

KYN28A-12(GZS1) 铠装移开式交流金属封闭开关设备

Armored withdrawable AC metal-enclosed switchgear



概述 General



本装置系户内金属铠装抽出式开关设备（以下简称开关设备），系 3.6-12 千伏三相交流 50Hz 单母线及单母线分段系统的成套配电装置主要用于发电厂，中小型发电机送电、工矿企业业配电以及电业系统的二次变电所的受电、送电及大型高压电动机起动等。实行控制保护、监测之用，本开关设备满足 IEC298、GB3906 等标准要求，具有防止带负荷推拉断路器手车、防止误分合断路器、防止接地开关处在闭合位置时关合断路器、防止误入带电室、防止在带电时误合接地开关的联锁功能，既可配用 VSI 真空断路器，又可配用 ABB 公司的 VD4 真空断路器。实为一种性能优越的配电装置。

This equipment is indoor metal armoring with drawtable switchgear (hereafter refer to as switchgear. 3.6-12 kilovolt three phase AC 50Hz single bus bar and the single bus bar subsection system's complete electricity distribution equipment is used in the power plant, small and medium-sized generator power transmission, industry and mining business power distribution as well as electrical industry system's second transformer substation's electric take-over, power transmission and large-scale high pressure motor starting and so on. The purpose is to control, protect and monitor. This switch equipment is up to the standard of IEC298、GB3906 and can prevent the charge from pushing and pulling the breaker, from opening and closing the breaker, from insulation with electricity by mistaken, from earthed switch closing the breaker, from opening the switch's interlock when it with electricity mistakenly. It can not only use with VSI vacuum circuit-breaker, but with ABB Corporation's VD4 vacuum circuit-breaker. It is indeed a kind of power distribution equipment with superior performance.

使用环境条件 Environmental condition

1. 正常条件

- 周围环境空气温度：上限，+40℃ 下限，-10℃
 - 海拔：1000M
 - 相对湿度：日平均相对湿度不大于 95%，月平均相对湿度平均不大于 90%；
 - 地震：烈度不超过 8 度。
 - 周围空气应不受腐蚀性或可燃气体、水蒸汽等明显污染。
 - 无严重污秽及经常性的剧烈振动，严酷条件下严酷度设计满足 1 类要求。
2. 特殊工作条件：* 在超过 GB3906 规定的正常的环境条件下使用时，由用户和制造厂协商。

1. Normal condition

- Surrounding air temperature:-10℃ ~ +40℃
 - Altitude : 1000M
 - Relative environment humidity: The daily relative humidity average is not higher than 95%, the monthly relative humidity average is not than higher 90%
 - Earthquake : The intensity does not exceed 8 degree.
 - The surrounding air without corrosive or flammable gas or water vapour.
 - Without a lot of dirtiness and regular fierce vibration, under the severe condition, the intensity meets the first kind requirement.
2. special working conditions * When it is used beyond the normal environmental condition stipulated in the GB3906, the user should consult with the manufacture.

主要技术参数 Main technical parameters

项目 Item	单位 Unit	数据 Data	
		配用断路器 Equipped with breaker	
		ZN63A-12(VS1) 型	VD4 型
额定电压 Rated voltage	kV	12	12
1min 工频耐受电压 1min working frequency endurable voltage	kV	42	42
额定冲击耐受电压 (峰值) Shock endurable rated voltage	kV	75	75
额定频率 Rated frequency	Hz	50	50
额定电流 Rated current	A	630, 1250, 1600, 2000, 2500, 3150, 4000, 5000	
分支母线额定电流 Branch bus bar rated current	A	630, 1250, 1600, 2000, 2500, 3150, 4000, 5000	
额定短时耐受电流 (有效值) Rated short time endurable current(virtual value)	kA	16, 20, 25, 31.5, 40, 50	16, 20, 25, 31.5, 40, 50
额定峰值耐受电流 Rated peak endurable voltage	kA	40, 50, 63, 80, 100, 125	40, 50, 63, 80, 100, 125
额定短路持续时间 Rated short-circuit duration	s	4	
防护等级 Protection degree		外壳为 IP4X, 隔室门, 手车室门打开时为 IP2X	
质量 Quality	kg	700-1200	700-1200

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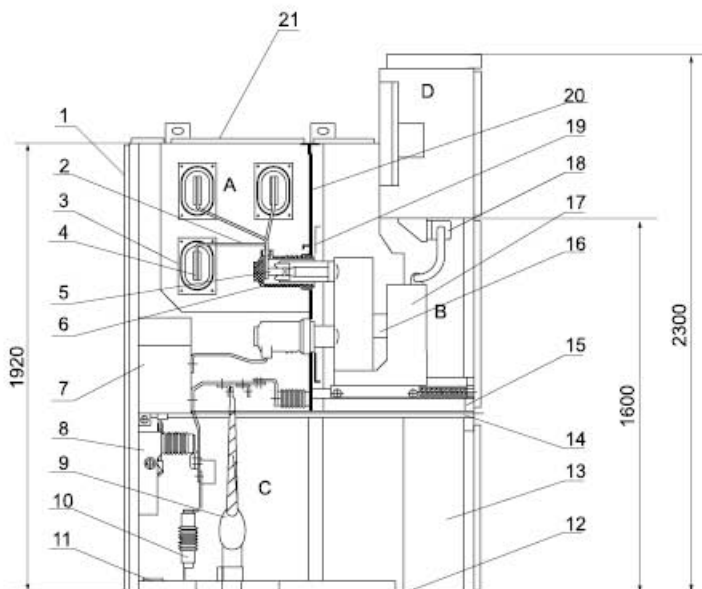
结构简介 The brief introduction of the structure

开关设备按 GB3906-91 中的铠装式金属封闭开关设备而设计。整流器体是由柜体和可抽出部件（既手车）两大部分组成，见图 1。柜体分四个单独的隔室，外壳防护等级为 IP4X，各小室间和断路器室门打开时防护等级为 IP2X。具有架空进出线、电缆进出线及其它功能方案，经排列、组合后能成为各种方案形式的配电装置。本开关设备可以从正面进行安装调试和维护，因此它可以背靠背组成双重排列和靠墙安装，提高开关设备的安全性、灵活性，减少了占地面积。

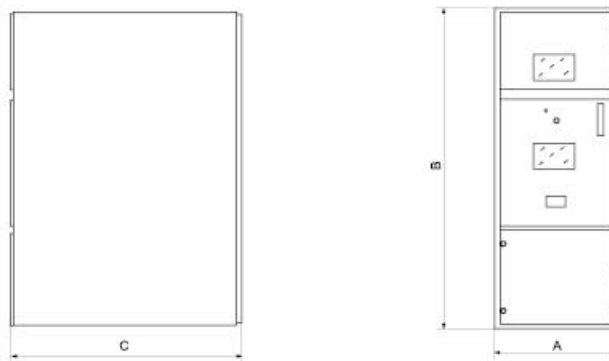
The switch equipment is designed according to GB3906-91 metal armoring seal switch equipment. The rectifier body is made up of the cabinet body and draw-out parts (namely handcart) placed in the middle. See charter 1. The cabinet divides into four separate rooms, the outer covering protection grade is IP4X, when each small room and the circuit breaker is opened, the protection grade is IP2X. It can suspend the inlet, outlet line, cable's inlet, outlet line and other function plan. After arranged and combined, it can become each kind of plan form of the power distribution equipment. This switch equipment may be installed and maintained from the frontage, therefore it may compose the dual arrangement back to back and be installed against the wall, improving the switch equipment's security and flexibility and making full use of the occupying area.

开关设备结构图 Structural diagram of switchgear

- A、母线室 the bus bar room
- B、断路器手车室 the circuit breaker handcart room
- C、电缆室 the cable room
- D、继电器仪表室 the relay instrument room
- 1、外壳 cover
- 2、分支小母线 branch small bus bar
- 3、母线套管 bus bar pipe
- 4、主母线 main bus bar
- 5、静触头装置 static contact installation
- 6、触头盒 contact box
- 7、电流互感器 current mutual induction
- 8、接地开关 earthed switch
- 9、电缆 cable
- 10、避雷器 arrester
- 11、接地主母线 earthed main bus bar
- 12、底板 mother board
- 13、控制小母线 control the small bus bar
- 14、接地开关操作机构 earthed switch operating mechanism
- 15、可抽出式水平隔板 draw-out horizontal clapboard
- 16、加热装置 heat installation
- 17、断路器手车 circuit breaker handcart
- 18、二次插头 twice connector
- 19、隔板（活门）clapboard (valve)
- 20、装卸式隔板 loading and unloading clapboard
- 21、泄压通道 decompression channel



开关柜外形尺寸图 Outline dimension of switch cabinet





开关柜外形尺寸图 Outline dimension of switch cabinet



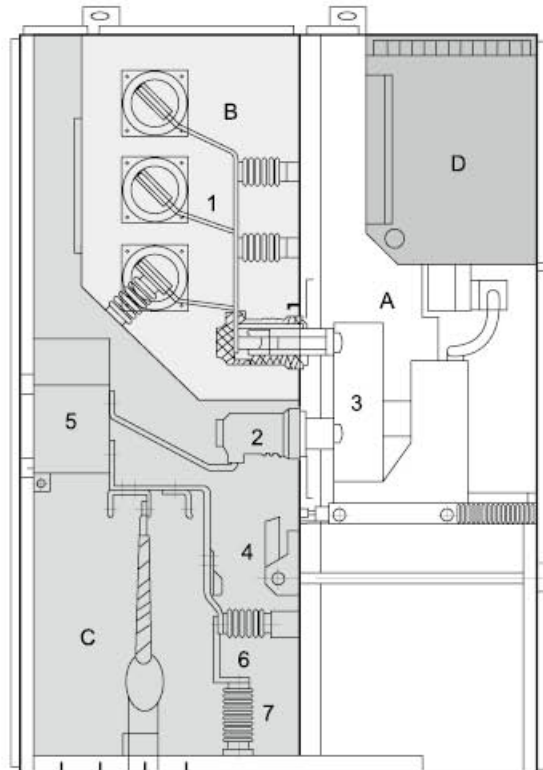
A 手车 Handcar



B 母线室 Bus chamber



C 电缆室 Cable chamber



A 手车 Handcar

手车骨架系采用薄钢板经 CNC 机床加工后经铆、焊而成的。根据用途，手车可分为断路器手车、电压互感器手车、隔离手车、计量手车等等，相同规格的手车能方便互换。手车在柜内有隔离位置、试验位置和工作位置，每一位置均设有定位装置，以保证手车处于以上位置时不能随便移动、而移动手车时必须解除联锁。

The framework of handcart is made of steel sheet through the procession of CNC machine tool and rivet welding. According to the application, the handcars can be divided into circuit breaker handcart, voltage transformer handcart, isolating handcart and metering handcart, etc. The handcars of the same specification can be exchanged conveniently. In the cabinet, the handcart has isolating position, testing position and operating position, each of which is designed with a location device to assure that the handcart can't move easily at the above-mentioned positions, while the interlock must be unlocked to move the handcart.

B 母线室 Bus chamber

母线从一个开关柜引至另一开关柜，通过分支母线和静触头盒固定。扁平的分支母线通过螺栓连接于静触头盒和主母线，不需要任何其它的线夹或绝缘子联接。当用户和工程特殊需要时，母线排上的联接螺栓可用绝缘和端帽封装。在母线穿越开关柜隔板时，用母线套管固定。如果出现内部故障电弧，能限制事故蔓延到邻柜，并能保障母线的机械强度。

The bus is led from one switch cabinet to another one and fixed with static contact box through branch bus. The flat branch bus is connected through the bolt to the static contact box and main bus, not needing any other line clamps or insulators. When there is special demand of the clients or the project, the connecting bolt on the bus bar can be encapsulated with insulation and end cap. When the bus crosses the baffle of the switch cabinet, fix it with bus bushing, so that, if there is any internal fault arc, it can prevent the fault spreading to another cabinet and can guarantee the mechanical strength of the bus.

C 电缆室 Cable chamber

电缆室内可安装电流互感器、接地开关、避雷器以及电缆，并在其底部配制开缝的可卸铝板，以确保现场的施工方便。

Inside the cable chamber, the current transformer, grounding switch, arrester and cable can be installed, and on the bottom is designed slotted removable aluminum sheet to assure the convenient site construction.



开关柜外形尺寸图 Outline dimension of switch cabinet



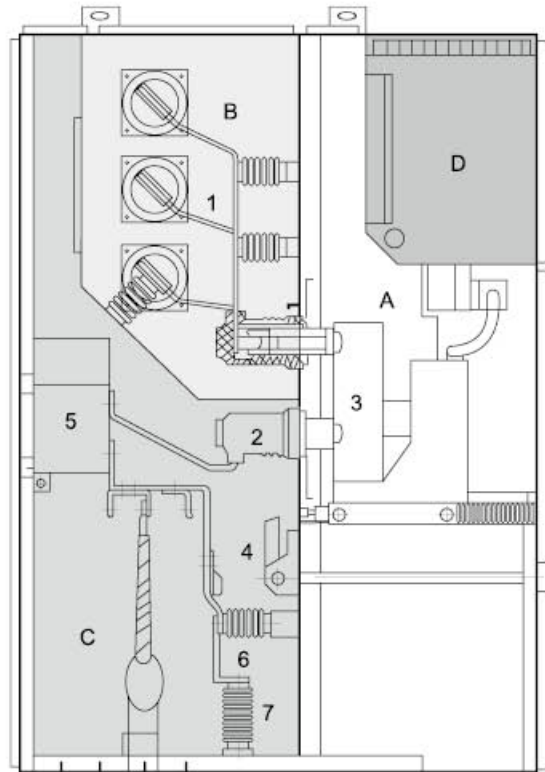
D 继电器仪表室 Relay instrument chamber



泄压装置 Pressure releasing device



锁扣结构 Latching device



D 继电器仪表室 Relay instrument chamber

继电器仪表室用于安装各类继电器、仪表、信号指示、操作开关等元器件。此外可根据用户要求在仪表室顶部增加小母线室，可敷设十六路控制小母线。Relay instrument chamber is used to install all kinds of components, such as relays, instruments, signal indicator and operating switch, etc. In addition, it's available to add a small bus chamber on the top of the instrument chamber according to the demand of the clients, and set 16 lines to control the small bus.

泄压装置 Pressure releasing device

在手车室、母线室、电缆室的上方设有泄压装置，当断路器或主母线、电缆室内发生内部故障电弧时，伴随电弧的出现，开关柜内部气压上升，达到一定的压力后，顶部装置的压力释放金属板将被自动打开，释放压力和排泄气体，以确保操作人员和开关柜安全。

On the handcart chamber, bus chamber and cable chamber is installed pressure releasing device. When there is internal fault arc in the breaker, main bus or inside the cable chamber, and with the appearance of electric arc, the internal pressure in the switch cabinet rises. After it rises to a certain pressure, the pressure releasing metal sheet of the top device will be opened automatically, and the pressure and the gas are released to guarantee the safety of the operator and the switch cabinet.

锁扣结构 Latching device

中门与柜体之间的联接采用锁扣结构，并配以提升机构，使中门开启更为方便，当中门处于关闭状态时，其与柜体的联接强度更好，增强了有效抗击内部燃弧故障的能力。

Latching device is used to connect the central exit and cabinet body, and the lifting device is also designed to make it more convenient to open the central exit. When the central exit stays closed, the connecting strength with the cabinet body is the best and the capability against the internal arcing fault effectively is strengthened.