

A Comprehensive List of Power Plant Distribution Box Specifications and Models

Article Overview

Power plant distribution boxes are modular electrical enclosures designed to safely distribute power, with models ranging from low-voltage fixed and withdrawable switchgear to specialized DB boxes for industrial and commercial applications.

Overview

Distribution boxes (DB Boxes) serve as central points for distributing electrical power from a main supply to multiple downstream circuits. They house protective devices such as circuit breakers, fuses, relays, and contactors, ensuring both equipment protection and personnel safety. In power plants, these boxes are critical for managing high loads, motor control, lighting circuits, and auxiliary systems ().

Common Models and Specifications

o Low-Voltage Fixed Switchgear

o GGD Series: Used in substations and power plants; high breaking capacity, stable performance, AC 50Hz, rated voltage 380V.

o GDH Series: Similar to GGD, with manufacturer-specific parameters.

o PGL Series: Stable low-voltage switchgear for various industrial applications ().

o Low-Voltage Withdrawable Switchgear

o GCK Series: Composed of power distribution center cabinets and motor control centers; AC 60Hz, working voltage ~660V; suitable for motor control and lighting equipment.

o GCS Series: AC 50Hz, rated voltage 400V; used in power plants, oil facilities, and high-consumption buildings.

o MNS Series: Compact, versatile, and widely used in small power plants, industrial enterprises, and hotels; supports low-voltage distribution systems ().

o Distribution Box Types

o Surface Mounted: Installed on walls; ideal for industrial retrofits.

o Flush Mounted: Embedded in walls for aesthetic and space-saving purposes.

o Pole Mounted: Outdoor applications, including street lighting and utility distribution.

o Single Phase: Residential or small commercial loads.

o Three Phase: Industrial or large commercial facilities requiring higher power capacity.

o Lighting Distribution Boxes: Dedicated to lighting circuits.

o Power Distribution Boxes: Support sockets, heavy machinery, and equipment.

o Control Distribution Boxes: Integrate control components like relays, timers, and contactors ().



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Structural and Environmental Features

- o Enclosures: Made from cold-rolled steel, stainless steel, or die-cast materials for chemical resistance.
- o Protection Rating: IP54 or higher; resistant to dust, water, and chemical corrosion.
- o Mounting Options: Wall-mounted or floor-mounted with front access.
- o Temperature and Humidity Tolerance: Can withstand short-term temperatures up to +70°C and humidity up to 90% at lower temperatures ().

Applications in Power Plants

- o Motor Control Centers (MCCs): For controlling pumps, fans, and auxiliary motors.
- o Lighting and Power Distribution: Ensures reliable power supply to plant equipment and lighting systems.
- o Metering and Monitoring: Some models include metering panels for energy management.
- o Modular and Expandable Systems: Allow capacity expansion and easy maintenance ().

Selection Considerations

When choosing a distribution box for a power plant, consider:

- o Voltage and current ratings appropriate for the load.
- o Type of switchgear (fixed vs. withdrawable) based on operational flexibility.
- o Environmental conditions (temperature, humidity, chemical exposure).
- o Safety standards compliance (GB7251.3-2006, NEC, NFPA 70E).
- o Ease of installation, maintenance, and future expansion (). Power plant distribution boxes are essential for safe, reliable, and efficient power management, with a wide range of models and specifications tailored to industrial, commercial, and utility applications.

Acceptable and preferred practices - Where this Project Standard and Specification lists more than one type of equipment or method

This document provides a list of components in an electrical distribution box with their names and associated wiring diagrams. It

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Another important step towards basic planning of the electric power distribution is a rough estimation of the power demand for the

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This document provides specifications for various distribution boxes including dimensions, mounting sizes, and number of ways. It

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