Y 3P breaker center.



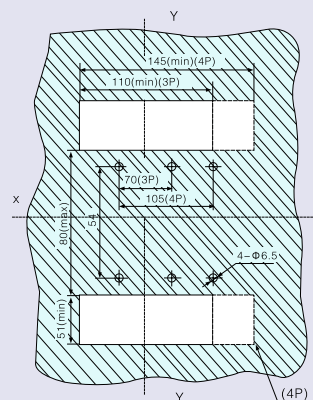
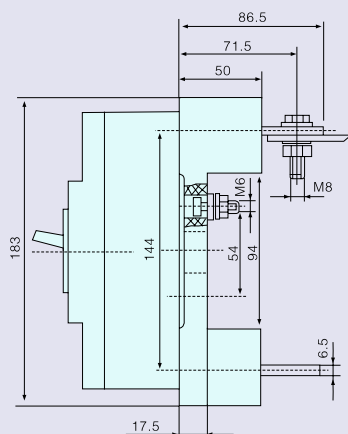
A向 A direction



板后接线安装板开孔尺寸
Opening size of mounting plate for rear wiring



RNM1-225(L、M、H)插入式接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心
RNM1-225(L、M、H) dimensions of plug-in wiring model (3P, 4P), X-X、Y-Y 3P breaker center.

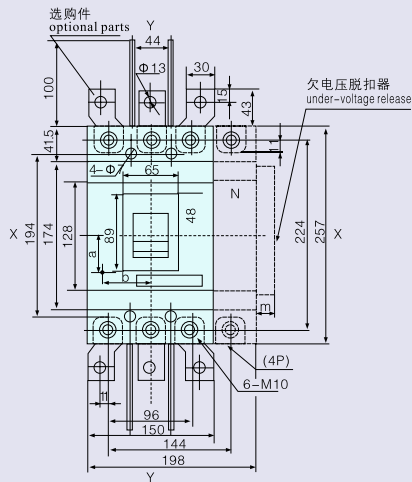


插入式安装板开孔尺寸
Opening size of mounting plate for plug-in wiring

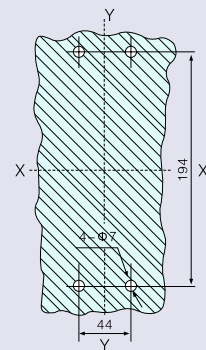
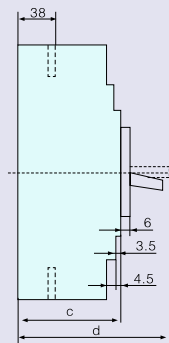
RNM1塑料外壳式断路器 Moulded case breakers

RNM1-400(L、M、H)板前接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心

RNM1-400(L、M、H) dimensions of front wiring model (3P, 4P), X-X、Y-Y 3P breaker center.



型号 Model	a	b	c	d
RNM1-400	43	57	105	155



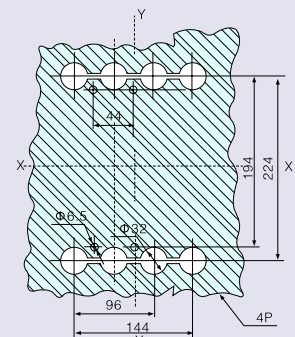
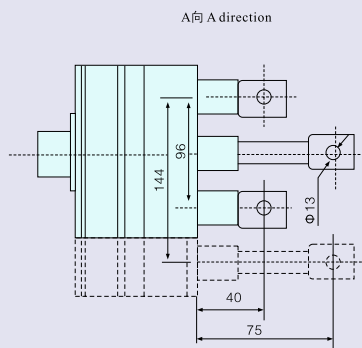
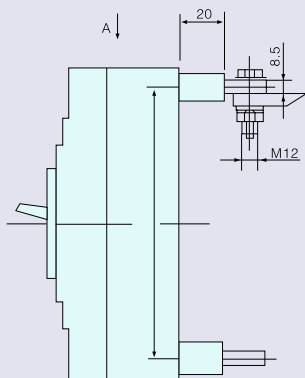
板前接线安装板开孔尺寸
Opening size of mounting plate for front wiring

欠电压脱扣器厚度m：对A型、B型为12，C型为0。

Under-voltage release thickness: A, B type: 12, C type: 0

RNM1-400(L、M、H)板后接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心

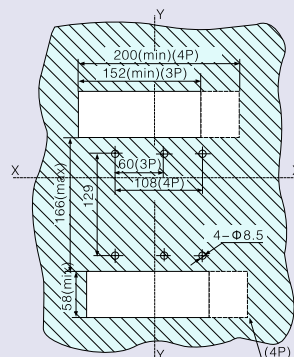
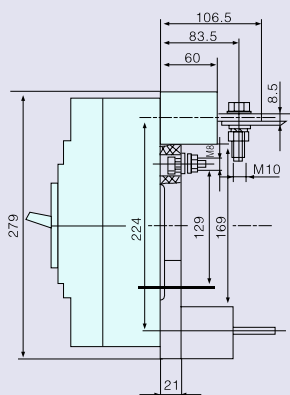
RNM1-400(L, M, H) dimensions of rear wiring model (3P, 4P), X-X, Y-Y 3P breaker center.



板后接线安装板开孔尺寸
Opening size of mounting plate for rear wiring

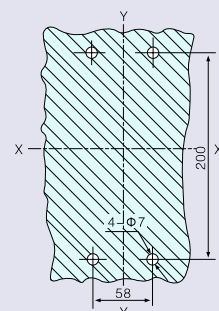
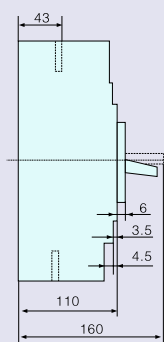
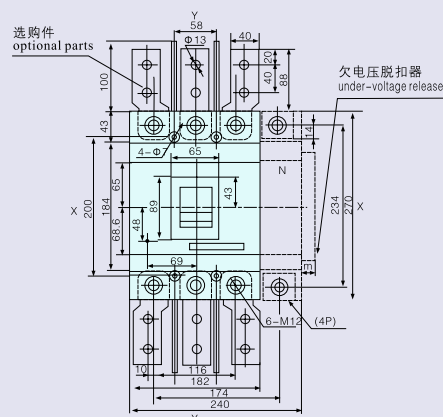
RNM1-400(L、M、H)插入式接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心

RNM1-400(L, M, H) dimensions of plug-in wiring model (3P, 4P), X-X, Y-Y 3P breaker center.



插入式安装板开孔尺寸
Opening size of mounting plate for plug-in wiring

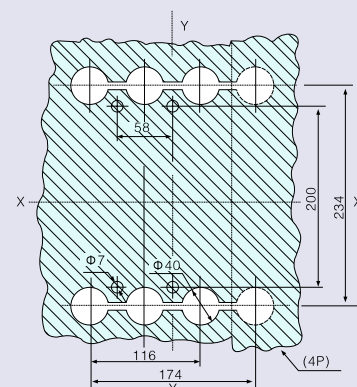
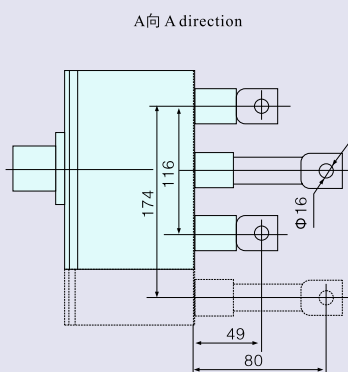
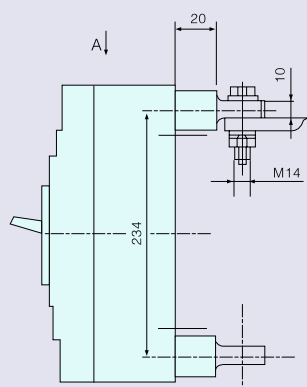
RNM1-630(L、M、H)板前接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心
RNM1-630(L、M、H) dimensions of front wiring model (3P, 4P), X-X、Y-Y 3P breaker center.



板前接线安装板开孔尺寸
Opening size of mounting plate for front wiring

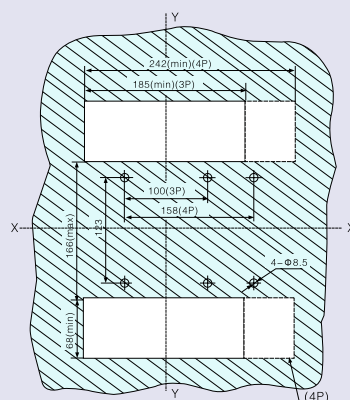
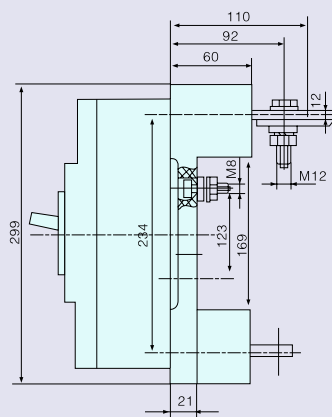
欠电压脱扣器厚度m: 对A型、B型为12, C型为21。
Under-voltage release thickness: A, B type: 12, C type: 21

RNM1-630(L、M、H)板后接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心
RNM1-630(L、M、H) dimensions of rear wiring model (3P, 4P), X-X、Y-Y 3P breaker center.



板后接线安装板开孔尺寸
Opening size of mounting plate for rear wiring

RNM1-630(L、M、H)插入式接线尺寸(三极、四极)X-X、Y-Y为三极断路器中心
RNM1-630(L、M、H) dimensions of plug-in wiring model (3P, 4P), X-X、Y-Y 3P breaker center.

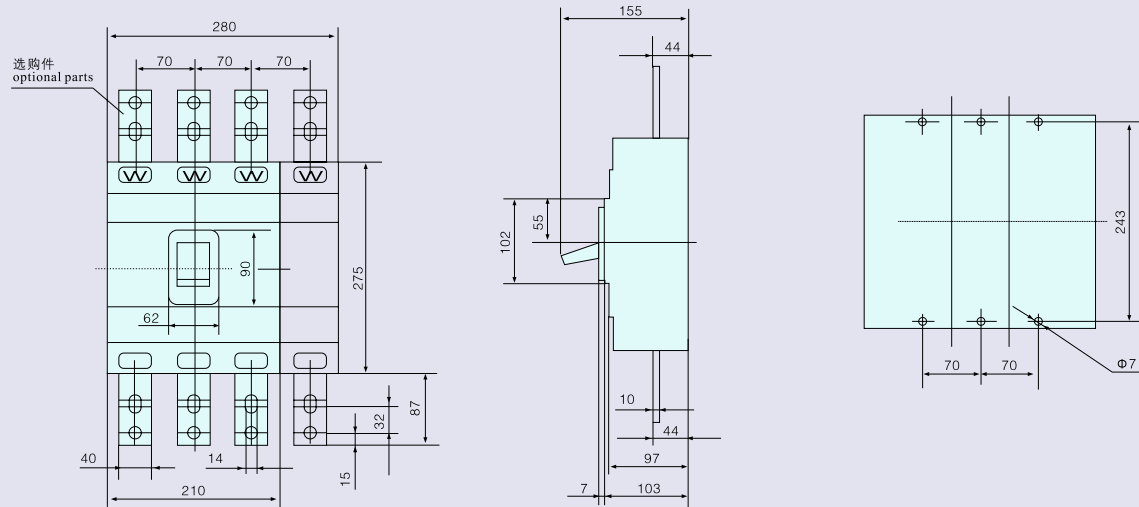


插入式安装板开孔尺寸
Opening size of mounting plate for plug-in wiring

RNM1塑料外壳式断路器 Moulded case breakers

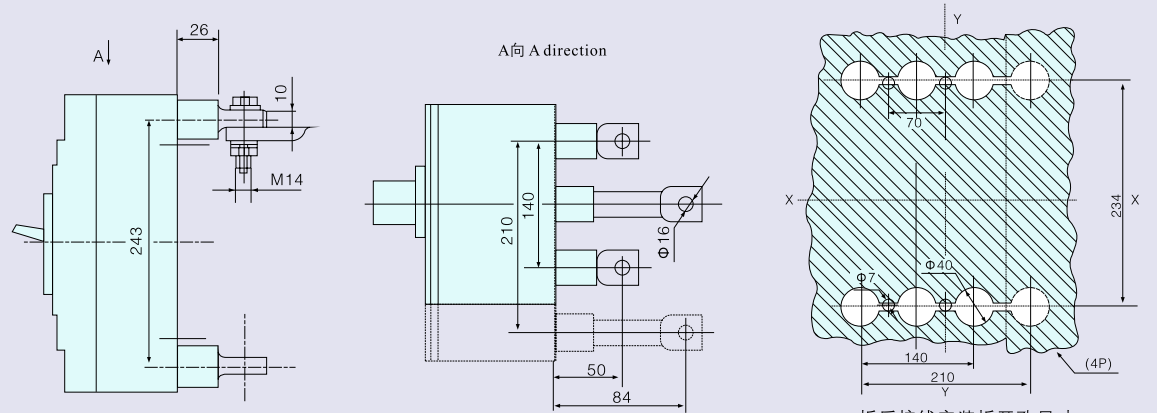
RNM1-800(M、H)板前接线尺寸(三极)X-X、Y-Y为三极断路器中心

RNM1-800(M、H) dimensions of front wiring model (3P), X-X、Y-Y 3P breaker center.



RNM1-800(M、H)板后接线尺寸(三极)X-X、Y-Y为三极断路器中心

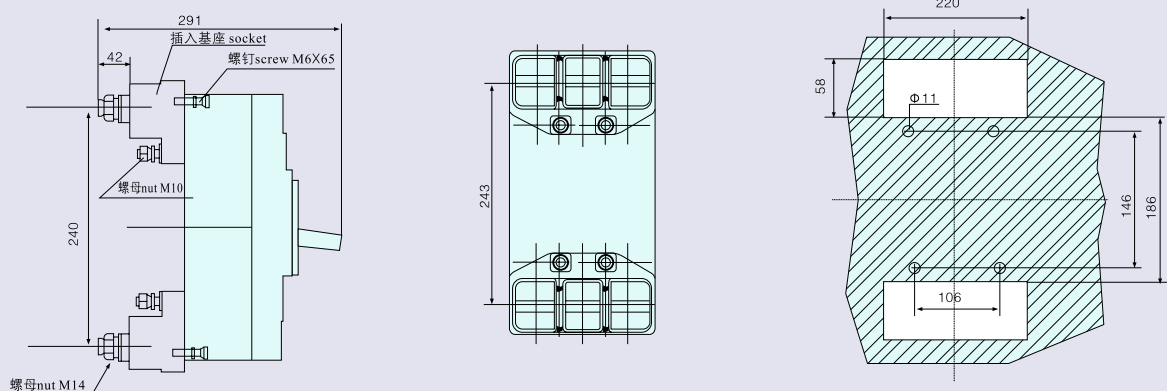
RNM1-800(M、H) dimensions of rear wiring model (3P), X-X、Y-Y 3P breaker center.



板后接线安装板开孔尺寸
Opening size of mounting plate for rear wiring

RNM1-800(M、H)插入式接线(三极)

RNM1-800(M、H) dimensions of plug-in wiring model (3P)



内外部附件 Internal/external accessories

断路器的内部附件

- 根据用户需要断路器附件可直接引出接线，或加装引出线接线端子。

The internal accessories of the breaker

- The accessories could lead to directly wiresplice or add outlet line lugs.

欠电压脱扣器

- 欠电压脱扣器分三种型号

A型：一个规格五个电压等级：AC50Hz 110V 230V 400V;
DC 110V 220V

B型：(三相保护)一个规格：AC 50Hz 400V

C型：两个规格：AC 50Hz 230V 或400V

Under-voltage release:

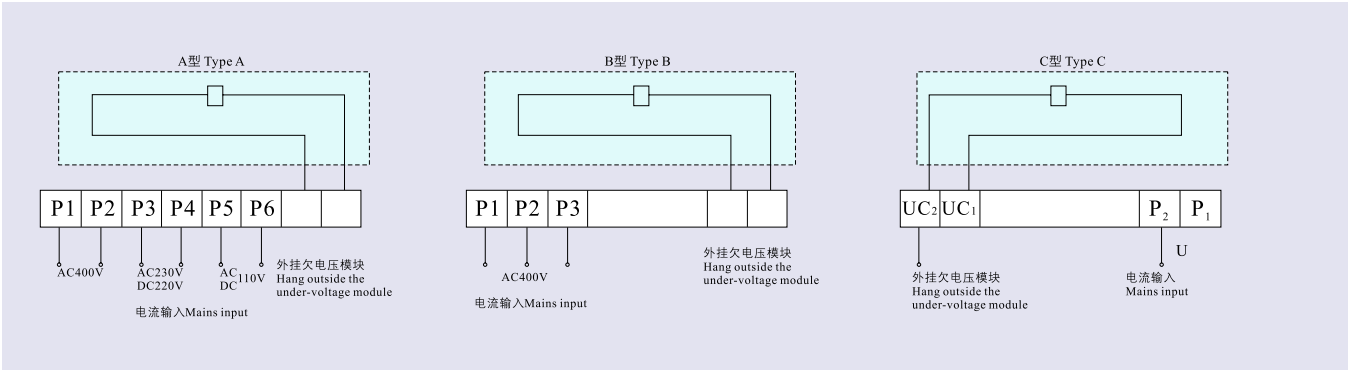
- There are three types fou Under-voltage release:

Type A: AC50Hz 110V,230V,400V;
DC 110V,220V

Type B: AC50Hz 400V(three phase protection i.e. open phase protection);
Type C: AC50Hz 230V,400V

接线图(虚框内为开关内部附件)请用户确认电压后正确接线。

Scheme of wiring (the internal accessories in the dotted frame) the users couldn't lead to wiresplice correctly until determined the voltage.



接线图(虚框内为开关内部附件)请用户确认电压后正确接线。

Scheme of wiring (the internal accessories in the dotted frame) the users couldn't lead to wiresplice correctly until determined the voltage.

欠电压、分励脱扣器功率见表十

- 在额定工作电压的70%~35%时，欠电压脱扣器应可靠使断路器脱扣，85%~110%Ue可靠合闸≤35%Ue应防止合闸。
警告：欠电压脱扣器必须先通电，断路器才能再扣及合闸。否则将损坏开关；

Power of the under-voltage release see following table 10 please

- The under-voltage release should make the breaker releasing reliably when 70%~35% of the rated running voltage
Note: Only the under-voltage release should be energized in advanced, the breaker could be recramped and turned-on, otherwise the breaker will be damaged!

表十 Table 10

配用断路器 Fitting breaker	欠电压脱扣器功率(W) Power of the under-voltage release(W)	
	AC230V	AC400V
RNM1-63	3.5	3.3
RNM1-100	2.6	3.3
RNM1-160	3.8	3.3
RNM1-225	3.8	3.3
RNM1-400	3.7	2.7
RNM1-630	2.3	2.7
RNM1-800	2.5	2.8

警告：欠电压脱扣器必须先通电，断路器才能再扣及合闸，否则将损坏断路器！

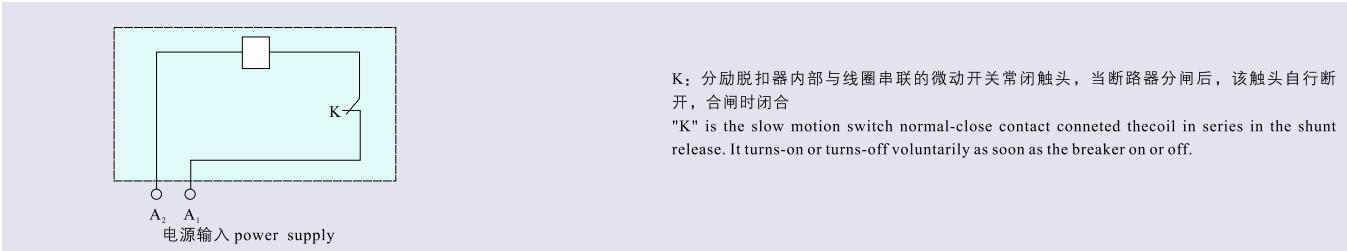
Warning: Under-voltage release shall be energized, then breaker can be allowed to be closed, or breaker may be damaged.

内部附件 Internal accessories

分励脱扣器 Shunt release

接线圈(虚框内为断路器内部附件)

Scheme of wiring(the internal accessories in the dotted frame)



- 电压规格: AC50Hz 230V、400V ; DC220V、24V。
- 在额定控制电源电压Us的70~110%之间时, 分励脱扣器应可靠使断路器脱扣。

- Voltage rating : AC50Hz 230V or 400V ; DC220V or 24V.
- The shunt release should make the breaker trip reliably when the operation voltage is 70%~110%of the rated control voltage.

注:

- 当额定控制电源电压为DC24V时, 有两种解决方案:
- 方案1:采用DC24V分励脱扣器, 但应满足如下条件: 铜导线最大长度(两根导线中每根长度)须满足下表条件, 脱扣器接线端处的电源功率须满足最小50W要求。

- Note:
- While selecting DC24V voltage of the rated control power-supply,selecting two project.
- Project1: Selecting DC24V release, but satisfy right table, and min-power capacity is 50W.

表十一 Table 11

额定控制电源电压Us(DC24V) The rated control voltage	导线截面积 Wire area	1.5mm ²	2.5mm ²
100%Us		150m	250m
85%Us		100m	160m

- 方案2:采用DC24V中间继电器控制AC230V或400V分励脱扣器, 中间继电器触点容量不小于1A。

- Project2: Selecting the inter mediate relay of DC24V with 1A current capacity of its contactor.

报警触头 Alarm contact

断路器处于“分”“合”时的位置 The position of the breaker in "off" or "on"	
断路器处于“自由脱扣”(报警)时的位置 The position of the breaker in "free release"(alarm)	B11、B12接通状态转为断开状态, B11、B14断开状态转为接通状态。 B11 and B12 switch from "close" to "open", status of B11 and B14 switch from "open" to "close"

辅助触头 Auxiliary contact

断路器处于“分”时的位置 When the breaker is in "off"		壳架等级电流400A及以上断路器 For the breaker with frame current 400A and above
断路器处于“合”时的位置 When the breaker is in "on"		壳架等级电流225A及以下断路器 For the breaker with frame current 250A and under

辅助触头、报警触头额定电流见表十二

Rated current of the auxiliary contact and alarm contact see following Table 10 please

表十二 Table 12

分类 Classifications	壳架等级额定电流 (A) Rated frame graded current (A)	约定发热电流(A) Appointed exothermic current (A)	额定工作电流Ie(A) Rated working current	
			AC400V	AC220V
辅助触头 Auxiliary contact	$I_{nm} \leq 250$	3	0.3	0.15
	$I_{nm} \geq 400$	3	0.4	0.15
报警触头 Alarm Contact	$63 \leq I_{nm} \leq 800$	3	0.3	0.15

辅助触头的通电操作性能及相应的试验条件见表十三

Electrical performance of auxiliary contact and the corresponding test condition see table 13

表十三 Table 13

使用类别 Service category	接通 on			分断 off			通电操作 循环次数 Electrical operation times	每分钟操作 循环次数 Operation times per minute	通电时间(s) On-time(s)
	I/Ie	U/Ue	cosΦ 或 T0.95	I/Ie	U/Ue	cosΦ 或 T0.95			
AC-15	10	1	0.3	1	1	0.3	6050	6	$\geq 0.05s$
DC-13	1	1	6Pe	1	1	6Pe			$\geq T0.95$

辅助触头的非正常条件下接通与分断能力见表十四

The on-off ability of the auxiliary contact under improper condition see following Table 14 please :

表十四 Table 14

使用类别 Service category	接通 on			分断 off			通电操作 循环次数 Electrical operation times	每分钟操作 循环次数 Operation times per minute	通电时间(s) On-time(s)
	I/Ie	U/Ue	cosΦ 或 T0.95	I/Ie	U/Ue	cosΦ 或 T0.95			
AC-15	10	1.1	0.3	10	1.1	0.3	10	2	$\geq 0.05s$
DC-13	1.1	1.1	6Pe	1.1	1.1	6Pe			$\geq T0.95$

上述二表注释：

- 1.T0.95=6Pe是经验公式，其中Pe以“瓦”单位，T0.95毫秒为单位。
- 2.当断路器的操作性能总次数小于6050次时，则辅助触头的通电操作性能次数可与断路器操作性能总次数相等。
- 3.操作频率和通电时间允许与断路器主电路的一致。

for the above two tables :

1. “T0.95=6Pe”is a traditional formula in which watt is unit of“Pe”and mini-second is unit of“T0.95”。
- 2.If the total operation times of the breaker is less than 6050, the operation times of electrical performance of the auxiliary contact will be equal to that of the breaker.
- 3.Frequency and duration under current of the auxiliary contact could be same as that of the main circuit of the breaker.

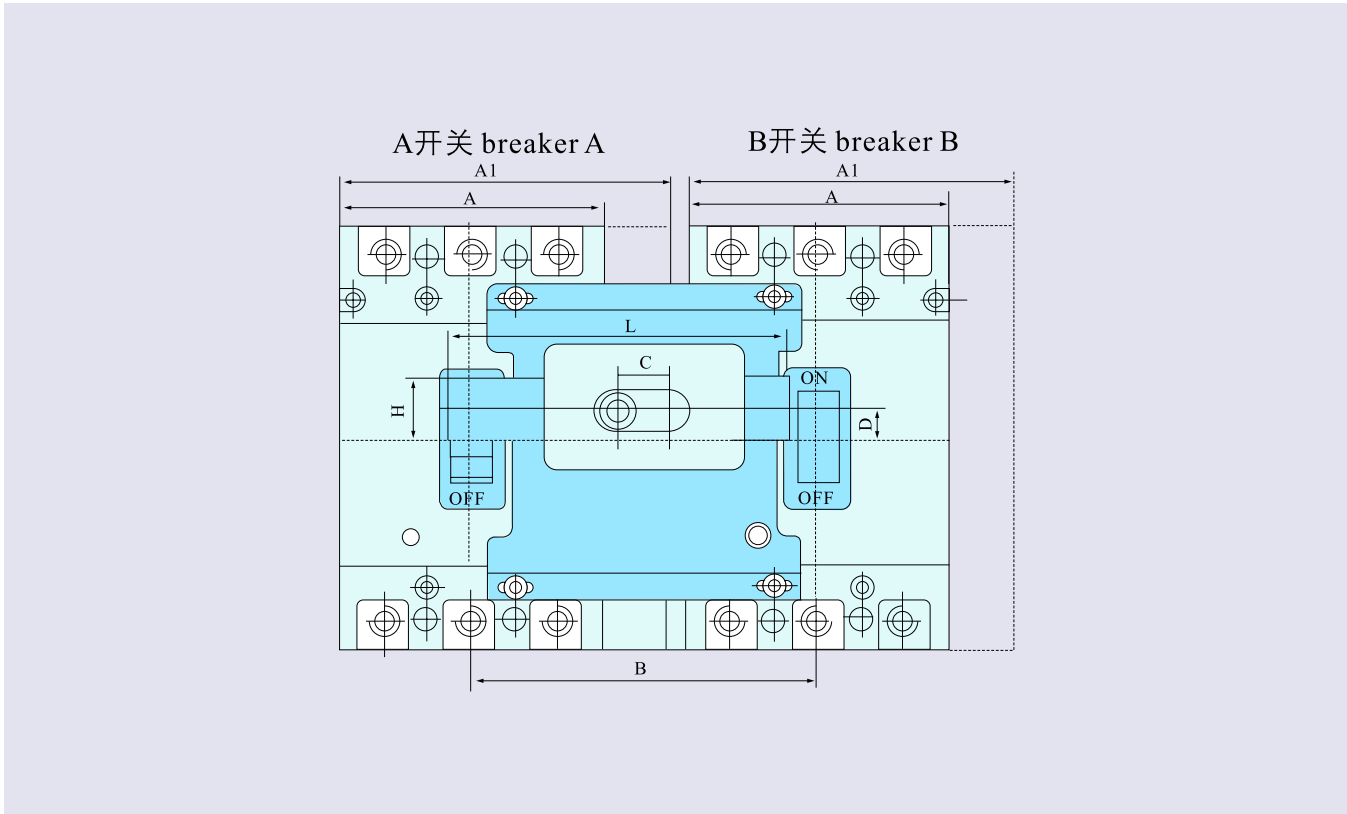
外部附件 external accessories

断路器的外部附件

- 两台断路器的机械联锁机构

The external accessories of the breaker

- The mechanical interlock mechanism between two breakers



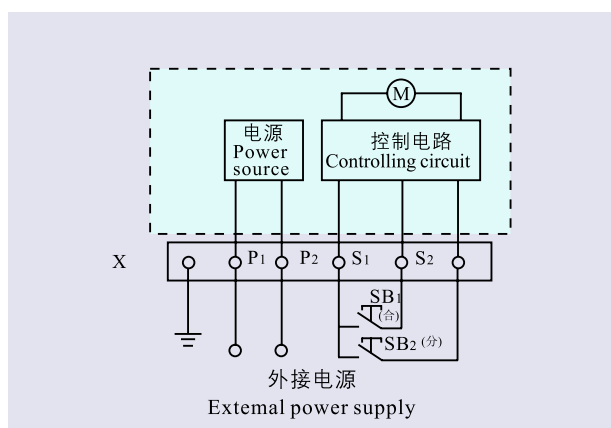
表十五 Table 15

产品名称 Name of the product	A	A1	B	C	D	L	H	备注 Note
RNM1-63	78		102	18	13	95	22	用于RNM1-63L、M
RNM1-100	92		120	18	11.5	118	22	用于RNM1-100、L、M、H
RNM1-160	107		135	18	9	130	22	用于RNM1-160、L、M、H
RNM1-225	107		135	18	9	130	22	用于RNM1-225、L、M、H
RNM1-400	150		190	42	16	175	22	用于RNM1-400、L、M、H
RNM1-630	182		220	42	12	198	22	用于RNM1-630、L、M
RNM1-800	210		240	42	29.5	230	20	用于RNM1-630H及800M、H
RNM1-63/4P		103	132	18	13	125	22	用于RNM1-63/4P
RNM1-100/4P		122	152	18	11.5	150	22	用于RNM1-100/4P
RNM1-160/4P		142	173	18	9	168	22	用于RNM1-160/4P
RNM1-225/4P		142	173	18	9	168	22	用于RNM1-225/4P
RNM1-400/4P		198	240	42	16	225	22	用于RNM1-400/4P
RNM1-630/4P		240	280	42	12	258	22	用于RNM1-630/4P

电动操作机构 Motor-driven Operation device

CD2电动机操作机构(配用RNM1系列)接线图见下图(虚框内为断路器外部附件接线图)

Wiring diagram of type CD2 motor-driven operation device (fitting RNM1 series) see the following drawing (wiring diagram of external accessories of the breaker in the dotted frame)



符号说明：

SBI、SB2操作按钮(用户自备),X接线端子排

P1、P2为外接电源

Code description：

SBI、SB2 stand for push button,users themselves),“X”stands for line connection terminals (provided by

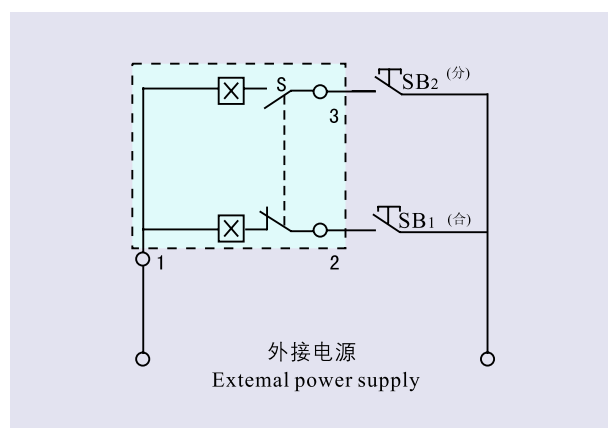
P1、P2 stand for external power supply

电压规格：AC50Hz 110V、230V；DC24V、110V、220V

Voltage rating：AC50Hz110V、230V；DC24V、110V、220V

CDM电磁铁操作机构(配用RNM1-63、100)接线图见下图(虚框内为断路器外部附件接线图)

Wiring diagram of type CDM electromagnetic operation device (fitting RNM1-63、100) see the following drawing (wiring diagram of external accessories of the breaker in the dotted frame)



符号说明：

SBI、SB2操作按钮(用户自备)

编号1、2、3为接线端子号

Code description：

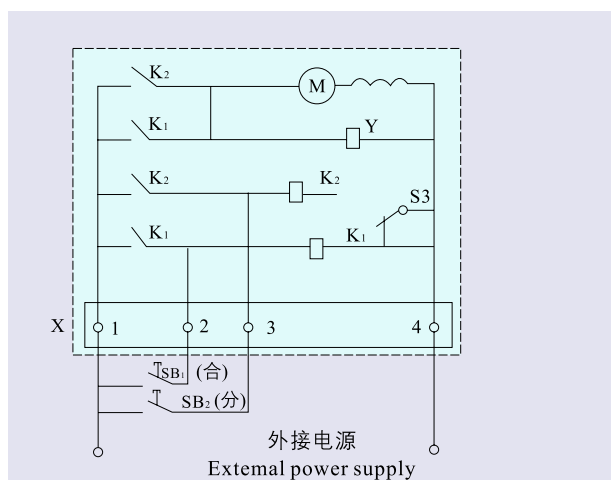
SBI、SB2 stand for push button. (provided by users themselves) Number “1”、“2”、“3” stand for number of wiring terminals.

电压规格：AC50Hz 400V

Voltage rating：AC50Hz400V

CD电动机操作机构（配用RNM1-400、630、800）接线图见下图（虚框内为断路器外部附件接线图）

Wiring diagram of type CD motor-driven operation device(fitting RNM1-400、630、800) see bellows(wiring diagram of the external accessories of the breaker in the dotted frame)



符号说明：

SBI、SB2操作按钮(用户自备),X为接线端子号

Code description：SBI、SB2 stand for push button. (provided by users themselves),X stand for number of wiring terminals.

电压规格：AC50Hz 400V

Voltage rating：AC50Hz400V

注：电动操作机构外接电源为400V时，供CDM电磁铁操作机构(配RNM1-160、225、250断路器除外)或CD电动机操作机构，其它电压等级只供CD2电动机操作机构。

Note：For the motor-driven device with external power supply of 400 Volts, model CDM, eletro-magnetic operation device(with exception of being equipped WithRNM1-160, 225, 250A breakers)or model CD motor-driven operation device should be equipped. For those of other voltage rating, only model CD2 motor-driven operation device should be equipped.

电动操作机构的动作电流、功率及寿命见表十六

Pickup current, power and electrical life of the motor-driven operation device see following Table 16 please.

表十六 Table 16

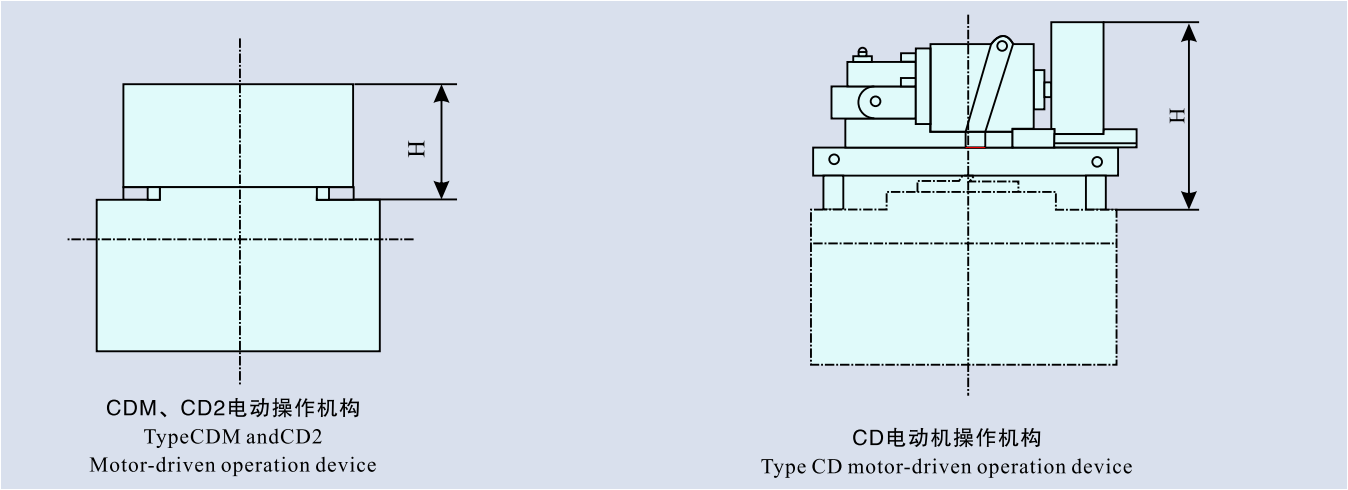
配用断路器 Fitting breaker	动作电流(A) Pickup current(A)			电机功率(W) Motor power(W)			寿命(次) Life(time)		
	CD2电动机 Motor- driven type	CDM电磁铁 Electro- magnetic type	CD电动机 Motor- driven type	CD2电动机 Motor- driven type	CDM电磁铁 Electro- magnetic type	CD电动机 Motor- driven type	CD2电动机 Motor- driven type	CDM电磁铁 Electro- magnetic type	CD电动机 Motor- driven type
RNM1-63	≤0.5	≤5		14	110		10000	10000	
RNM1-100	≤0.5	≤7		14	154		10000	10000	
RNM1-160、225、250	≤0.5			14			8000		
RNM1-400	≤2		≤5.7	35		120	5000		5000
RNM1-630	≤2		≤5.7	35		120	5000		5000
RNM1-800	≤2		≤7.5	35		200	3000		3000

注：断路器脱扣跳闸后，电动操作机构必须先使断路器再扣，然后才能合闸。

Having released and tripped the breaker, the power-driven operation mechanism should make the breaker recramped first, then it could be turned-on

电动操作机构高度

Height of the motor-driven operation device



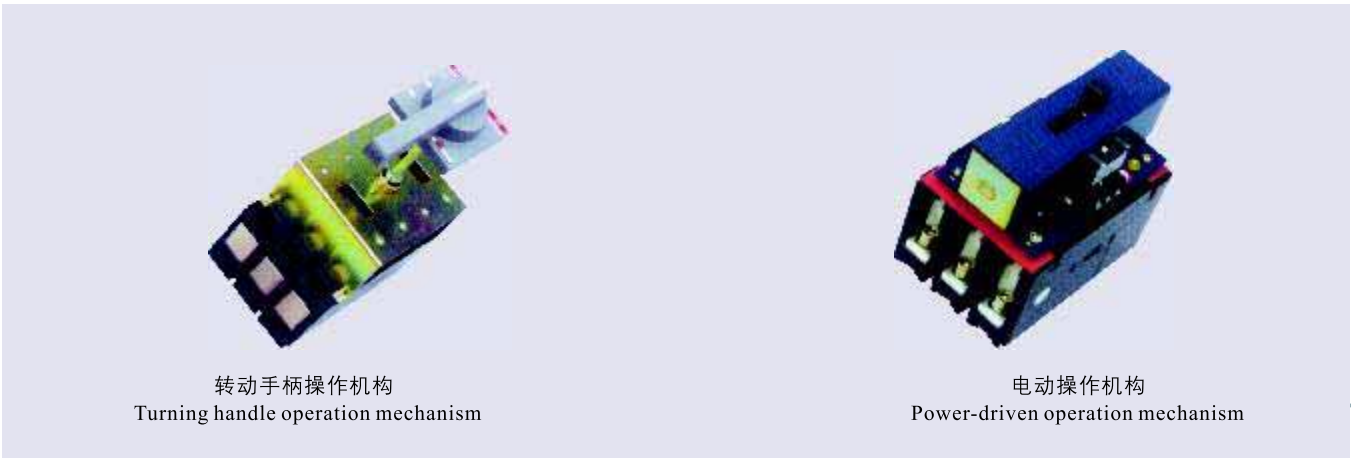
电动操作机构高度见表十七

The height of the power-driven operation device see following Table 17 please

表十七 Table 17

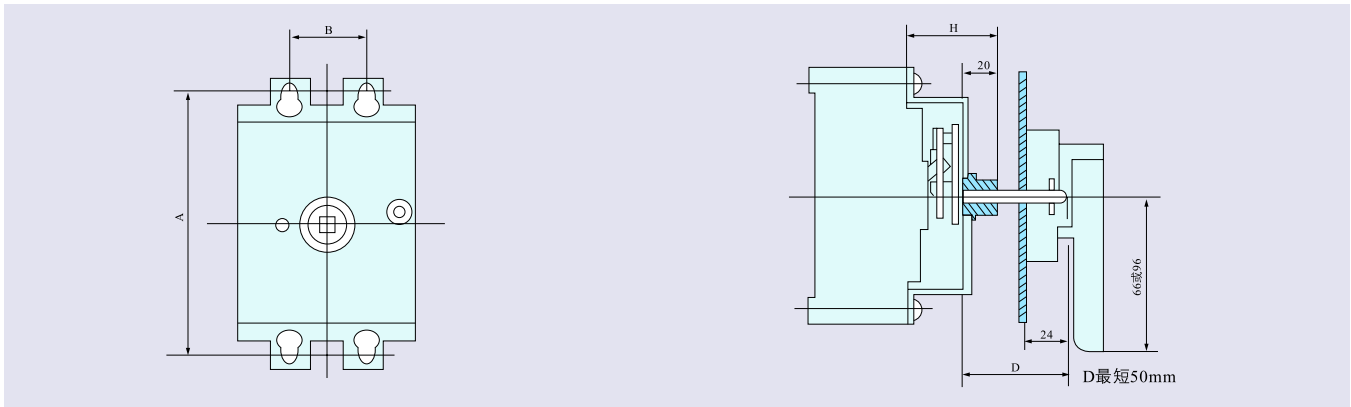
操作机构所配断路器型号 The type of the breaker fitting for operation device		RNM1-63	RNM1-100	RNM1-160 225 250	RNM1-400	RNM1-630	RNM1-800
高度H(mm) Height	CD2电动机式 Motor- driven type	90.5	89.5	93	142	153	146
	CDM电磁铁式 Electromagnetic type	91	91				
	CD电动机式 Motor-driven type				141	141	150

操作机构 Operation mechanism



操作机构另配备有CS1系列(分金属型和塑料型两种结构)供用户使用，外形及尺寸见下图

In addition, there are CS1 series operation mechanism for choosing ty users, the outline and dimensions as following.



表十八 Table 18

手操作机构型号 Type of manual operation mechanism		配用断路器型号 Type of fitting breaker	A	B	H
CS1-50/M	CS1A-50/M	RNM1-63L、M	100	25	49
CS1-100/M	CS1A-100/M	RNM1-100、L、M、H	104	30	50
CS1-225/M	CS1A-225/M	RNM1-160、225、L、M、H	143	35	56
CS1-400/L	CS1A-400/L	RNM1-400、L	194	138	84
CS1-400/H	CS1A-400/H	RNM1-400M、H	194	138	84
CS1-630/M	CS1A-630/M	RNM1-630、L、M	200	168	84
CS1-800/M	CS1A-800/M	RNM1-630H、RNM1-800M、H	171	70	84

RNM1塑料外壳式断路器

Moulded case breakers

CS1系列RNM1(CS2)系列同一种机构可选择二种手柄操作：一种方形手柄简称“F”型手柄，另一种图形手柄简称“A”型手柄(如图)

● “A”型手柄特点

结构简单、安装方便。

同样具有对应断路器不同规格面板开孔一致的功能。

● “F”型手柄特点

断路器带欠电压脱扣器并处于脱扣位置时可关闭柜门和采用紧急解锁开启柜门。对应断路器不同规格，门板开孔一致。

● 订货须知

方轴长度 $D=150$ ，长度大于150mm时，在订货时注明；

凡选用“F”型手柄，型号CS1、RNM1(CS2)不加注“F”。

如CS1-100/M、CS2-100/M等；

凡选用“A”型手柄，型号加注“A”。即为CS1A、CS2A。

如CS1A-225/M、CS2A-225/M等。

There are two types of handle for operating the same mechanism of CS1 and CS2 series devices: the square one name type "F" handle, the round one named type "A" handle.

○ The feature of type "A" handle

With the simple structure, easy to mount.

The aperture dimensions of the gate plate is identical for various type of breakers.

○ The feature of type "F" handle

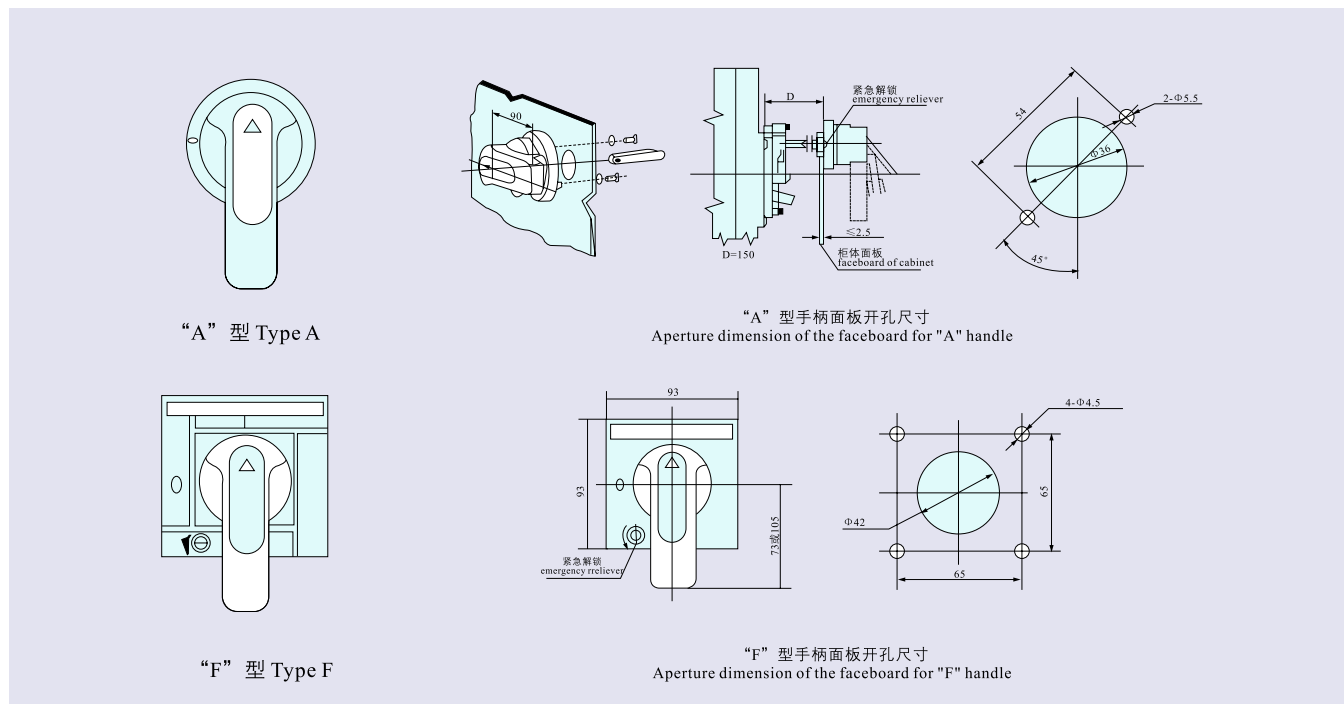
The breaker is with under-voltage release, when it is on "release" position the panel gate could be closed, and be opened in an emergency with "emergency reliever"

The aperture dimensions of the gate plate is identical for various type of breakers.

○ Ordering notice "F" handle

Quadrate shaft Length $D = 150\text{mm}$, if over 150mm, please indicate when placing an order

If choosing the "F" handle, type CS1 and RNM1 (CS2), needn't note the symbol "F", for example CS1-100/M, CS2-100/M and so on .If choosing the "A" handle, should note the symbol "A", THAT IS CS1A,CS2A, for example CS1A-225/M,CS2A-225/M and so on.



● 警告用户

手动操作机构，须向本公司配套订货保证质量

如用户自行购买，请选用质量可靠的厂家配套，否则装配后发生的一切不良后果本公司不能负责。

○ Advice to users:

The manual operation mechanism should be placed it order with the plant for complete set. If bought by yourselves please pickout and buy the products of certain quality certificated factories. otherwise, any harmful effects took place after mounted,the plant would be not responsible for it.

不同额定电流的连接导线参考截面 Cross-sectional area of connecting wire with different current rating

不同额定电流的连接导线参考截面见表十九

Cross-sectional area of connecting wire with different current rating see table 19 for cross-sectional area of connection wire with different current rating

表十九 table 19

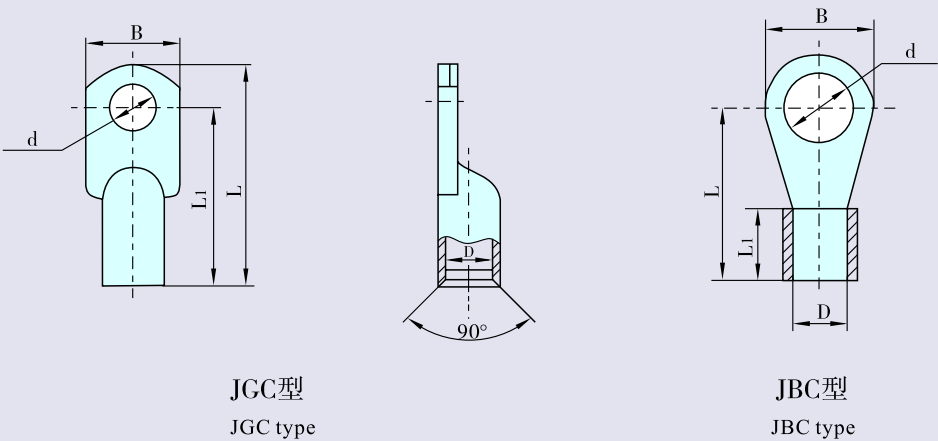
额定电流值(A) Rated Current(A)	6、10	16、20	25	32	40、50	63	80	100	125 140	160	180 200 225	250	315 350	400
导线截面积(mm2) Cross-sectional area of wire(mm2)	1. 5	2. 5	4	6	10	16	25	35	50	70	95	120	185	240

额定电流值 (A) Rated Current(A)	电缆 Cable		铜排 Copper bar	
	截面积(mm2) Area of wire(mm2)	数量 Number	尺寸 (mm×mm) Dimension (mm×mm)	数量 Number
500	150	2	30×5	2
630	185	2	40×5	2
700,800	240	2	50×5	2

接线端子型号 type of wiring terminal

接线端子有JGC及JBC两种

Two types of wiring terminals are supplied : JGC and JBC



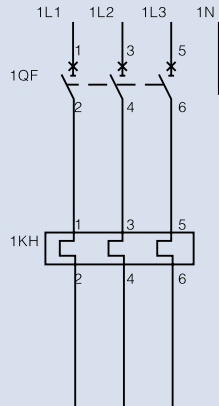
型号 Type	电流(A) Current(A)	导线截面积(mm²) Cross-sectional Area of wire(mm²)	端子型号 Type of Terminal	B	L	L ₁	D	d
RNM1-63	6、10、16、20	2.5	JBC2.5-5	10.4	18.2	9	Φ2.6	Φ5.2
	25	4	JBC4-5	11.7	20.2	9	Φ2.8	Φ5.2
	32	6	JBC6-5	12.8	22.6	10.3	Φ3.5	Φ5.2
	40、50	10	JBC10-5	13.7	25.2	12.2	Φ4.2	Φ5.2
	63	16	JGC16-5	12.5	38	31.5	Φ6	Φ5.2
RNM1-100	10、16、20	2.5	JBC2.5-8	15	24.5	8.5	Φ2.6	Φ8.2
	25	4	JBC4-8	13.4	20.4	9.2	Φ2.8	Φ8.2
	32	6	JBC6-8	15	24.5	10	Φ3.5	Φ8.2
	40、50	10	JBC10-8	15	24.5	11	Φ4.5	Φ8.2
	63	16	JGC16-8	12.5	41	33.5	Φ6	Φ8.2
	80	25	JGC25-8	14	46	38.5	Φ7	Φ8.2
	100	35	JGC35-8	15.5	52	44.5	Φ8	Φ8.2
RNM1-160	100	35	JGC35-8	15.5	52	44.5	Φ8	Φ8.2
	125、140	50	JGC50-8	17	54	45	Φ10	Φ8.2
	160	70	JGC70-8	21.6	61	52	Φ11	Φ8.2
RNM1-225	100	35	JGC35-8	15.5	52	44.5	Φ8	Φ8.2
	125、140	50	JGC50-8	17	54	45	Φ10	Φ8.2
	160	70	JGC70-8	21.6	61	52	Φ11	Φ8.2
	180、200、225	95	JGC95-8	22	66	57	Φ13	Φ8.2



消防用过载不脱扣只报警接线参考图

W I R I N G R E F E R E N T I A L D I A G R A M O F F I R E C O N T R O L
W I T H O U T R E L E A S E B U T A L A R M D U E T O O V E R L O A D

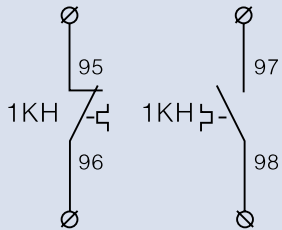
配电用
For power distribution
接至主电路
In connection with the main ciucuit



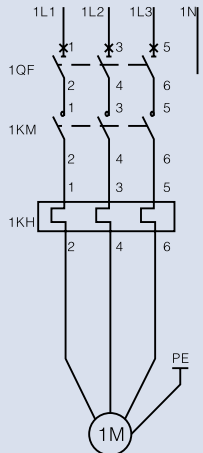
接至负载
In connection with 1oad

接至信号灯或蜂鸣器

In connection with the signal light or the buzzer

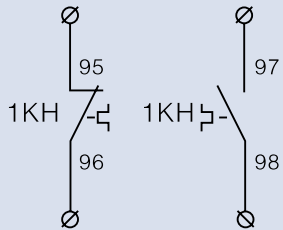


电动机用
For motor
接至主电路
In connection with the main ciucuit



接至信号灯或蜂鸣器

In connection with the signal light or the buzzer



3	1KH	热继电器 thermal relay	TK
2	1KM	接触器 Contactor	SC
1	1QF	断路器 Circuit Breaker	RNM1/-3200或CM1/4200配电用 For power distribution RNM1/-32002电动机用 For motor
序号 Serial	代号 Code	名称 Name	规格 Specification

说明：本图中RNM1塑料外壳式断路器仅提供短路保护。当主电路负载过载时，由热继电器提供信号至用户装设的信号灯或蜂鸣器发出指示，而不提供信号至用来切断电路的接触器或其它执行元件，因此有烧毁断路器及其它主电路元器件的可能。

Illustrations : The RNM1 series MCCB in the drawing only can provide short circuit protection. When the main circuit is overloaded, the thermal relay will provide signals to the signal light or the buzzer installed by users SO as to send Out indications, rather than to break off the contactor of the circuit break or other executive components. Therefore, it is possible to burn down the circuit breaker and other components of the main circuit.

RNM1塑料外壳式断路器

Moulded case breakers

订货规范 Order Form

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

经销商: _____
Dealer

成套单位: _____
Complete sets of company

项目名称: _____
Project name

订货台数: _____ 订货日期: _____
Order Amount Date

型号及额定电流 Type and Rated current

型号: RNM1- /
Type

额定电流: I_n = A
Rated current I_n

接线方式 Way of wiring

板前接线 ☐
Wiring in front of the board

板后接线 ☐
Wiring on back of the board

插入式 ☐
Wiring by insertion

附件 Attachments

欠电压脱扣器 Under Voltage Release	A型 Type A	AC400V ☐ AC230V ☐ AC110V ☐ DC220V ☐ DC110V ☐
	B型 Type B	AC400V ☐
	C型 Type C	AC400V ☐ AC230V ☐
分励脱扣器 Shunt Release	AC400V ☐ AC230V ☐ DC220V ☐ DC24V ☐	
电动机操作机构 Motor-driven	CD2	AC230V ☐ AC110V ☐ DC220V ☐ DC110V ☐
	CDM	AC400V ☐
	CD	AC400V ☐
接线端子 Wiring Terminals	JBC ☐ JGC ☐	
转动手柄操作机构 ☐ Turning Handle Operation Device		机械联锁机构 ☐ Interlock Device
连接排 ☐ Connection Bus-bar		内部附件接线端子排 ☐ Line wiring terminals of the internal accessories

注:

- ①RNM1-100飞弧距离分“0”飞弧与“50mm”两种, 订货时需注明;
- ②额定电流 $160 \leq I_n \leq 800$ 的配电用断路器, 电磁脱扣器动作电流整定值有 $5I_n$ 和 $10I_n$, 订货时需注明;
- ③对RNM1-63、RNM1-100、160、225、250, 脱扣器方式及内部附件代号为220、320、240、340、270、370, 可提供两对辅助触头(二常开、二常闭), 260、360可提供三对辅助触头(三常开、三常闭), 订货时需要注明。

Note:

- ①Arcing distance of RNM1-100 is of “0” and “50mm”, please mark out in case of making order.
- ②For the breaker of rated current (I_n) between 160A to 800A, the action current setting of electri-magnetic release is $5I_n$ or $10I_n$, please mark Out in case of making order.
- ③For RNM1-63, RNM1-100, 160, 225 and 250, the accessories codes are 220, 320, 240, 340, 270, 370, two sets of auxiliary contacts (two normally-opened, two normally-closed), will be available. Codes 260 and 360 can provide three pair of auxiliary contacts (three normally-opened, three normally-closed), will be available, please mark out in making order

备注 Note

工程业绩

ENGINEERING OUTSTANDING ACHIEVEMENT



国务院重点项目

三峡工程	双流国际机场扩建工程	中国首钢集团	甘肃省酒钢集团宏达有限责任公司
北京奥林匹克水上公园	重庆袁家岗奥林匹克体育中心	广州石化	河南南方钢铁有限公司
北京奥运会配套项目	新白云国际机场	中国长城铝业公司	河南卫成多晶硅有限公司
北京五棵松体育馆	武汉天河机场	洛阳石化	河南鹤壁电力公司
国务院机关事务管理局	上海地铁明珠三号线	广西平果铝业	河南漯河电力公司
中国中央电视台	重庆国际会议中心	岳阳石化	河南水利厅
首都国际机场	山西万家寨引黄工程	广西柳钢	江苏南通热电厂
二炮导弹基地	青海小游山生态工程	南京石化	江苏百纳环境工程有限公司
中国空空导弹研究中心	天津“八大片”供热工程	马鞍山钢铁	山东华金纸业集团有限公司
中国人民解放军空军雷达基地	山东菏泽市引黄供水工程	北京燕山石化	河南许昌东区热电厂
“南水北调”	上海国际航运中心洋山深水港工程	山西中阳钢厂	河南许昌热电厂
黄衢南高速公路	四川西昌卫星发射中心	乌鲁木齐石化	河南新乡化工纤维厂
“西电东送”	广西龙滩水电工程	大庆油田	河南许继电气股份有限公司
“西气东输”	甘肃卫星发射中心	锦西石化	
上海磁悬浮轨道交通车站	云南红河南沙水电站	胜利油田	
上海世博会配套项目	大唐国际发电股份有限公司	独山子石化	
上海浦东机场	贵州开磷化工	辽河油田	
上海国际汽车博物馆	内蒙古神华集团有限责任公司	北京金融街	
上海虹桥机场扩建工程	金山石化	塔里木油田	
内蒙古呼和浩特白塔机场航站楼	上海宝钢集团	成都大熊猫生态园博物馆	
沈阳奥体中心	泰州石化	克拉玛依油田	
云南2409空军机场	鞍山钢铁集团	青岛北海船厂	
青岛奥体中心	吉林石化	陕西长庆石油	
北京南郊机场	武汉钢铁公司	中国核工业总公司五〇四厂	
济南奥体中心	广西柳化	甘肃省电力公司兰州供电公司	



The important projects of the State Council

Three Gorges Project

Beijing Shunyi Olympic Rowing-Canoeing Park(SRC)
Supporting Projects for Beijing Olympic Games
Beijing Wukesong Indoor Stadium
Government Offices Administration of State Council
China Central Television(CCTV)
Beijing Capital International Airport
Missile Base of PLA Second Artillery Corps
China Research Center for Air to Air Missile
Radar Base of PLA Air Force
"South-to-North Water Diversion Project"
Huang Qu Nan Highway
"West-East Electricity Transmission Project"
"West-East Gas Transmission Pipeline Project"
Transit Stations of Shanghai Maglev Track
Supporting Projects for Shanghai World Expo
Shanghai Pudong Airport
Shanghai International Automobile Museum
Extension Project of Shanghai Hongqiao Airport
Terminal Building of Inner Mongolia Huhehaote
Baita Airport Extension Project
Shenyang Olympic Sports Center
No. 2409 Airforce Airport in Yunnan
Qingdao Olympic Sports Center
Beijing South Suburb Airport
Jinan Olympic Sports Center
Extension Project of Shuangliu Airport
Chongqing Yuanjiagang Olympic Sports Center
Baiyun International Airport
Wuhan Tianhe Airport
Shanghai Metro Mingzhu Line 3
Chongqing International Convention and Exhibition Center
Shanxi Wanjiashai Yellow River Diversion Project
Qinghai Xiaoyou Mountain Ecological Project
Tianjin "Eight Areas" Heating Project
Yellow River Diversion and Water-supply Project in
Heze, Shandong Provincce

Yangshan Deepwater Port Project of Shanghai
International Shipping Center
Sichuan Xichang Satellite Launch Center
Guangxi Longtan Hydropower Project
Gansu Satellite Launch Center
Nansha Hydropower Station in Honghe River
Datang International Power Generation Company Limited
Guizhou Kailin Chemical Engineering
Inner Mongolia Shenhua Group Corporation Limited
Jinshan Petrochemical
Shanghai Baosteel Group Corporation
Taizhou Petrochemical
Anshan Iron and Steel Group Corporation
Jilin Petrochemical
Wuhan Iron and Steel (Group) Corporation
Guanhgxi Lihua Group
China Shougang Group
Guangzhou Petrochemical
China Great Wall Aluminium Corporation
Luoyang Petrochemical
Guangxi Pingguo Aluminium Corporation
Yueyang Petrochemical
Liuzhou Iron and Steel Co., Ltd.
Nanjing Petrochemical
Maanshan Iron & Steel Co.,Ltd.
Beijing Yanshan Petrochemical
Shanxi Zhongyang Iron and Steel Co., Ltd.
Urumqi Petrochemical
Daqing Oilfield
Jinxi Petrochemical
Shengli Oilfield
Dushanzi Petrochemical
Liaohe Oilfield
Beijing Financial Street
Tarim Oilfield
Chengdu Giant Panda Conservation Museum
Karamay Oilfield

Qingdao Beihai Shipyard
Shaanxi Changqing Oilfield
China National Nuclear Corporation No. 504 Factory
Gansu Electric Power Corporation Lanzhou Electric Power Company
JISCO Hongda Co., Ltd.
Henan Zhumadian South Iron & Steel Co., Ltd.
Henan Weicheng Polysilicon Co., Ltd.
Henan Hebi Electric Power Company
Henan Luohe Electric Power Company
Henan Provincial Department of Water Resources
Jiangsu Nantong Thermal Power Plant
Jiangsu Baina Environmental Engineering Co., Ltd.
Shandong Huajin Paper (Group) Co., Ltd.
Henan Xuchang Dongqu Thermal Power Plant
Henan Xuchang Thermal Power Plant
Henan Xinxiang Chemical Fiber Plant
Henan XJ Electric Co., Ltd.