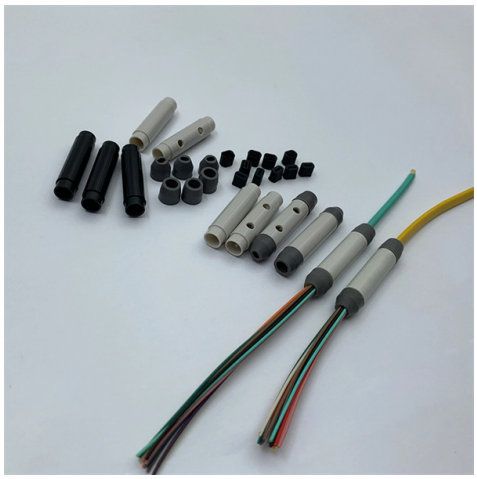
Standard Requirements for Open Grid Cable Trays



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

Open grid cable trays are designed and installed according to IEC 61537, ensuring mechanical strength, electrical continuity, and corrosion resistance for safe cable management.

Overview of Open Grid Cable Trays

Open grid cable trays, also known as wire mesh or basket trays, are widely used in commercial, industrial, and data center environments to support and route electrical and communication cables. Their open design allows for ventilation, heat dissipation, and easy access for cable installation or maintenance while providing structural support for cable loads.

Applicable Standards

The primary international standard for metallic cable tray systems is IEC 61537, which specifies: Construction requirements: Materials, dimensions, and structural integrity for steel, stainless steel, and aluminum trays. Mechanical strength: Load testing to ensure trays can support cable weight and environmental stresses without excessive deflection. Corrosion resistance: Guidelines for coatings or material selection to withstand harsh environments, including marine or chemical exposure.

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Electrical continuity: Ensuring trays can serve as grounding paths where required. Performance testing: Verification of tray durability, including resistance to bending, vibration, and impact. In addition to IEC 61537, manufacturers often comply with national standards such as NEMA VE 1 in the USA or CE marking requirements in Europe, which confirm adherence to safety and quality directives.

Design and Installation Considerations

Rung spacing: Typically 150–230 mm (6–9 inches) to maintain cable support and proper bend radius. Material selection: Steel, stainless steel, or aluminum depending on environmental conditions. Stainless steel (AISI 316L) is preferred for high corrosion resistance, while aluminum offers lightweight and corrosion protection through natural oxide layers.

Load capacity: Trays must be engineered to handle current and future cable loads, including allowances for additional cabling. Ease of installation: Open grid trays allow for rapid deployment, reduced labor, and simplified cable routing, especially in overhead or data center applications.

Advantages of Open Grid Cable Trays

Ventilation: Reduces heat buildup around cables. Flexibility: Easy to cut, bend, and modify on-site. Accessibility: Simplifies cable addition, removal, or maintenance.

Cost efficiency: Lightweight design reduces material and installation costs while maintaining strength.

Summary

Open grid cable trays must comply with IEC 61537 and relevant national standards to ensure safety, durability, and performance. Proper material selection, load rating, and installation practices are critical for long-term reliability, especially in industrial, commercial, and data center environments. Manufacturers like Panduit and Legrand provide systems tested to these standards, offering robust, easy-to-install solutions for modern cable management.

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Safely Installing, Maintaining and Inspecting Cable Trays

OSHA Regulations and Industry Consensus Standards that Apply to Cable Trays The use and installation of cable trays is covered by legally enforceable OSHA regulations in 29 CFR

Cable tray manual

INTRODUCTION The B-Line series Cable Tray Manual was produced by our technical staff. We recognize the need for a complete cable tray reference source for electrical engineers and designers.

Cable Tray Systems: Requirements and Best Practices

Comprehensive guide to cable tray systems requirements: tray types, materials, loading, supports, bonding, routing, and best practices for safe electrical cable management.

IEC Standard for Cable Tray: Complete Technical Guide

Understanding the IEC Standard for Cable Tray Cable trays play a vital role in supporting electrical cables and wires in commercial, industrial, and

Wire Mesh Tray Technical Guide

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The NEMA VE standard for cable trays is the "product" standard which defines the requirements and tests for cable tray and cable ladder systems. As IEC 61 537 is the only harmonized standard at a

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