Photovoltaic cable tray thickness requirements



Overview

For spans over 6 meters, special orders are accepted. Materials can be galvanized, Al-Zn-Mg, stainless steel, or aluminum alloy. Ladder-type trays provide excellent ventilation.

Key Takeaways

Photovoltaic cable trays typically use steel or Al-Zn-Mg sheets with thicknesses ranging from 1. 2 mm to 2. 0 mm, depending on load, span, and environmental conditions.

Recommended Thickness and Materials

Photovoltaic cable trays are designed to support solar cables while providing corrosion resistance and structural integrity. Common materials include cold-rolled steel, hot-dip galvanized steel, and Al-Zn-Mg coated steel. Al-Zn-Mg trays are preferred for outdoor solar installations due to their superior corrosion resistance, which can be 5–10 times higher than ordinary galvanized steel, especially at cut edges.

The recommended thickness for these trays is generally 1. 2 mm to 2. 0 mm, though customization is possible based on project requirements.

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Standards and Compliance

Cable trays for photovoltaic systems should comply with IEC 61537, which specifies mechanical strength, corrosion resistance, electrical continuity, and fire performance for metallic cable trays. Thickness selection is influenced by: Load capacity: Heavier cable loads or longer spans require thicker trays. Environmental exposure: Coastal or industrial environments may require thicker or more corrosion-resistant materials.

Tray type: Ladder trays, perforated trays, and solid-bottom trays have different structural requirements, affecting minimum thickness. National standards such as NEMA, NEC, and local building codes may also dictate minimum thicknesses for safety and structural performance.

Practical Considerations

Span and support spacing: Longer unsupported spans require thicker trays to prevent sagging. Cable fill and ventilation: Adequate thickness ensures the tray maintains rigidity while allowing proper ventilation for heat dissipation. Customization: Manufacturers often provide options to adjust thickness for specific load or environmental conditions.

Summary

For photovoltaic installations, 1. 2–2. 0 mm thick steel or Al-Zn-Mg trays are commonly used, with the exact thickness determined by load, span, environmental exposure, and compliance with IEC 61537 and local standards.

Using the correct thickness ensures structural integrity, corrosion resistance, and long-term safety of the solar cable system.

Article Content

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