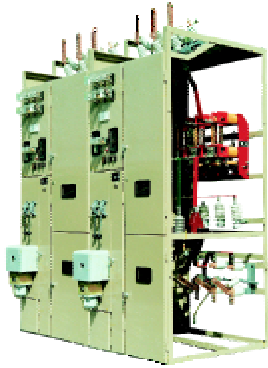




GG-1AF(Z) 型高压开关柜



概述

GG-1AF(Z)型高压开关柜(以下简称开关柜),适用于发电厂、变电站、工矿企业充电所内3.6~12kV、三相交流50Hz单母线系统及单母线带旁路系统,作为接受与分配电能之用。并对电路实行控制、检测、保护。该产品具有完善、可靠、操作方便的“五防”闭锁功能:

- 1.1 防止带负荷分、合隔离开关;
- 1.2 防止误入带电隔室
- 1.3 防止误分、合断路器;
- 1.4 防止带接地线送电
- 1.5 防止带电挂接地线。

Introduction.

GG-1AF(Z) High voltage switch board (switch board), is applicable for 3.6~12kV, three-phase AC 50Hz single main circuitry systems and single main circuit with bypass systems in power plants, transformer substations, and factories. It's used for receiving and distributing powers, meanwhile control, inspect, and protect the circuit. The product is provided with a perfect, reliable, convenient closedown functions, so-called "Five Preventions":

- 1.1 Prevent turning on/off the isolated switches with load.
- 1.2 Prevent entering the electriferous isolating rooms by mistake.
- 1.3 Prevent turning on/off the breakers by mistake.
- 1.4 Prevent transmitting electricity with earth-wire.
- 1.5 Prevent touching earth-wire with the electricity.

使用环境条件

2.1 正常使用条件

- 2.1.1 海拔高度不超过1000m;
- 2.1.2 空气温度: 上限+40℃; 下限一般地区-10℃, 高寒地区-25℃;
- 2.1.3 相对湿度: 月平均值不大于90%; 日平均值不大于95%;
- 2.1.4 没有导电尘埃, 腐蚀性气体或蒸汽的场所;
- 2.1.5 没有爆炸和火灾危险的场所;
- 2.1.6 没有剧烈振动的场所。

2.2 特殊工作条件

当开关柜安装在高于1000m的海拔地区时, 必须与厂家协商。当环境温度升高超过规定时, 必须在柜内进行强迫通风, 以提高母线和分母支线的载流量。当开关柜运行在具有高温或温度变化较大的气候环境中时, 可能有凝露危险, 因此必须安装加热器以防事故与腐蚀发生。

Ambient conditions.

1. Natural application conditions

- a. Altitude level under 1000m
- b. Air temperature: Upper limit +40℃ Lower limit -10℃ in common place, -25℃ in cold place.
- c. Relative humidity: monthly mean value less than 90%; Daily mean value less than 95%;
- d. No electric dust, corrosive air or steam around.
- e. No explosion or fire threatened.
- f. No acute vibration.

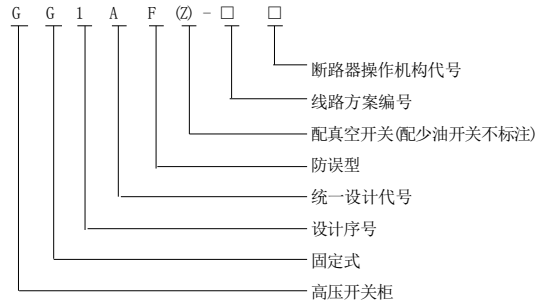
2. Special working conditions

To install the switchboards above 1000m in altitude, it's necessary to consult with manufacturers first. When ambient temperature above the set value, compulsory ventilation in board is necessary, so as to increase the carrying capacity of main circuit and branches.

When switchboard is working under high temperature or great changing temperature, condensation may occurs, so heaters must be installed to prevent accident or corrosion.

GG-1AF(Z) High Voltage Switch Board

型号及其含义



结构简介

GG-1AF(Z)型高压开关柜基本骨架用角钢焊接而成。前面板、前面大门、柜间隔板、终端侧板和柜内隔板均为薄钢板弯制而成。开关柜的前面左门装有监视仪表、继电器、指示灯及操作元件，门内小室可安装继电器、电度表等二次元件，电度表通过门上的观察窗观看指示。柜前面左中部为操作板，安装操动机构。左下角小门内安装合闸接触器及熔断器。操作板右侧之长条门内安装二次回路用端子排及柜内照明灯。柜前面右侧上下两扇门装有观察窗，可观察到柜内电器设备的运动情况。右上门装有带电显示装置，以便检测回路带电状况。

柜内用薄钢板分隔为上部为断路器室，下部为隔离开关室，并可安装柜间联络母线。隔板上可安装电流互感器等元件。上部母线隔离开关与断路器之间装有隔板，主母线安装于柜顶部支持绝缘子上。

母线可根据需要选用铝母线或铜母线。电气间隙不小于125mm。

旁路方案是在主柜后增加深600mm的附柜，附柜有后门及操作板防护，后门与主柜前门装有可逆式机构联锁：

前门打开，后门才可打开- 维修安全

后门关闭，前门才可关闭- 运行安全。

开关柜一次线路方案见表3。表中所示为一般型，选用带接地刀的组合式隔离开关为GN24-12。简易型选用的隔离开关为GN19-12，接地元件为接地桩，一次接线图与一般型类同，不再另行示出。

Structure information

GG-1AF(Z) high voltage switchboard has frames welded with angle iron. The front board, front door, clapboard between cabinets, terminal sideboard, and clipboard in cabinet are all made by bended thin steel board.

The front left door of switchboard is equipped with monitoring meters, relays, instruction lamps and operation components, indoor small room can be equipped with twice components like relays, ammeters etc. the ammeter can be watched through window on the door. The left-center of front board is the operation board, the operational action machines are installed. In the left-down door, switch-on contactors and fuse boxes are installed. In strip door located in the right side of the operation board, terminal blocks of twice loop and in-board illumination lamps are installed. On the two doors of right front board, windows are installed for observing the operation conditions of inside electrical equipments. On the right-up door, power lights are equipped so as to inspect the power condition of the loop.

The cabinet is divided into the upper breakers' room and the lower isolated switches' room by the thin steel board; installation of communication circuit is available. On the clapboard, current mutual inductor may be installed. Between the main circuit isolated switch and breaker, clipboard is installed. The major main circuit is installed on the ceramic insulations supported on the top of board.

Aluminum or copper wire can be chosen as the main circuit according to the requirement. The electric clearance should less than 125mm.

The bypass design is to add 600mm tall attached-cabinet behind the main cabinet, the attached-cabinet has back door and operation board as protection, and the back door and front door of main cabinet have reversibile interlock:

After the front door opened, the back door can be opened——safe maintenance, After the back door closed, the front door can be closed——safe operation.



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主要技术参数 Technique data

5.1 开关柜的技术数据

Technique data of switch board are in table 1 below:

表1

序号	项目		单位	数据		
1	额定电压		kV	3.6	7.2	12
2	额定绝缘水平	(1min)工频耐压kV	kV	24	32	42
		雷电冲击耐压(峰值)	kV	40	60	75
3	额定频率		Hz	50		
4	母线额定电流		A	1250; 1600; 2500; 3150		
5	分支母线额定电流		A	6300; 1250; 1600; 2500; 3150		
6	额定热稳定电流(4s)		kA	20; 25; 31.5; 40		
7	额定动稳定电流(峰值)		kA	50; 63; 80; 100		
8	额定短路开断电流		kA	20; 25; 31.5; 40		
9	额定短路关合电流(峰值)		kA	50; 63; 80; 100		
10	配用断路器			ZN28A 真空断路器(电操、弹操)		
11	外形尺寸 (宽×深×高)	主柜	m m	1218 × 1200 × 2800		
		附柜	m m	1218 × 600 × 2300		
12	重量		kg	630		

5.2 ZN28A-12型真空断路器的技术数据

表2

序号	名称		单位	数据		
1	额定电压		kV	12		
2	额定电流		A	630-1600		1250-3150
3	额定短路开断电流		kA	20	25	31.5 40
4	额定短路开断电流开断次数		次	50		50 30
5	额定短路关合电流(峰值)		kA	50	63	80 100
6	额定动稳定电流(峰值)		kA	50	63	80 100
7	额定热稳定电流(4S)		kA	20	25	31.5 40
8	合闸时间		s	≤0.2		
9	固有分闸时间		s	额定电压(最高) ≤0.06 最低电压 ≤0.08		
10	额定绝缘水平	雷电冲击耐压	kA	75		
		1min工频耐压	kA	42		
11	额定操作顺序			0-0.3s-C0-180s-C0 (31.5kA以下)		
				0-180s-C0-180s-C0 (40kA以上)		
12	机构寿命		次	1000		
13	动静触头允许磨损厚度		m m	3		

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外形及安装尺寸 (见图 1 至图 6)
Figuration and installation dimension (table 1~table 6)

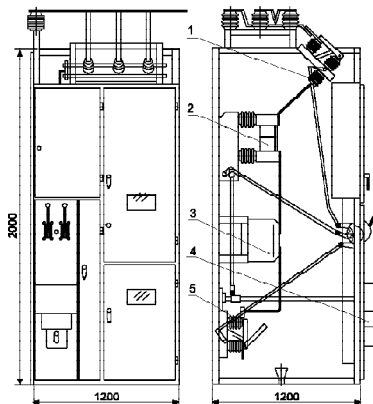


图1 开关柜外形结构示意图

Figure 1. Figuration and structure of switchboard

1. 上隔离开关 2. 真空断路器 3. 电流互感器 4. 操作机构 5. 下隔离开关
1. Upper isolated switch 2. Vacuum breaker 3. Current mutual inductor 4. Lower isolated switch 5. Lower isolated switch

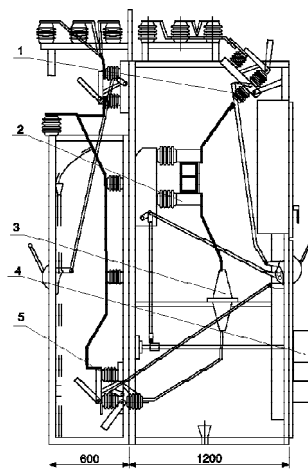


图2 带附柜结构示意图

Figure 2. Structure of cabinet with attached cabinet

1. 上隔离开关 2. 真空断路器 3. 电流互感器 4. 操作机构 5. 下隔离开关
1. Upper isolated switch 2. Vacuum breaker 3. Current mutual inductor 4. Operational machine 5. Lower isolated switch

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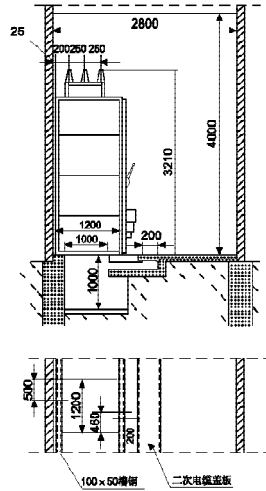


图3 基础形式
Figure 3. Figuration of base

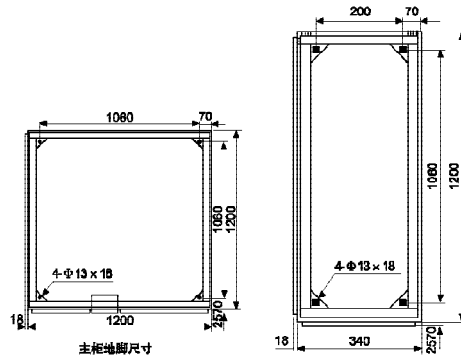


图4 附柜地脚尺寸
Figure 4. Dimension of attached cabinet base

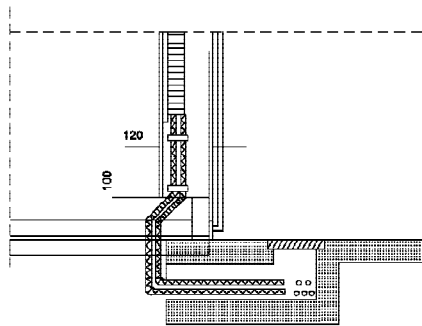


图5 二次回路电缆的位置
Figure 5. Location of twice loop cable

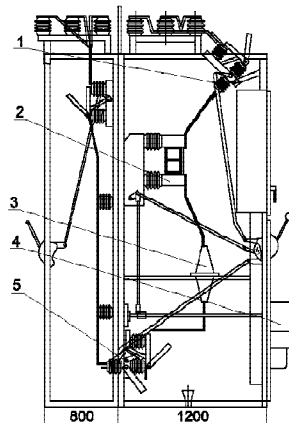


图6 带附柜结构示意图
Figure 6. Structure of cabinet with attached cabinet

1. 上隔离开关 2. 真空断路器
3. 电流互感器 4. 操作机构
5. 下隔离开关
1. Upper isolated switch 2. Vacuum breaker
3. Current mutual inductor 4. Operational machine
5. Lower isolated switch

GG-1AF(Z)

High Voltage Switch Board

订货须知:

订货时须提供:

- 7.1 一、二次线路方案及其设备型号、规格和一次线路方案排列图。
- 7.2 一般情况下均按简易闭锁方案供货。用户如需订一般闭锁方案,必须在合同或图纸中注明。
- 7.3 一次方案号25-28大电流柜在一般情况下按小柜体(宽×深×高1200×1200×2800mm)供货。用户若需要也可供大柜体(宽×深×高1540×1200×2800mm),订货时必须予以注明。

Order notices

The following should offered while ordering:

- 7.1 The once and twice circuitry design and its equipment type, specification and circuitry arrangement drawing.
- 7.2 Generally, products are provided according to the simple closedown scheme. If customers order general closedown scheme, indication should be given clearly in the order contracts or order drawings.
- 7.3 In the once-scheme number 25~28 big current cabinet generally provided by small cabinet (1200mm×1200mm×2800m). Customers can order big cabinets (1540×1200×2800mm) if needed, indication should be made clear in the order.