

XGN□-40.5

Fixed Switch Cabinet with Metal-clad Enclosure



概述

XGN□-40.5型固定式金属封闭开关设备（以下简称开关柜）。系三相交流50Hz单母线及单母线带旁路系统的户内成套设备。柜内配有ZN□-40.5真空断路器，作为40.5kV交流系统接受和分配电能之用。开关柜具有安全联锁装置、防误性能，运行安全可靠。真空灭弧室免维护。

该产品满足 GB3906-91《3-35kV 交流金属封闭开关设备》等标准。

Brief Introduction

XGN□-40.5 Fixed Switch Cabinet with Metal-clad Enclosure (hereinafter referred to as Switch Cabinet), is a three-phase 50Hz indoor electric kits with single bus or single bus plus by-pass system. The ZN□-40.5 vacuum breaker assembled in the cabinet is designed to take and distribute electric energy for 40.5kV AC system. The switch cabinet equipped with interlock device can prevent from mistake operation and thereby has the virtues of safety and reliability. The vacuum arc extinguish chamber is free of maintenance. This product suits GB33906-91 3-40.5kV AC Metal Sealed Switch Devices and other relevant standards

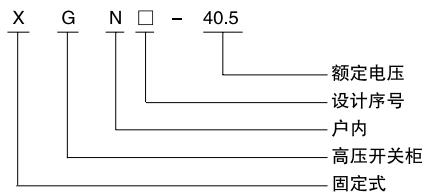
使用环境条件

- 2.1 海拔不超过 1000m。
- 2.2 周围空气温度不超过，上限+40℃，下限-15℃，高寒区-25℃。
- 2.3 相对湿度不超过 90%（+25℃）。
- 2.4 地震烈度不超过 8 度。
- 2.5 没有火灾、爆炸危险、严重污秽、化学腐蚀 及剧烈振动的场所。

Working conditions

- 2.1 Altitude: ≤ 1000m.
- 2.2 Environment temperature : -15℃ ~ +40℃ (-25℃ ~ +40℃ for freezing districts).
- 2.3 Relative humidity: ≤ 90% (+25℃).
- 2.4 Earth shock intensity: ≤ 8 .
- 2.5 The location must be free from fire, explosion, serious contamination, chemical erosion and turbulent vibration.

型号及其含义



主要技术参数

开关柜所装配的一次元件包括真空断路器、电流互感器、隔离开关、电压互感器、熔断器、避雷器、电力变压器等，在本产品的装置条件下，仍满足各自产品的技术性能。

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Technical data

The first-order components assembled in the cabinet includes vacuum breakers, current inductors, isolated switches, voltage inductors, fuses, lightning arresters, transformers and so on. Each of them can meets respective technical performance.

5.1 开关柜主要技术参数 Main technical data of switch cabinet

表1

序号	项目		单位	数据
1	额定电压		kV	40.5
2	额定频率		Hz	50
3	额定电流		A	1600
4	绝缘水平	Imin 工频耐压 kV	kV	95
		雷电冲击耐压 (峰值)	kV	185
5	额定短路开断电流		kA	25
6	额定关合电流 (峰值)		kA	63
7	4s热稳定电流		kA	25
8	动稳定电流 (峰值)		kA	63
9	辅助回路和控制回路工频耐压		kV	2
10	外壳防护等级			IP2X
11	操作方式			电磁式或弹簧储能式
12	柜体外形尺寸 (宽 × 深 × 高)		mm	1818 × 3000 × 3300 2000 × 3000 × 3300

5.2 ZN□-40.5真空断路器技术数据 Technical data of ZN□-40.5 vacuum breaker

表2

序号	名称	单位	数据						
			I	II	III	IV	V	VI	VII
1	额定电压	kV	40.5	40.5	40.5	40.5	40.5	40.5	40.5
2	额定电流	A	1000	1250	1600	1600	1250	1600	2000
3	额定频率	Hz	25	25	25	25	31.5	31.5	31.5
4	额定短路开断电流	kA	50	50	50	50	50	50	50
5	动稳定电流 (峰值)	kA	63	63	63	63	80	80	80
6	4s 热稳定电流	kA	25	25	25	25	31.5	31.5	31.5
7	额定关合电流 (峰值)	kA	63	63	63	63	80	80	80
8	额定短路电流开断次数	次	20			12			
9	额定操作顺序		分-0.3s-合分-180s-合分						
10	绝缘水平	Imin 工频耐压 kV	kV						
		雷电冲击耐压 (峰值)	kV						
11	机械寿命	次	6000						
12	额定电流开断次数	次	6000						
13	额定电容器组开断电流	A	630						
14	电磁机构或弹簧机构	V	AC、DC110; AC、DC220						

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5.3 LCZ-35Q电流互感器主要技术数据 Technical data of LCZ-35Q current inductor (see Table 3 and Table 4)

表3

级次组合	额定一次电流 A	额定一次电流 A	准确级次	额定二次负荷 VA	10% 倍数不小于
0.5/3 0.5/0.5	20-1000	5	0.5	50	
			3	50	10
0.5/B 3/3	20-800		B	20	27
3/B B/B	1000		B	20	35

表4

一次电流 A	热稳定电流 kA	动稳定电流 kA	一次电流 A	热稳定电流 kA	动稳定电流 kA
20	1.2	4.2	200	13	42.4
30	2.0	6.4	300	19.5	63.6
40	2.6	8.5	400	26	84.9
50	3.3	10.6	600	39	127.3
75	4.9	16	800	52	112
100	6.5	21.2	1000	65	141.4
150	9.8	31.8			

5.4 电压互感器技术数据 Table 5 Technical data of LCZ-35Q voltage inductor

表5

型号	额定电压 V			额定容量 VA			最大容量 VA	联结组
	一次线圈 A、X	二次线圈 a、 x	辅助二次线圈 aD、xD	0.5 级	1 级	3 级		
JDJ2-35	35000	100		150	250	500	1000	1/1-12
JDJJ2-35	$35000/\sqrt{3}$	$100/\sqrt{3}$	100/ 3	150	250	500	1000	1/1/1-12-12
JDZJ2-35	$35000/\sqrt{3}$	$100/\sqrt{3}$	100/ 3	150	250	500	1000	1/1/1-12-12

5.5 RN2 型高压熔断器技术数据 Table 6 Technical data of RN2 high voltage fuse

表6

型号	额定电压 kV	额定电流 A	断流容量 (三相) MVA	开断电流 kA	当切断极限短路电流时的最大 电流 (峰值)	熔丝电阻
RN2	35	0.5	1000	17	70	315
RW10	35	0.5,2,3,5,7.5,10				

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5.6 35KV合成套无间隙氧化锌避雷器技术数据Table 7

Technical data of 35kV composite free-clearance zinc oxide lightning arrester

表7

避雷器型号	系统标称电压 (kV)	避雷器额定电压 kV	避雷器持续运行电压 kV	直流 1mA 参考电压 不小于(峰值)kV	残压 8/20US 50kV不大于(峰值)KV	方波通流容量 2msA	冲击小通流容量 (4/10us) kV	总高度 H(mm)	爬电比距 不小于 kV
HY5WZ2-52.7/134	35	52.7	40.5	74.5	1.34	200	40	600	2.5
HY5WR2-52.7/134	35	52.7	40.5	74.5	1.34	400	40	600	2.5

5.7 GN27-35隔离开关技术数据见表8

表8

型号	额定电压 kV	最高电压 kV	额定电流 A	4s 热稳定电流 kA	动稳定电流 (峰值)
GN27-35/630-35-20	35	40.5	630	20	50
GN27-35/1250-31.5	35	40.5	1250	31.5	80

结构说明

6.1 本开关柜为箱式金属封闭结构，采用空气绝缘，各相带电体之间及相对地之间绝缘距离不小于300mm，开关柜主母线和旁路母线采用矩形铝母线水平布置于柜体顶部，用母线罩遮盖。开关柜的正面、后面及柜的两侧，均采用钢板门或封板加以密封，其骨架由槽钢、角钢和钢板弯制焊接而成，开关柜外壳防护等级为IP2X。开关柜分为前柜和后柜，前柜装真空断路器，母线隔离开关、电流互感器、变压器，后柜装线路隔离开关，旁路母线隔离开关及氧化锌避雷器。从柜体的正面看，上右部为继电器室，有贯穿二次接线室的通道，上左部和两扇中门上设有观察窗，可看到主母线及隔离开关工作情况，中门还设有紧急分闸按钮，及断路器分合指示观察孔。左侧操作板装有母线隔离开关和线路隔离开关的操作手柄，旁路母线隔离开关操作手柄装于后柜左侧。

6.2 开关柜具有安全联锁装置及防误操作功能：

- a、防止带负荷分、合隔离开关
- b、防止误入带电间隔
- c、防止误分、合断路器

Description of the structure

6.1 This product is of metal sealed cabinet type. It is assembled with air insulation device. The insulation distance between electriferous components in any phase or between each electriferous component and earth is not less than 300 mm. The main bus and bypass bus are designed to be rectangular style, enveloped with bus cover and arrayed flatly on the top of the cabinet. The front, the back and the two sides of the cabinet are all sealed with steel plate doors or boards. The frame of the cabinet is welding product made of slot steel, angle steel and steel plates in curving. The protection class of this product's enclosure is IP2X. The switch cabinet has two subcabinets, the front subcabinet and the rear subcabinet. The front is assembled with a vacuum breaker, a bus isolated switch, a current inductor, a transformer and so on. The rear is assembled with a circuit isolated switch, a bypass bus isolated switch, and a zinc oxide lightning arrester. The upper and right of the cabinet is relay chamber, in which there is a chunnel connecting to the wiring chamber. The upper and left of the cabinet and two middle doors are all equipped with view windows, from which the performance of main bus and isolated switch can be viewed. Besides, the middle doors are also equipped with an emergency switching-off button and a view hole showing the state of the breaker. There are snobs for

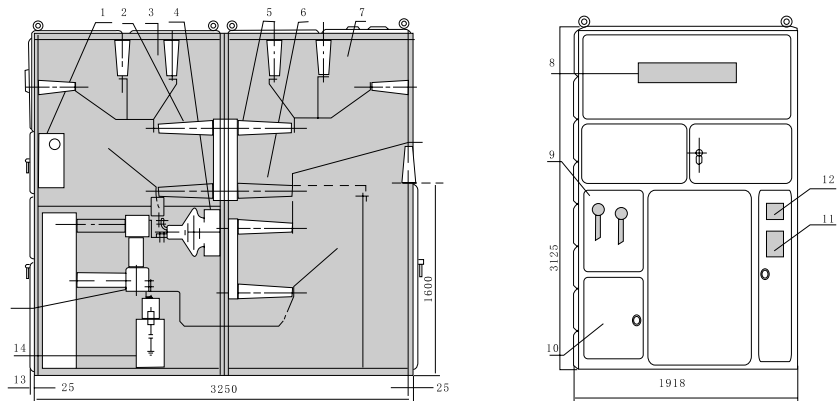
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controlling the bus isolated switch and the circuit isolated switch in the operation board on the left side of the cabinet. The operation snob of the bypass bus isolated switch is assembled on the left side of the rear subcabinet.

6.2 The switch cabinet has interlock device and there by the prevention functions against mistake operations:

- a.Prevention against switching on/off the isolated switch when loaded.
- b.Prevention against entering electriferous areas by mistake.
- c.Prevention against switching on/off the breaker by mistake.



- 1、继电器、小母线及端子室
- 2、主母线隔离开关
- 3、主母线室
- 4、电流互感器
- 5、旁路母线隔离开关
- 6、线路隔离开关
- 7、旁路线母线室
- 8、用途牌
- 9、刀闸操作面板
- 10、左下小门
- 11、模拟母线牌
- 12、铭牌
- 13、R-C 干式过电吸收器 (可变元件)
- 14、真空断路器

- 1、 Cabinet for relay, slim bus line and terminal
- 2、 Disconnecting switch for main bus line
- 3、 Cabinet for main bus line
- 4、 Current transformer
- 5、 Disconnecting switch for bus line on side circuit
- 6、 Disconnecting switch for circuit
- 7、 Bus line cabinet for side circuit
- 8、 Usage plate
- 9、 Operating panel for knife switch
- 10、 Small door on below left
- 11、 Simulating bus line plate
- 12、 Nameplate
- 13、 R-C dry type electricity absorber (changeable element)
- 14、 Vacuum circuit breaker

图 1 开关柜基本结构 [带旁路 (或电缆“—”部分) 进出线] 示意图 (以 08 方案为例)

Drawing 1 drawing of basic structure for switchgear (with side circuit in & out line)(take 08 for example)

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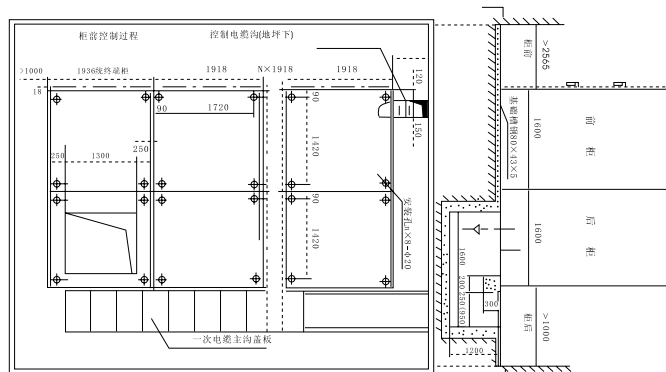


图2 开关设备单列平面布置、基础槽钢埋放和一次电缆沟基础及二次控制电缆位置示意图
注：括号内尺寸用于小附柜

Drawing 2 singlerow horizontal layout drawing for switchgear, laid ground channel steel drawing, primary cable channel basis drawing and secondary control cable location drawing

Note: the parameter in the bracket used for the small attached cabinet

订货须知

订货时用户提供下列资料：

- 1、一次线路编号和一次系统图，并标明其额定电流。
- 2、二次线路原理图，如套用GG-1A型高压柜的129种直流操作标准方案(Z₁~Z₁₂₉)时应标明方案及控制回路电压值。
- 3、高压柜平面排列图。
- 4、如选用非标准一次方案，请在订货时提出，协商解决。
- 5、母线规范由订货提出，如不提出柜内支母排按本厂标准铝排制作。
- 6、开关柜喷漆颜色。

ordering notice

Following document should be supplied when ordering

- 1、Primary circuit code, primary system drawing and indicating rated current
- 2、Secondary circuit schematic diagram,taking GG-1A type high-voltage cabinet which has 129 kinds of DC operating plans(Z₁~Z₁₂₉) for example, the plan of each and control o/p voltage value should be indicated.
- 3、Ichnography for high-voltage cabinet
- 4、If non-standard primary plan is needed,please point it out when ordering
- 5、Specification of bus line should be required when ordering. If not, it will be made according to the standard of our factory
- 6、Paint color for switchgear