



## 交流低压配电柜

AC Low-voltage Power Distribution Cabinet

# GGD



天仑电气 - 为您提供一流的电力系统解决方案  
Tianlun Electric, provide you with first-class power system solution

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## 公司简介 Introduction

宁波天仑电气有限公司(以下简称公司)成立于2001年1月。

公司坐落于浙江宁波,毗邻“东方大港”北仑港。拥有10000平方米的研发生产基地,年产值超亿元,目前有80多名年轻朝气的员工,其中60%为本科学历。公司是集研发、生产、销售、服务于一体的高新技术企业,致力于打造高品质的智能化、节能型、定制模式的输变电设备产品。

公司目前有符合国际及国内标准3大类18种产品,包括24kV中置式开关柜及环网柜,12kV中置式开关柜及环网柜,440V固定式分隔柜,抽屉式开关柜,预装式变电站,低压母线槽(合作生产),10kV变压器(合作生产)等等,同时部分为ABB、Schneider的授权产品。公司立足于浙江,为很多大型的制造企业、房产开发、学校、港口等用户提供了许多高质量的产品和服务,同时也出口到东非、北非及东南亚国家,获得了客户的一致满意。

公司严格执行ISO9001质量保证体系,标准化体系,安全生产标准体系,国家CCC认证体系。坚持持续提升产品质量,追求零缺陷产品,全心全意服务用户的质量方针,坚持以人为本,鼓励创新,精细化的管理理念,坚持以感恩在心为核心价值观,为我们的用户提供最好的产品和服务。

Ningbo TIANLUN Electric Co., Ltd was established in year 2001, January. It is located in Ningbo, near Beilun port, which is called "oriental grand port". TIANLUN has 10000-square-meter researching and developing workshop and annual output value exceeds 100 million. TIANLUN has a professional team composed of 80 innovative staff, most of them have bachelor's degrees. TIANLUN is a company that integrates researching, developing, selling and service. Our purpose is to create high quality electric equipment product which is intelligentized, energy-saving and customized.

TIANLUN mainly have 18 types of products which belong to 3 majors as follow: 24 kV Intermediate switchgear and Ring Main Unit Switchgear, 12kV Intermediate Switchgear and Ring Main Unit Switchgear, 440V Fixed Isolated Switchgear, Preparatory Transformer Substation, Low Voltage Bus Duct (coproduction) and 10kV transformer (coproduction). Some products are Licensed by ABB and Schneider. TIANLUN have been providing high quality products to large manufacture enterprise, real estate, school and port constructions. At the mean time, our product are exported to Africa and southeastern countries and win satisfaction from the overseas customers.

TIANLUN strictly stick to ISO9001 standard system, standardization system, safety standard system and CCC authentication system. Our quality policy is producing good and zero defect product, having customers well served. Our management policy is people orientation, creation encouragement and high-effective system. TIANLUN always hold a thankful heart and provide top-level product with best service.



## GGD 交流低压配电柜

### GGD AC Low-voltage Power Distribution Cabinet

#### 用途

GGD型交流低压配电柜适用于发电厂、变电站、厂矿企业等电力用户作为交流50Hz,额定工作电压380V,额定工作电流至3150A的配电系统中,作为动力、照明及配电设备的电能转换、分配与控制之用。

GGD交流低压配电柜符合IEC61439《低压成套开关设备和控制设备》,GB7251《低压成套开关设备和控制设备》等标准。产品具有分断能力高、动热稳定性好,结构新颖、合理,电气方案完善,系列性、适用性强、防护等级高等特点。可作为更新换代的产品使用。

#### Usage

GGD AC low-voltage power distribution cabinet is applicable to power consumers of power plants, substations, industrial and mining enterprises and is used for electric energy conversion, distribution and control of power, lighting and power distribution equipment in power distribution system with AC 50Hz, rated operating voltage of 380V and rated operating current of up to 3,150A. GGD low-voltage power distribution cabinet conforms to IEC61439 Low-voltage Switchgear and Controlgear Assemblies and GB7251 Low-voltage Switchgear and Controlgear Assemblies. Featuring high breaking capacity, good dynamic thermal stability, novel and reasonable structure, Perfect electric scheme, strong series and applicability and high degree of protection, the product may be used as an upgraded product.

#### 符合标准

本产品符合:

GB7251.1 低压成套开关设备和控制设备 第1部分:总则  
GB7251.12 低压成套开关设备和控制设备 第2部分:成套电力开关和控制设备  
IEC61439 低压成套开关设备和控制设备

#### Standards

This product shall conform to:

GB7251.1 Low-voltage Switchgear and Controlgear Assemblies Part 1: General rules  
GB7251.12 Low-voltage Switchgear and Controlgear Assemblies Part 2: Power Switchgear and Controlgear Assemblies  
IEC61439 Low-voltage Switchgear and Controlgear Assemblies

## 型号含义

### Model Description



ISO9001-2000



CCC 认证



WSC 北京世标认证中心



## 使用条件

### Service Condition

- 周围空气温度不高于 +40℃，不低于 -5℃，24h 内的平均温度不得大于 +35℃。
- 户内安装使用，使用地点的海拔不超过 2000m。
- 周围空气相对湿度在最高为 +40℃时不超过 50%，在较低温度时允许有较大的相对湿度（例如 +20℃时为 90%）应考虑由于温度的变化可能会偶然产生凝露的影响。
- 设备安装时与垂直面的倾斜度不超过 5 度。
- 设备应安装在无剧烈振动和冲击的地方，周围介质不含有腐蚀金属和破坏绝缘的有害气体及导电介质。
- The ambient air temperature shall not be higher than +40℃ and not be lower than -5℃, and the average temperature within 24h shall not be higher than +35℃.
- The product shall be used indoors and the height above sea level in the place of use may not exceed 2,000m.
- The relative humidity of ambient air shall not exceed 50% at the maximum temperature of +40℃ and may be higher at lower temperature, for example, 90%at +20℃. The impact of condensation resulting from temperature variation should be considered.
- The inclination of equipment with vertical plane shall not exceed 5° at installation.
- The product shall be installed in the place without vibration and shock. The ambient medium shall not contain the harmful gas and conducting medium which may corrode metals and destroy the insulation.

## 电气参数

### Electrical parameters

型号 Model	额定电压 V Rated voltage V	额定电流 A Rated current A	Is 额定耐受电流 kA Is rated withstand current kA	额定峰值耐受电流 kA Rated peak withstand current kA
GGD1	380	400-1000	15	30
GGD2	380	1000-1500 ( 1600 )	30	63
GGD3	380	2000-3150	50	105

## 壳体结构

### Shell structure

- 架构用 8MF 冷弯型钢材局部焊接拼装而成。其钢性及承载能力均达到电气元件的安装要求，架构上分别有按 E=20mm 和 E=100mm 模数排列的安装孔，以提高产品装配的通用性。
- The frame is made of 8MF cold-rolled section steels which are locally welded and assembled. Its rigidity and carrying capacity both reach the installation requirements of electrical elements. Mounting holes are arranged on the frame as per modulus E=20mm and E=100mm, so as to improve the universality of product assembly.
- 主母线排列在柜的上部后方，采用的 ZMJ 型母线夹为积木式组合结构，用高阻燃 PPO 材料热注成型，机械强度和绝缘强度高，能承受有效值 50kA 和 105kA 动、热稳定冲击力，长期允许温度可达 120℃。
- The main bus is arranged at the rear of upper part of cabinet, the adopted ZMJ bus clamp is of building-block composite structure and it is formed with highly flame-retardant PPO material through thermal injection, and with high mechanical strength and dielectric strength, it can bear dynamic and thermal stable impact force with effective value of 50kA and peak value of 105kA, and the allowable long-time temperature is 120℃.

- 架构外形尺寸见图 1、及下表 1
- The overall dimension of structure is shown in Fig. 1 and Table 1.

型号 Model	高 Height	宽 Width	深 Depth
GGD1、GGD2	2200	600、800、1000	600
GGD3	2200	800、1000、1200	600、800

- 1000mm 和 1200mm 宽的柜，正面采用不对称（800+200），（800+400）的双门结构，600mm 和 800mm 宽的柜采用整门结构。柜体后面采用对称式双门结构。即解决直接接触电的防护又提高了整体美观的强度，也便于制造厂形成标准化生产。
- 1,000mm and 1,200mm-width cabinet front adopts unsymmetrical (800+200), (800+400) double-door structure, while 600mm and 800mm-width cabinet adopts single-door structure. The cabinet rear adopts symmetrical double-door structure, which not only solves direct electric shock, but also improves the overall aesthetics and facilitates the manufacturing factory to carry out standardized production.
- 柜门采用镀锌转轴式铰链与架构相连，安装、拆卸方便。门的折边处均加有橡胶嵌条，关门时门与柜体之间的嵌条有一定的压缩行程，以防门边与柜体直接碰撞，并提高了门的防护等级。
- The cabinet door is connected to the frame through galvanized pivoted hinge and is convenient to install and dismantle. The rubber insertion strips are inserted at the edge fold of door, and the insertion strip between the door and the cabinet has certain compression stroke when closing the door, to prevent direct collision between the door frame and the cabinet and improve the degree of protection of door.
- 装有电器元件的仪表门用多股软铜与架构相连。柜内的安装件与架构间接地滚花螺钉链接，构成完整的接地保护电路。
- The instrument door installed with electrical apparatus elements is connected to the frame through multi-strand copper wires. The installation parts in the cabinet are directly connected to the frame through knurled screw and they form a complete ground protection circuit.
- 柜体前后、顶面及两面的防护等级达到 IP30，也可根据用户的要求在 IP20~IP40 之间选择。
- The degree of protection of front, rear, top and both sides of cabinet is IP30, or it may be selected within IP20~IP40 according to users' requirements.
- 为加强通风和散热，在柜体的下部、后上部和顶部均有通风散热孔，使柜体在运行中形成自然通风道，有较好的散热性能。散热孔用钢丝网板加封，以保证柜体的防护等级。
- To strengthen ventilation and heat dissipation, the ventilation holes are made at the bottom, rear upper part and top of cabinet to make the cabinet form a natural ventilation duct on working, and the cabinet has good heat dissipation. The ventilation holes are sealed with steel wire mesh plate to ensure the degree of protection of cabinet.
- 柜体的顶盖，可在需要时拆除，便于现场主母线的装配和调整。柜顶的四角装有吊环，便于起吊、装运。
- The top cover of cabinet may be dismantled when necessary to facilitate field assembling and adjustment of main bus. The lifting rings are installed at four corners of cabinet top to facilitate lifting and shipping.
- 柜体被覆层采用聚脂桔形烘漆喷涂，消除眩光，且附着力强，柜内的安装件均经镀锌，钝化处理，提高“三防”性能。
- The cabinet coating is sprayed with polyester orange-peel baking finish, thus eliminating dazzle, and enjoying strong adhesive force. All installation parts in cabinet are galvanized and passivated, thus increasing “three-prevention” performance.



## 安装与使用

### Installation and use

产品到达收货地点后，首先应当检查包装是否完整无损，发现问题应及时通知有关部门查找原因。对于不立即安装的产品，应根据正常使用的规定，置于适当的场所。

- 产品的安装应按安装的产品示意图进行（见图 2），基础槽钢和螺栓由用户自备，母线安装时应将搭接面修理平整，处理干净，涂上中性凡士林或者采取其他措施，然后用螺栓紧固。
- 产品在安装完毕后，投入运行前需要进行如下项目的检查与试验。

After the product arrives at the place of receipt, first check if the package is intact and undamaged, and once discovering any problem, timely notify related department to find out the reason. For the product not installed immediately, put it in an appropriate place according to provisions of normal use.

- The product shall be installed according to the installation diagram (see Fig. 2). The foundation channel steels and bolts shall be provided by the user. When installing the main bus, flatten the lap surface, clean it, apply neutral Vaseline or take other measures, and then fasten it with bolts.
- After installation and before operation of the product, carry out inspection and test on the following items.

- 检查柜体被覆层漆膜有无脱落，柜内是否干燥、清洁
- 电器元件的操作机构是否灵活，不应有卡滞或操作力过大现象
- 仪表指示与互感器的变化及极性是否正确
- 母线连接是否良好，其绝缘支撑件，安装件及附件是否安装牢固可靠
- 辅助接点是否符合要求，熔断器的熔芯规格选用是否正确，继电器的整定值是否符合设计要求，动作是否准确
- 电路的接点是否符合电气原理图要求
- 保护电路系统是否符合要求
- 用 500 伏兆欧表测量绝缘电阻值不得低于 1 兆欧

- If the paint film of cabinet coating comes off and if the cabinet inside is dry and clean;
- If the operating mechanism of electrical apparatus element is flexible; it should not be stuck or the operating force should not be too large;
- If the ON/OFF of main electrical apparatus and auxiliary contact is reliable and accurate;
- If the instrument indication and transformation ratio and polarity of transformer are correct;
- If the bus connection is in good condition and if its support insulator, installation parts and accessories are installed firmly and reliably;
- If the auxiliary contact conforms to the requirements, if the specification of fuse core is correct, if the set value of relay conforms to the design requirements, and if the action is accurate;
- If the circuit contact conforms to the requirements of electrical schematic diagram;
- If the protection circuit system conforms to the requirements.
- Measure the insulation resistance with a 500V megameter, and it should not be lower than 1 MΩ.

◇使用注意事项如下：

- 本产品为不靠墙安装，单面（正面）操作，双门开门维修的低压配电柜，产品的维修通道及柜门，必须经过考核合格的专业人员方可进入或者开启进行操作、检查和维修。
- 空气断路器，经多次合、分后，引起主触头局部烧伤和产生炭类物质，使接触电阻增大；应定期对空气断路器按其使用说明书进行维护和检修。

◇Precautions for Use

- This product is a single-side (front) operated low-voltage power distribution cabinet which is installed not against the wall and can be repaired on both sides. The maintenance channel and door of the cabinet may be entered or opened to be operated, inspected and maintained by qualified professionals only.
- As the air circuit breaker, after opening and closing many times, may cause the contact to be locally burnt and generate carbon substances, thus increasing the contact resistance, it should be maintained and overhauled regularly according to its operating instruction.

## 产品成套性

### Complete sets of products

制造厂供货时应提供下列文件及附件

- 装箱清单
- 产品合格证
- 使用说明书
- 出厂试验报告
- 有关电气图纸
- 柜门钥匙、操作手柄及合同单规定的备品备件

When supplying the product, the manufacturer shall provide the following documents and accessories:

- Packing list
- Product certificate
- Operating instruction
- Delivery test report
- Related electrical drawings
- Key of cabinet door, operating handle, and spare parts specified in contract

## 订货须知

### Order Information

用户订货时提供如下资料

- 产品的全型号（包括主电路方案号和辅助电路方案号）
- 主电路系统组合顺序图
- 辅助电路电气原理图
- 柜内元件清单
- 其他与产品正常使用条件不符合的特殊要求

The user shall provide the following information when ordering:

- Full model of product (including main circuit scheme number and auxiliary circuit scheme number)
- Main circuit system combination sequence drawing
- Auxiliary circuit electrical schematic diagram
- List of components in cabinet
- Other special requirements inconsistent with normal service condition of product.

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