

8BK86-12

金属铠装移开式开关设备

8BK86-12

Metal-Clad Withdrawable Switchgear

7.2~12kV,...4000A,...63kA

8BK86



金属铠装移开式开关设备



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8BK86(KYN18-12)金属铠装移开式开关柜适用于三相交流50Hz/7.2~12kV单母线及单母线分段电力系统。用于接受和分配电能并对电路实行控制、保护及监测，本开关柜依据 IEC-298、GB3906、DL404 等标准造。

8BK86(KYN18-12) metal-clad Withdrawable switchgear is suitable for 3-phase AC 50Hz, 7.2~12kV single busbar and single busbar section system. Apply to distribute electricity power and implement system control, protection and supervision monitoring. The switchgear complies with the standards IEC298, GB3906, DL404.

型号及含义
Type and Designation

1

使用环境
Operating Conditions

2

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1 型号及含义 Type and Designation

8BK86(KYN18 -12) / □

铠装 Metal-clad

移开式 Withdrawable

户内 Indoor

一次方案编号 Primary scheme No.

额定电压 Rated voltage

设计型号 No. of Design

2 使用环境 Operating Conditions

- 环境温度: 上限为 +40°C; 下限为 -10°C;
 - 海拔高度: 不超过 1000m ;
 - 相对湿度: 日平均值 ≤ 95%
月平均值 ≤ 90%
 - 地震烈度: 不超过 8 度。
 - 没有火灾, 爆炸危险, 严重污秽, 化学腐蚀及烈振动的场所。
- 注: 超出上述环境条件时, 请与制造商协商。

- Ambient temperature: +40°C to -10°C .
 - Altitude: 1000m (max) .
 - Relative humidity: daily average less than 95%, monthly less than 90% .
 - Earthquake intensity: less than 8 magnitude .
 - This product should not be used under conditions of fire, explosion, earthquake and chemical corrosion environments.
- Note:** Special condition and requirement, consult with the manufacturer .



使用的安全性 Safety for use

- 只有在高压室门关闭的情况下才能进行开关的各种操作。
- 柜体面板上电气式的开关位置指示，用于显示断路器，接地开关的状态及手车的位置。
- 查询式联锁有效防止误操作。
- 性能可靠的活门操作机构确保人身安全，防止意外事故发生。
- 防护等级 IP4X，防止电弧的损伤以及阻止外部物体进入。

联锁 Interlock

只有在联锁条件满足的情况下，操作杆才能插入。否则，插孔被活门盖住，可避免联锁机构在不符合条件时误操作而损坏。

进行下列操作及需满足的有关条件

- 把手车部分从试验位置推进到工作位置：
 - 高压室门关闭
 - 断路器或接触器在“分”位置
 - 接地开关在“分”位置
- 把手车部分从工作位置退出到试验位置：
 - 断路器或接触器在“分”位置
- 操作断路器或接触器：
 - 手车被锁定在试验位置或工作位置
- 操作接地开关：
 - 手车部分锁定在试验位置
 - 电缆室门关闭
- 打开高压室门：
 - 手车部分锁定在试验位置

- All switching operations take place with high-voltage compartment doors closed.
- Electrical switch position indication on panel front for circuit-breaker, earthing switch and truck position.
- Logical interlocks prevent maloperation.
- Positively driven shutters protect against accidental contact with live parts.
- Standard degree of protection IP4X against electric shock and ingress of solid foreign bodies.

Operating levers can only be inserted when the interlocking conditions are fulfilled. In this way, undue stress on the interlock mechanisms is avoided.

The following operations can only take place when the stated interlock conditions are fulfilled:

- Move the withdrawable part from the test position to the service position:
 - High-voltage compartment door closed
 - VCB or VC in the OPEN position
 - (Make-proof) earthing switch in the OPEN position
- Move the withdrawable part from the service position to the test position:
 - VCB or VC in the OPEN position
- Operate the VCB or VC:
 - Withdrawable part have been locked in the test position or the service position.
- Operate the (make-proof) earthing switch:
 - Withdrawable part have been locked in the test position.
 - Cable compartment door closed
- Opening the high-voltage compartment door
 - Withdrawable part have been locked in the test position

断路器柜技术参数 Technical Data of VCB Cubicle

	单位 Unit	数据 Data
额定电压 Rated voltage	kV	7.2~12
1min 工频耐压 Rated power-frequency withstand voltage (1min)	kV	32/42
雷电冲击耐压 Rated lightning impulse withstand voltage	kV	60/75
额定频率 Rated frequency	Hz	50/60
主母线额定电流 Main busbar rated current	A	...4000*
分支母线额定电流 Branchal Busbar rated current	A	...4000*
额定短时耐受电流(有效值), 3秒 Rated short-time withstand current (rms), 3s	kA	...63
额定峰值耐受电流(峰值) Rated peak withstand current (peak)	kA	...160
辅助电源电压 Operation voltage	V	AC/DC110, 220
外壳防护等级 Enclosure protection level		IP4X
外形尺寸 Overall dimensions (宽W × 高H × 深D)	mm	800/1000 x 2200 x 1800**

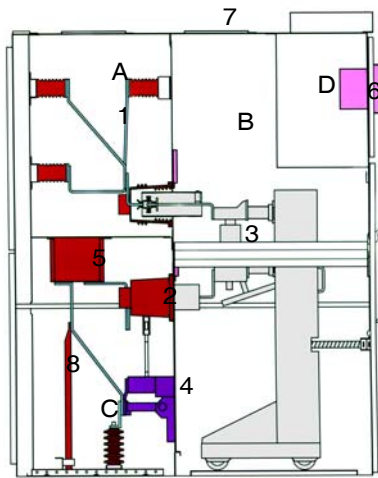
* 2500A以上需强制风冷 Enforced cooling when current is over 2500A.

** 4000A时开关柜深度为1900mm The switchgear depth is 1900mm for 4000A.

F-C 回路柜技术参数 Technical Data of F-C Cubicle

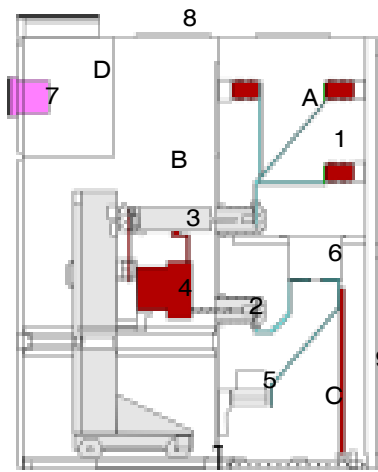
	单位 Unit	数据 Data
额定电压 Rated voltage	kV	7.2~12
1min 工频耐压 Rated power-frequency withstand voltage (1min)	kV	20/28
雷电冲击耐压 Rated lightning impulse withstand voltage	kV	60/75
额定频率 Rated frequency	Hz	50
主母线额定电流 Main busbar rated current	A	...4000
主回路额定电流 Main circuit rated current	A	...400
额定短时耐受电流(有效值), 4秒 Rated short-time withstand current (rms), 4s	kA	4
额定峰值耐受电流(峰值) Rated peak withstand current (peak)	kA	10
预期短路开断电流 Anticipate short-circuit breaking current	kA	50
预期短路关合电流 Anticipate short-circuit making current	kA	125
辅助电源电压 Operation voltage	V	AC/DC110, 220
外壳防护等级 Enclosure protection level		IP4X
外形尺寸 Overall dimensions (宽W × 高H × 深D)	mm	650 x 2200 x 1800

配落地中置式手车
With the universal truck



- A. 母线室 Busbar compartment
- B. 手车室 Truck compartment
- C. 电缆室 Cable compartment
- D. 低压室 Low-voltage compartment
- 1. 母线 Busbar
- 2. 静触头盒 Bush
- 3. 断路器 VCB
- 4. 接地开关 Earthing switch
- 5. 电流互感器 Current transformer
- 6. 控制和保护单元 Control and protect unit
- 7. 压力释放板 Pressure-relief plate
- 8. 电缆终端 Cable terminal

配 F-C 手车
With F-C truck



- A. 母线室 Busbar compartment
- B. 手车室 Truck compartment
- C. 电缆室 Cable compartment
- D. 低压室 Low-voltage compartment
- 1. 母线 Busbar
- 2. 静触头盒 Bush
- 3. 高压熔断器 HV fuse
- 4. 接触器 Contactor
- 5. 接地开关 Earthing switch
- 6. 电流互感器 Current transformer
- 7. 控制和保护单元 Control and protect unit
- 8. 压力释放板 Pressure-relief plate
- 9. 电缆终端 Cable terminal

8BK86 开关柜

8BK86 switchgear



■ 8BK86 switchgear with the console and midship truck is suitable for all applications, such as:

Substation and power plant/Large capacity power station of cement, steel and chemical industry etc./Airport, station, metro, shopping mall and high rise building.

Water treatment plant

■ Rated short-circuit breaking current up to 63kA. Rated feeder current up to 4000A.

■ 8BK86 开关柜配落地中置式断路器手车，可应用于各种配电场合，例如：城市供电系统、发电厂 / 水泥、钢铁、化工等工业的大容量变电站 / 机场、车站、地铁、商场、高层建筑 / 污水处理中心等

■ 额定短路开电流可达 63kA，最大额定电流 4000A。

落地式手车

Universal truck



■ Switching devices:ZN68A/ZN12/3AH series

■ Contact arms with isolating contactor system:

The contact arms each consist of two parallel flat copper bars, silver-plated at the ends:

The design of the contact system allows tolerances of $\pm 10\text{mm}$ to the fixed contactor.

■ With mechanical indicator for truck position.

■ 开关装置：ZN68A/ZN12/3AH 系列

■ 动触头与触臂：采用镀银扁铜排触臂及触头系统。

动触头与静触头配合允许高度误差 $\pm 10\text{mm}$ 。

■ 具有机械式手车位置指示。

8BK86 开关柜配 F-C 手车

8BK86 switchgear with F-C truck



- The 8BK86 switchgear with F-C truck can be applied up to 1200kW motor control and 1600kVA transformer control and protection.
- Rated current of the busbar is up to 4000A.
- Can be directly assembled with 8BK86 VCB switchgear.

- 8BK86 开关柜配 F-C 手车适合于 1200kW 及以下电动机和 1600kVA 及以下变压器的控制保护。
- 主母线额定电流最大可达 4000A。
- 可直接与装有可移开式真空断路器的 8BK86 开关柜并柜。

F-C 手车

F-C truck



- Switching devices:
Type 3TL6 or CV, JCZ5, JCZ2 series vacuum contactor
- H.V.HPC fuse
- Contact arms with isolating contacts:
The contact arms each consist of bundle type cinquefoil shape primary contactor, silver-plated at the ends.

- 开关装置：
西门子 3TL6 系列或东芝 CV 及国产 JCZ5、JCZ2 系列真空接触器
- 高压高遮断容量限流熔断器。
- 动触头与触臂：采用梅花动触头和圆形铜触臂。

母线室

Busbar compartment

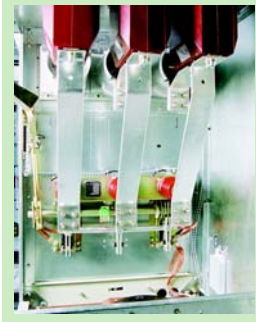


- Pressure-relief plate with mesh, in favor of cooling.
- Insulator with large creepage distance.
- Air-insulated design.

- 顶盖采用网板设计，利于散热。
- 大爬距绝缘子。
- 全空气绝缘设计。

电缆室

Cable compartment



- Connection
 - single-core cable, max. four cables per phase.
 - three-core cable,max. two cablesThe height for mounting cable sealing ends is higher than 650mm.
- Optional parts:
current transformer,make-proof earthing switch, Surge arrester, Residual current thtransformer, voltage indicator.

- 可连接:单芯电缆，每相最多可接四根/三芯电缆，最多可接二根/电缆连接高度在650mm以上。
- 可选择的元件: 电流互感器，快速接地开关，避雷器，零序电流互感器，带电显示器。

低压室

Low-voltage compartment



- Accommodates equipment for protection, control, measuring and metering.
- Control busbar are installed on top of the compartment and covered with rotary steel-sheet.

- 安装用于保护、控制、测量及计量的设备
- 控制母线安装在低压室顶板上，并用可旋转的隔板盖住。

ZN68A 系列真空断路器

ZN68A VCB



■ 引进西门子技术

■ 额定机械寿命 20,000 次。

■ 完备、可靠的电气和机械辅助元件（可选）：

二级分励脱扣器 / 过电流脱扣器 / 欠电压脱扣器 / 辅助开关（8 常开，8 常闭，最多可做到 11 常开，11 常闭） / 防跳继电器 / 机械联锁

- Manufactured under SIEMENS licence.
- Mechanical service life is 20,000 operating cycles.
- Integrated mechanical and electrical auxiliary components (option) :
2nd shunt release/current transformer-operated release/undervoltage release/auxiliary switch (8NO+8NC,reach 11NO+11NC at most)/anti-pumping/mechanical interlocking

ZN68A 真空断路器技术参数 Technical Data of ZN68A BCB

额定电压 Rated voltage	kV	12
额定电流 Rated current	A	...3150
额定频率 Rated frequency	Hz	50
额定短路开断电流(有效值) Rated short-circuit breaking current (rms.)	kA	...40
额定短路关合电流(峰值) Rated short-circuit making current (peak)	kA	...100
额定短时耐受电流(4秒) Rated short-time withstand current (4s)	kA	...40
额定峰值耐受电流 Rated peak withstand current	kA	...100
1min 工频耐压 Rated power-frequency withstand voltage (1min)	kV	42
雷电冲击耐压 Rated lightning impulse withstand voltage	kV	75
自动重合闸操作顺序 Auto-reclosing operating sequent		O-0.3s-CO-180s-CO ($\leq 31.5kA$) O-180s-CO-180s-CO (40kA)
机械寿命 Mechanical service life	次 Operating cycles	20000

3AH 系列真空断路器

3AH VCB



■ 西门子公司生产的3AH系列真空断路器（陶瓷灭弧室）。可以满足10kV配电室任何需要，额定电流至4000A，短路开断电流至63kA。

■ 满容量开断次数最大可达100次，机械寿命最长可达12万次（特频繁操作场合）。



■ 专为中国电网设计的3AH型断路器，采用了加大爬距，增强绝缘设计，免维修、操作1万次后才需适当加润滑油。

■ 3AH VCB Manufactured by SIEMENS, can meet the any requirement of 10kV power-distributing rooms. Rated current is up to 4000A and rated short-circuit breaking current is up to 63kA.

■ With full capacity it can be operated for 100 cycles, and the mechanical service life can reach to 120,000 cycles (high operating frequency condition).

■ 3AH VCB which is designed for Chinese power network adopts the design that increase creepage distance and enhance insulating intensity. Maintenance-free, need proper lubricating only having been operated for 10,000 cycles.

3TL6 系列真空接触器

3TL6 vacuum contactor



- Suitable for switching AC-3 and AC-4 3-phase electromotor, transformer, capacitor and so on.
- Small size, maintenance-free.
- Long mechanical service life (3 millions operating cycles).

- 可切合 AC-3 和 AC-4 的三相电机或变压器、电容器等。
- 尺寸小、免维护。
- 寿命长（高达 300 万次）。

3AH 系列真空断路器技术参数 Technical Data of 3AH Series

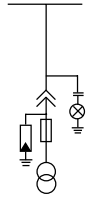
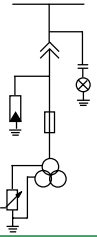
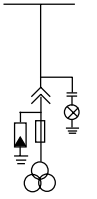
额定电压 Rated voltage	kV	7.2~17.5
额定电流 Rated current	A	800~12000
额定频率 Rated frequency	Hz	50/60
额定短路开断电流(有效值) Rated short-circuit breaking current (rms.)	kA	13.1~80
额定短路关合电流(峰值) Rated short-circuit making current (peak)	kA	32.8~200
额定短时耐受电流(有效值), 3 秒 Rated short-time withstand current (rms), 3s	kA	13.1~80
额定峰值耐受电流 Rated peak withstand current	kA	32.8~200
1min 工频耐压 Rated power-frequency withstand voltage (1min)	kV	42
雷电冲击耐压 Rated lightning impulse withstand voltage	kV	75
自动重合闸操作顺序 Auto-reclosing operating sequent		O-0.3s-CO-180s-CO ($\leq 31.5kA$) O-180s-CO-180s-CO ($\geq 40kA$)
机械寿命 Mechanical service life	次 Operating	10,000/20,000/30,000/60,000/120,000

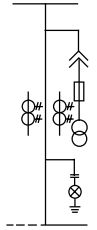
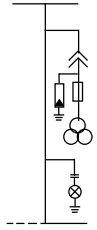
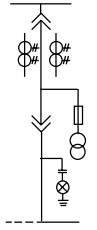
3TL6 系列真空接触器技术参数 Technical Data of 3TL6 Series

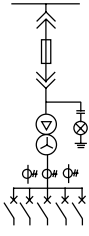
		3TL61	3TL65
额定电压 Rated voltage	kV	7.2	12
额定电流 Rated current	A	450	400
额定频率 Rated frequency	Hz	50/60	50/60
额定关合电流 Rated making current	A	4500	4000
额定开断电流 Rated breaking current	A	3600	3200
最大允许开断容量 Max. permissible switching capacity	kA	5	4.5
1S 短时耐受电流 Rated peak withstand current 1s	kA	8	8
操作频率 Switching frequency	次/小时 Operating cycles/h	1200	600
机械寿命 Mechanical service life	百万次 Mill. operating cycles	3	1
电气寿命 Electrical service life	百万次 Mill. operating cycles	1	0.5
1min 工频耐压 Rated power-frequency withstand voltage (1min)	kV	20	28
雷电冲击耐压 Rated lightning impulse withstand voltage	kV	60	75

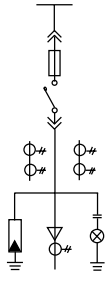
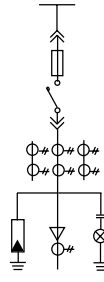
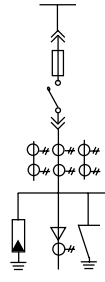
方案编号 Scheme No.		1	2	3	4	5
主结线方案 Single-line diagram						
额定电流 (A)		...4000	...4000	...4000	...4000	...4000
主要元件 Main Components	真空断路器 VCB (ZN68A,3AH,ZN12)	1	1	1	1	1
	电流互感器 CT (LZZBJ9)	3	3	3	3	3
	电压互感器 PT (JDZ10)		3	2		
	高压熔断器 HV fuse (XRNP-10)		3	3		
	接地开关 Earthing switch (JN15-12)	1				
	避雷器 Surge arrester (YH5W)	3				3
	零序互感器 Residual CT (LXK)					
	带电显示器 Voltage indicator (DXN8B)	1	1	1	1	1

方案编号 Scheme No.		6	7	8	9	10
主结线方案 Single-line diagram						
额定电流 (A)		...4000	...4000	...4000	...4000	...4000
主要元件 Main Components	真空断路器 VCB (ZN68A,3AH,ZN12)	1				
	电流互感器 CT (LZZBJ9)	3				
	电压互感器 PT (JDZ10)			2		
	高压熔断器 HV fuse (XRNP-10)			3		
	接地开关 Earthing switch (JN15-12)	1				
	避雷器 Surge arrester (YH5W)	3				
	零序互感器 Residual CT (LXK)		1	1		
	带电显示器 Voltage indicator (DXN8B)	1	1	1	1	1

方案编号 Scheme No.		11	12	13	14	15
主结线方案 Single-line diagram						
额定电流 (A)						
主要元件 Main Components	真空断路器 VCB (ZN68A,3AH,ZN12)					
	电流互感器 CT (LZZBJ9)					
	电压互感器 PT (JDZ10)	2	3	3		
	高压熔断器 HV fuse (XRNP-10)	3	3	3		
	接地开关 Earthing switch (JN15-12)					
	避雷器 Surge arrester (YH5W)	3	3	3		
	零序互感器 Residual CT (LXK)					
	带电显示器 Voltage indicator (DXN8B)	1	1	1		

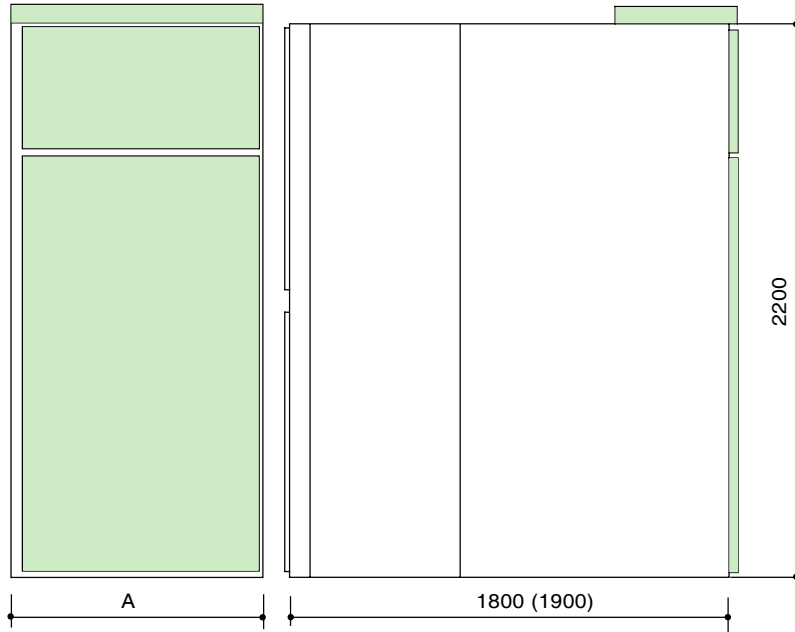
方案编号 Scheme No.		16	17	18	19	20
主结线方案 Single-line diagram						
额定电流 (A)						
主要元件 Main Components	真空断路器 VCB (ZN68A,3AH,ZN12)					
	电流互感器 CT (LZZBJ9)	2		2		
	电压互感器 PT (JDZ10)	2	3	2		
	高压熔断器 HV fuse (XRNP-10)	3	3	3		
	接地开关 Earthing switch (JN15-12)					
	避雷器 Surge arrester (YH5W)		3			
	零序互感器 Residual CT (LXK)					
	带电显示器 Voltage indicator (DXN8B)	1	1	1		

方案编号 Scheme No.		21	22	23	24	25
主结线方案 Single-line diagram						
额定电流 (A)						
主要元件 Main Components	变压器 Transformer (SC9,SC10)			1		
	电流互感器 CT (LZZBJ9)					
	电压互感器 PT (JDZ10)					
	高压熔断器 HV fuse (XRNP-10)			3		
	接地开关 Earthing switch (JN15-12)					
	避雷器 Surge arrester (YH5W)					
	零序互感器 Residual CT (LXK)					
	带电显示器 Voltage indicator (DXN8B)			1		

方案编号 Scheme No.		26	27	28	29	30
主结线方案 Single-line diagram						
额定电流 (A)		...400	...400	...400		
主要元件 Main Components	真空断路器 VC (3TL6,TCZ5,JCZ2)	1	1	1		
	熔断器 HV fuse (WKN/AKG)	3	3	3		
	避雷器 Surge arrester (YH2.5W)	3	3	3		
	电流互感器 CT (LZZBJ9)	2	3	3		
	电压互感器 PT (JDZ)					
	接地开关 Earthing switch (JN15)			1		
	备注 Remark	F-C	F-C	F-C		

开关柜外形尺寸示意图

Sketch of overall dimensions for switchgear



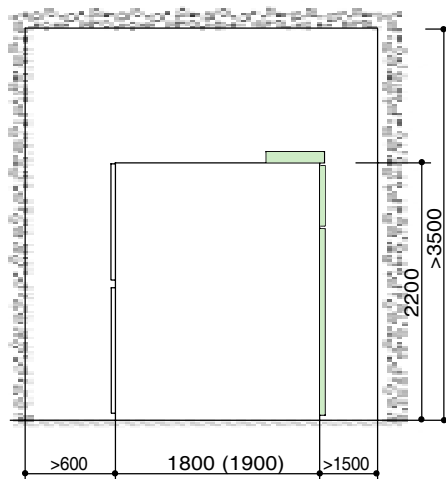
注：额定电流 4000A 时，开关柜深度为 1900mm。

Note: The switchgear depth 1900mm for 4000A.

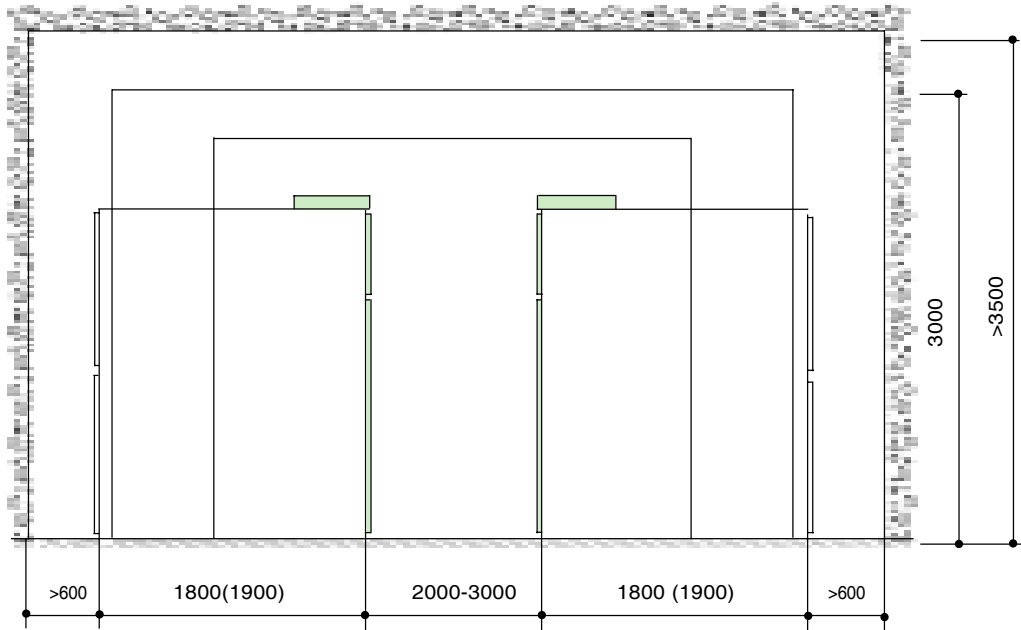
开关柜参数 Technical Data	尺寸A Dimension
额定电流至 1250A Rated current up to 1250A	800
额定电流大于 1250 至 4000A Rated current over 1250 to 4000A	1000
所用变至 50kVA Transformer up to 50kVA	1000
F-C 柜 F-C Switchgear	650

开关柜单列布置示意图

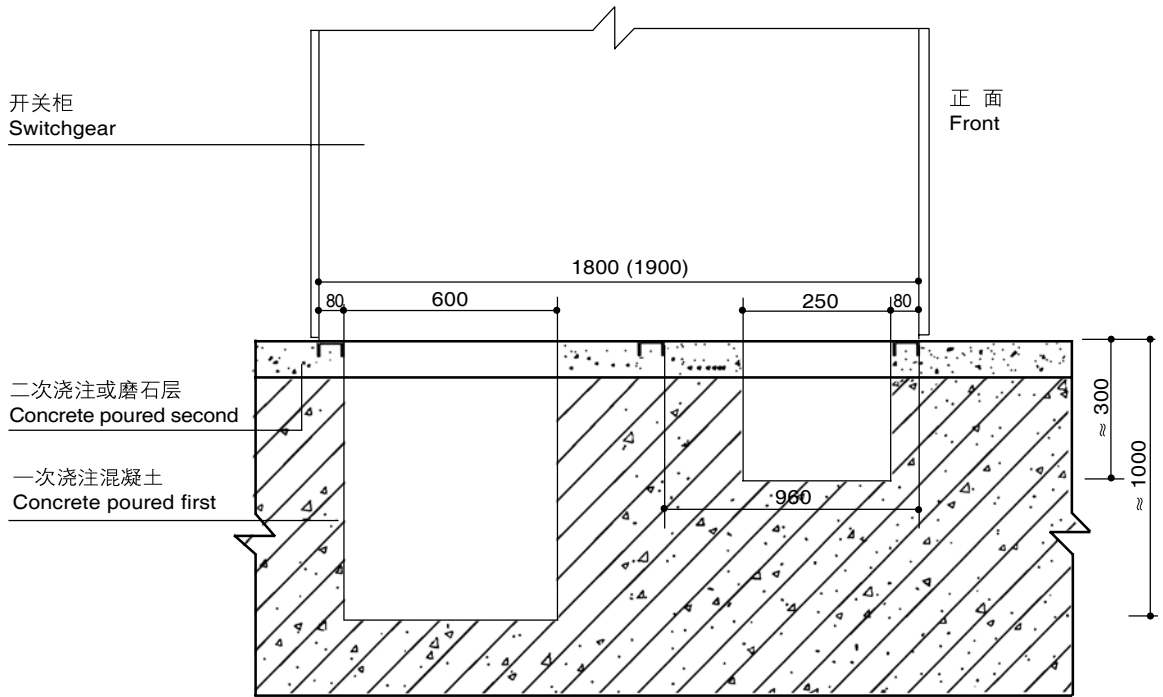
Sketch of switchgears installation



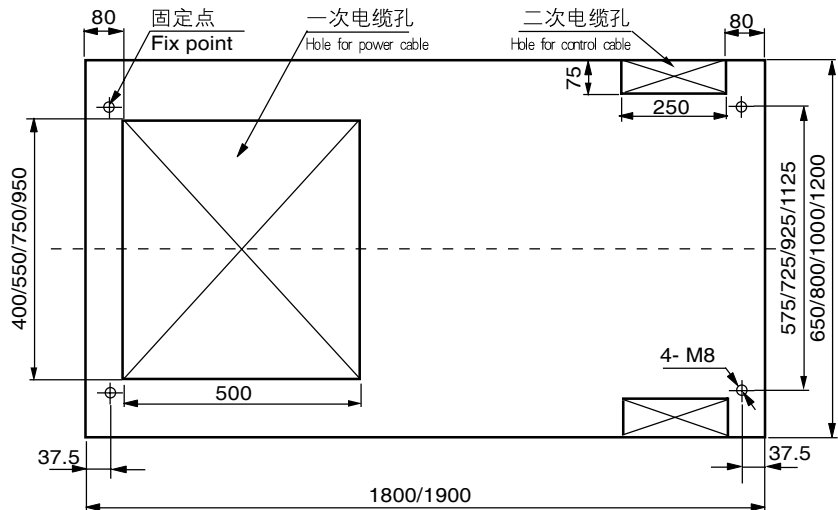
开关柜对列布置及母线桥示意图 Sketch of switchgears installation face to face and busbar bridge



8BK86 开关柜安装基础示意图 Sketch of 8BK86 switchgear installing foundation



8BK86开关柜地板开孔及固定点 Sketch of 8BK86 switchgear floor cutouts and fix points



注：1) 额定电流 4000A 时，开关柜深度为 1900mm

2) 括号内尺寸为 1000mm 柜宽尺寸

Note: 1) The switchgear depth 1900mm for 4000A

2) The dimensions in bracket are for width 1000mm

产品订货须知

Ordering information

用户订货时须提供下列技术资料:

- 一次主结线主案的单线系统图及主母线型号规格。
- 各柜的二次原理图及端子排列图，若无端子排列图则按制造厂编排。
- 二次小母线布置图及小母线形式。
- 配电室平面布置图及相关的剖面图。
- 若需要母线桥（柜间母线桥或墙柜间母线桥，防护等级IP2X）需提供跨距和高度尺寸。
- 电气设备汇总表。
- 地区性特殊要求及特殊使用环境应在订货时提出。
- 需要其它或超出的附件、备件时，应提出种类及数量。

Customer should provide the following technical data when ordering:

- Drawing of primary scheme and type of main busbar.
- Control circuit drawing and terminal arrangement, otherwise accord to the standards of the manufacture.
- Control busbar arrangement and type.
- Distributing room arrangement and relevant section sketch.
- Dimensions of height and span when needing busbar bridge.
- List of electrical components.
- Special requirement and condition, consult with the manufacturing.
- Type and number when requiring additional or other accessories.



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CJEC-2006-08

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