Cable trays for cable interlayer



Overview

7 Types of Cable Trays: How to Choose the Right OneSelecting the correct cable tray type is not arbitrary—it depends on a combination of cable characterist.

Key Takeaways

Cables in interlayer cable trays should be installed in a single layer with proper spacing, segregation, and adherence to standards to ensure safety, heat dissipation, and minimal electromagnetic interference.

Layering and Segregation

When using interlayer cable trays, electrical (power) cables are typically positioned above instrumentation or control cables. This layered arrangement reduces the risk of electromagnetic interference (EMI) from high-current power cables affecting sensitive signal cables below, preserving signal integrity for instrumentation systems. Strong current and high-voltage cables should be separated from low-voltage or low-current cables, maintaining a minimum vertical and horizontal distance, often recommended at 300 mm (12 inches) between layers.

Cable Fill and Spacing

Cables should generally occupy only one layer per tray to allow easy access and proper heat dissipation. The sum of cable diameters must not exceed the tray width, and the total depth should allow for adequate airflow to prevent overheating. Overfilling a tray can lead to ampacity derating, reducing the maximum current each conductor can safely carry.

For larger conductors (1/0 AWG and above), spacing of at least one cable diameter apart is recommended to avoid excessive heat and magnetic interference.

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Installation Considerations

Bend Radius: Maintain the minimum bend radius for each cable as it enters or exits the tray to prevent mechanical damage. Support and Protection: Use ladder-type or ventilated trays to support cables while allowing ventilation and minimizing heat buildup. Material Selection: Choose tray materials resistant to corrosion and suitable for the environment, such as stainless steel or coated aluminum, especially in humid or high-temperature areas.

Fire Safety and Labeling: Ensure compliance with fire-retardant requirements and proper labeling for easy identification and maintenance.

Standards Compliance

Cable tray installations should follow NEC Article 392 in North America and IEC 61537 internationally. These standards define maximum cable fill, tray sizing, mechanical load limits, and performance requirements, ensuring safe and durable installations.

Practical Tips

Plan the shortest and most direct route for trays to minimize bends and junctions, reducing cable length and potential power loss. Use dividers or partitions if space constraints require close proximity of power and control cables. Ensure service access for maintenance, avoiding obstructions like pipes or structural columns.

By following these guidelines, cables laid in interlayer trays will maintain electrical safety, thermal performance, and signal integrity, while complying with industry standards.

Article Content

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Cable Tray Technical Guide A practical guide to product selection and installation This guide for engineers and installers has been developed by ABB as a practical reference regarding cable tray

Cable tray

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