

Article Overview

The number of channel-type cable tray supports is calculated by dividing the total tray length by the recommended support spacing and adding one, while considering load, tray type, and installation standards.

Step-by-Step Calculation

- o **Identify Cable Tray Type and Specifications** Determine the tray type (channel, ladder, perforated, or mesh), material, and dimensions. Channel trays are typically made of steel or aluminum and are designed to support cables without acting as walkways . The material and tray width influence the maximum allowable support spacing.
- o **Measure Total Tray Length** Measure the full length of the tray run, including straight sections, elbows, tees, and transitions. Each section should be considered separately for accurate support placement .
- o **Determine Support Spacing** Support spacing depends on the tray type, material, and expected load. For channel trays, typical spacing ranges from 1.5 to 3 meters, but heavier loads or longer spans may require closer spacing . Refer to standards such as BS 6946 for channel support systems and BS EN 61537 for cable tray systems to ensure compliance .
- o **Calculate Support Quantity** Use the formula: $\text{Support Quantity} = (\text{Total Tray Length} / \text{Support Spacing}) + 1$ For example, a 20-meter channel tray with 2-meter spacing requires: $20 / 2 + 1 = 11$ supports .
- o **Consider Load and Environmental Factors** Adjust support spacing if the tray carries heavy cables, electrical equipment, or is installed in environments with vibration, temperature extremes, or corrosive conditions. Material selection (galvanized steel, stainless steel, or aluminum) affects both corrosion resistance and mechanical strength .
- o **Plan for Accessories and Fittings** Include additional supports at bends, tees, reducers, and junctions to maintain stability and prevent sagging. Supports should be compatible with the tray system and installed according to manufacturer guidelines .

Practical Tips

- o Always follow manufacturer recommendations for maximum span and load capacity.
- o Use software tools for large-scale projects to optimize support placement and reduce material waste .
- o Ensure supports are securely fastened to the building structure using appropriate anchors or brackets, as external fastening elements are not part of the tray system itself . By following these steps, engineers and installers can ensure safe, stable, and code-compliant channel-type cable tray installations.

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



Calculation Method for Channel-Type Cable Tray Supports

A professional guide to installing electrical cable tray systems per NEC Article 392. Covers support,

T& B channel tray systems are fabricated from a corrosion-resistant metal (low-carbon steel, stainless steel or an aluminum alloy) or

Instead of large conduits, cable channel may be used very effectively to support cable drops from the cable tray run to the equipment

This guide covers cable ladder systems, cable tray systems, channel support systems and associated supports intended for the

In the design review method, justify the technical adequacy of the calculation and explain how the adequacy was verified (calculation

It details different types of cable trays, such as ladder, perforated, solid bottom, wire mesh, and channel trays, along with guidelines

Strut channel is used to mount, support, and connect lightweight structural loads for supporting cable tray in Raised access floor

The following recommendations are intended to be a practical guide to ensure the safe and proper installation of

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

The document provides information on cable tray sizing including cable types and weights, tray sizes and weights, bending moment

9 - Tiered "L" brackets Use brackets to create multi-level installations for applications that require separation of different types of

Learn how to accurately calculate cable tray support quantities in electrical installation

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

In designing supports for a cable tray system, consideration should be given to the loads associated with future cable additions and

Calculation Method for Channel-Type Cable Tray Supports

Cable tray fill percentage calculator per IEC 61537. Multi-cable derating factors, ventilated/non-ventilated tray types,

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