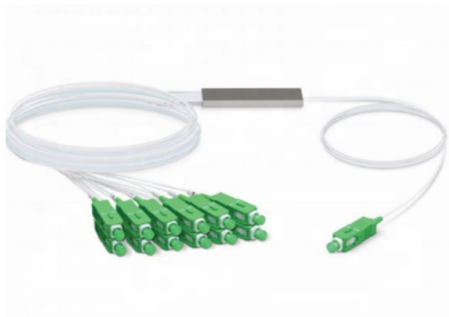


Standard requirements for thickness of trapezoidal cable trays



Overview

This guide for engineers and installers has been developed by ABB as a practical reference regarding cable tray characteristics, installation, and requirements.

Key Takeaways

Trapezoidal cable trays typically require a material thickness ranging from 1.2 mm to 3 mm, depending on span, load, and environmental conditions.

Material Thickness Considerations

The thickness of a trapezoidal cable tray directly affects its load-bearing capacity, allowable span, and long-term durability. Thicker trays can support heavier cable loads and longer spans without excessive deflection, while thinner trays are suitable for lighter loads or shorter spans. Light-duty trays: 1.

2-1.5 mm, suitable for small control or instrumentation cables with short spans. Medium-duty trays: 1.

5-2.0 mm, used for moderate cable loads in commercial or industrial installations. Heavy-duty trays: 2.

0-3.0 mm, designed for large power cables, long spans, or outdoor installations where environmental factors like wind or snow may apply additional loads.



Standards and Compliance

Trapezoidal trays must comply with IEC 61537, which specifies mechanical strength, corrosion resistance, and load testing. The standard requires that trays undergo load and coating thickness tests to ensure durability under expected conditions. Material selection (steel, aluminum, or stainless steel) and protective coatings (galvanization or powder coating) also influence the required thickness.

Span and Load Impact

The support span is a critical factor in determining thickness. Longer spans require thicker sidewalls to prevent bending or deflection. For example: Short spans (≤ 1.5 m):

minimum thickness may suffice. Medium spans (1.5–3 m): moderate thickness recommended.

Long spans (> 3 m): heavy-duty thickness required to maintain structural integrity.

Environmental Considerations

Corrosive or outdoor environments may necessitate increased thickness or corrosion-resistant materials to maintain mechanical strength over time. Stainless steel or hot-dip galvanized trays often require slightly thicker material to compensate for potential coating wear.

Summary

When selecting a trapezoidal cable tray, consider: Cable load and type, Support span, Environmental exposure, Compliance with IEC, NEMA, or NEC standards. Typical thickness ranges from 1.2 mm for light-duty trays to 3 mm for heavy-duty applications, with adjustments based on span, load, and environmental conditions.

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