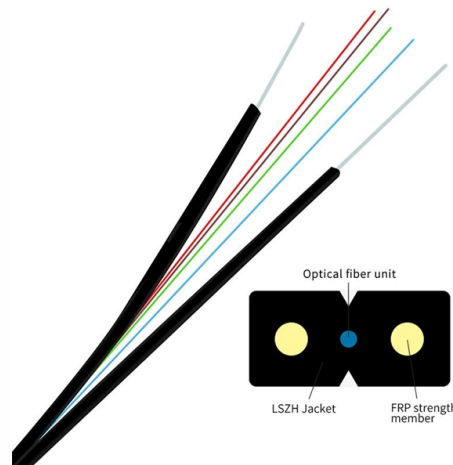


Design Process of Complete Distribution Box



AI Overview

The design of a complete distribution box involves requirement analysis, detailed engineering design, material selection, manufacturing, assembly, testing, and layout optimization to ensure safe and efficient power distribution.

- Requirement Confirmation** The first step is to understand the specific electrical and functional requirements. This includes rated voltage and current, the type and quantity of components (circuit breakers, contactors, motor protectors), functional needs (main distribution, control, protection), installation environment, dimensions, and any special requirements such as corrosion resistance or IoT integration. Accurate requirement gathering ensures the design meets operational and safety standards.
- Design and Solution Development** Engineers create CAD drawings and 3D models based on the confirmed requirements. This stage involves:
 - Component selection:** Choosing appropriate breakers, relays, and protective devices.
 - Layout design:** Arranging components for optimal accessibility, cooling, and safety.
 - Appearance and enclosure design:** Determining dimensions, material type (steel, stainless steel, aluminum), and protection level (IP/NEMA ratings) for indoor or outdoor use.
 - Load and voltage analysis:** Calculating total power demand, rated current, and separating different voltage systems to prevent interference.
- Material Preparation** High-quality materials are selected to ensure durability and compliance:
 - Steel or stainless steel sheets** for the enclosure.
 - Surface treatment materials** such as anti-rust coatings, powder paint, or galvanization.
 - Quality checks** for thickness, hardness, and corrosion resistance.
- Manufacturing and Assembly** The manufacturing process includes:
 - Cutting and forming:** Using CNC laser cutting, punching, bending, and stamping to shape the enclosure.
 - Surface treatment:** Powder coating, painting, or ga...

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