

Article Overview

The manufacturing of complete distribution boxes involves a systematic process from design and material preparation to assembly, surface finishing, and rigorous testing to ensure safety and reliability.

1. Design and Engineering

The process begins with design and engineering, where precise CAD drawings and 3D models are created based on customer requirements, standards (IEC/NEMA), and application scenarios . This stage defines material thickness, dimensions, IP/NEMA protection levels, and component layout, ensuring compatibility for applications such as industrial automation, solar power, or commercial buildings.

2. Material Preparation

High-quality raw materials are selected according to the application: galvanized steel for indoor use, stainless steel for outdoor environments, or plastic composites for lightweight, corrosion-resistant panels . Surface treatment materials like anti-rust coatings and powder paints are prepared, and each batch undergoes thickness, hardness, and corrosion resistance tests to ensure durability.

3. Cutting, Forming, and Punching

Steel sheets or plastic panels are cut using CNC laser cutters, plasma cutters, or punching machines to achieve precise shapes . The pieces are then bent and formed using hydraulic or CNC press brakes to create the box sides, back, and top. Holes for circuit breakers, switches, cable entries, and mounting hardware are punched or drilled with high accuracy to ensure proper component fit.

4. Surface Treatment

Surface finishing enhances corrosion resistance and aesthetics. Common methods include powder coating, galvanization, or painting, applied uniformly and baked to form a durable protective layer . This step also considers environmental ratings, such as IP or NEMA standards, to ensure the box can withstand specific conditions like moisture, dust, or chemical exposure.

5. Assembly of Electrical Components

The internal assembly involves installing busbars, branch circuit breakers, terminals, neutral and ground bars, and other protective devices . Wiring is carefully routed, and components are mounted according to the design layout. Reinforcements may be added at stress points, and spot welding or fasteners are used to secure the

enclosure.

6. Testing and Quality Control

Each distribution box undergoes rigorous testing to verify electrical performance, protection capabilities, and current-carrying capacity . Tests include insulation resistance, continuity, and functional checks of protective devices. Only after passing these inspections is the box approved for delivery.

7. Customization

Distribution boxes can be customized to meet specific requirements, including rated voltage, current, component types, appearance, and installation environment . Customization ensures adaptability for residential, commercial, or industrial applications, providing a reliable and flexible power distribution solution. This structured approach ensures that complete distribution boxes are safe, durable, and compliant with international standards, ready for diverse electrical distribution applications.

Distribution Box Manufacturer DOHO is a major manufacturer of distribution boxes and products in China.

The Manufacturing Process Of Our Power Distribution Boxes We understand that not everyone is technically minded, but that

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Distribution boxes, also known as electrical distribution boards or panels, are pivotal components in electrical systems, ensuring the

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This article walks you through the complete distribution box manufacturing process, covering each step from material preparation to

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