

Trapezoidal copper busbar in distribution box



Summary of Content

Trapezoidal copper busbars are widely used in distribution boxes for efficient power distribution, offering high current capacity, compact design, and improved thermal performance.

Overview

Trapezoidal copper busbars are metal conductors shaped like a trapezoid, commonly used in low-voltage switchgear, distribution panels, and packaged substations. Copper is preferred due to its high electrical conductivity, mechanical strength, and thermal performance, which ensures minimal voltage drop and reliable energy transmission. The trapezoidal shape allows for optimized current density and better heat dissipation compared to rectangular or flat busbars, making them suitable for compact distribution boxes.

Design Considerations

- **Current Rating and Ampacity:** The busbar must be sized according to the rated current of the system. For three-phase AC systems, the rated current is calculated based on system voltage, power factor, and load, with additional safety margins (typically 10–15%) to account for heat accumulation and localized hot spots.
- **Thermal Management:** Trapezoidal busbars provide a larger surface area at the base, improving airflow and heat dissipation. Proper ventilation in the distribution box is essential to prevent overheating, especially in high-current applications.

Article Content

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They may be used in a variety of configurations ranging from vertical risers, carrying current to each floor of a multi

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Although busbar systems should normally be designed for lowest lifetime cost – which means a lower working temperature to reduce

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