

Ladder-type cable tray specifications and load capacity

Article Overview

Ladder-type cable trays are available in various widths, rung spacings, and materials, with load capacity determined by side rail height, rung strength, and support span, following NEMA and IEC standards.

General Specifications

Material and Construction: Ladder cable trays are typically made from steel, aluminum, or fiberglass-reinforced plastic. Steel trays often feature 16-gauge tubular side rails and rungs, while fiberglass trays include pultruded or molded components with UV and fire retardant additives, maintaining a flame spread rating of 25 or less (Class 1) per ASTM E-84 . Rungs connect two longitudinal side rails, providing mechanical support and strain relief for cables . **Widths and Rung Spacing:** Standard widths range from 6 to 48 inches, with rung spacings of 6, 9, 12, or 18 inches. Narrower rung spacing (6-12 inches) is recommended for small-diameter control and instrumentation cables, while wider spacing (9 inches or more) suits large power cables . Wider trays and wider rung spacing reduce overall strength, so load charts may require adjustment for these configurations . **Support Span and Load:** Load capacity depends on the side rail height, rung strength, and support span. NEMA VE 1 classifications define four duty levels: NEMA 1 (light), NEMA 2 (intermediate), NEMA 3 (heavy), and NEMA 4 (extra heavy), with side rail heights from 65 mm to 150 mm. Standard straight section lengths are 3 m or 6 m, and internal widths are standardized in 150 mm increments up to 600 mm . Safe working load (SWL) is typically published per IEC 61537 or manufacturer specifications, with load vs. span charts provided for single-span installations . **Design Considerations:** Ladder trays allow maximum airflow, reducing heat buildup in current-carrying conductors and preventing moisture accumulation. They are suitable for areas with dust or potential explosive gases, as these cannot be piped through the tray . Proper selection of rung spacing and tray width ensures neat cable installation and compliance with cable bending radius requirements . **Accessories and Installation:** Connector plates, fasteners, and support assemblies are designed to maintain load capacity. Metallic trays use stainless steel or other corrosion-resistant fasteners, while conductive fiberglass trays may include carbon additives for static dissipation . Ladder trays can be mounted on floors, walls, ceilings, or equipment racks, and modular systems allow easy configuration for new or existing cable routes .

Summary

- o Materials: Steel, aluminum, fiberglass (FRP/GRP)
- o Widths: 6-48 inches
- o Rung Spacing: 6, 9, 12, 18 inches
- o Side Rail Heights (NEMA): 65-150 mm
- o Support Span: Determined by load class and material
- o Load Capacity: Published per IEC 61537 or manufacturer charts, adjusted for tray width and rung spacing

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o Applications: Power, control, instrumentation cables; indoor/outdoor; dust/moisture-prone areas Selecting the appropriate ladder-type cable tray requires considering cable type, tray width, rung spacing, support span, and environmental conditions to ensure safe and efficient cable management .

Ladder type cable tray is a versatile cable management solution that provides high load capacity and allows for easy access to

Determine ladder tray types and sizes, rung spacing, covers if required, the span and support locations and types. If possible avoid

NEMA VE 1-2017 Specifies requirements for metal cable trays and associated fittings designed for use in accordance with the rules

The document discusses how to calculate the load capacity of cable trays and ladders. The load is determined by the weight of

The Ultimate Guide to NEMA cable ladder sizes (NEMA 1, 2, 3, 4). Compare essential specifications, including side rail

We partnered with the Eaton B-Line series experts for this article detailing the NEMA

Our wind certification report provides you with list of acceptable B-Line series cable tray supports, fittings and covers based off of the

Calculate tray and ladder sizes by cable capacity with our IEC-compliant calculator for efficient and accurate electrical installations.

SOLID-BOTTOM CABLE TRAY Providing additional cable protection, solid-bottom cable tray is sometimes preferred to support and

In accordance with its continuous improve-ment policy, Legrand reserves the right to change the specifications and illustrations

Proper tray and ladder sizing ensures safe, efficient, and maintainable electrical installations in all engineering applications. IEC

Where cable tray wiring systems with current carrying conductors are installed in a dust environment, ladder type cable trays should

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Cable Ladder Trays (Welded & Swaged) Cable Ladder Trays, are designed to meet most requirements of cable and electrical wire

Commonly called the Load Class, this defines the load-carrying capability of the tray for a specific support span distance. The design

Cable tray systems are defined to include, but are not limited to straight sections of [ladder type] [trough type] [solid bottom type]

Straight section ladder tray shall be prefabricated structures made from fiberglass reinforced plastic, consisting of two longitudinal

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