Steel cable tray load rating



Overview

B-Line series Cable Tray Design ConsiderationsOur wind certification report provides you with list of acceptable B-Line series cable tray supports, fitting.

Key Takeaways

Steel cable trays are rated based on load class, span length, and deflection limits, typically including a safety factor of 1. 5 and compliance with NEMA, CSA, or IEC standards.

Load Rating Overview

Steel cable trays are designed to support the weight of cables while minimizing deflection. Load ratings are determined by the tray type, material, width, and span between supports. Most manufacturers, such as ABB and Eaton, provide load tables specifying maximum uniform loads and concentrated loads for each tray size and span.

A typical safety factor of 1. 5 is applied, meaning trays can support 50% more than the published load without failure.

Span and Deflection Considerations

Support spacing: Recommended support locations are often 1/4 of the span to reduce stress and deflection at splice points. Deflection limits: Standard practice limits deflection to span/200, with the worst-case scenario at the end span. Wider trays may experience additional local deflection, which is generally acceptable structurally but may affect appearance.

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Continuous spans: Longer continuous spans can reduce deflection by up to 50% compared to single-span calculations.

Load Classes and Concentrated Loads

Steel trays are rated for uniform loads across the tray width and can also support additional concentrated loads (e.g., 200 lb at any point on the tray) above the published load class. Eaton's B-Line KwikRail trays, for example, are rated for NEMA 12A and 12B (CSA class C-3m and D-3m), suitable for commercial and light-industrial applications. Standards ComplianceNEMA VE-1/VE-2: Defines support locations, load classes, and installation practices for North American installations.

CS

A: Canadian standards align with NEMA for load and span requirements.

IE

C 61537: International standard specifying mechanical strength, deflection, and load testing for steel, stainless steel, and aluminum trays. Compliance ensures trays can safely handle cable weight and environmental factors over time.

Practical Selection Tips

Determine cable weight and type: Include power, control, and instrumentation cables. Select tray width and depth: Based on cable volume and bending radius requirements. Check manufacturer load tables: Ensure the tray supports the calculated load for the intended span.

Consider concentrated loads: Account for equipment or junction boxes placed on the tray. Verify compliance: Ensure the tray meets NEMA, CSA, or IEC standards for your region. By following these guidelines, steel cable trays can safely support cabling systems while minimizing deflection and maintaining long-term reliability.

Article Content

B-Line series Cable Tray Design Considerations

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

Cable Tray Load Capacity: Complete Guide for Safe

This guide explains how cable tray load capacity works, what factors affect load performance, and how engineers calculate safe loading conditions for different

Load Tables | Cable Management | Metsec

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Range of Load Tables for Metsec Cable Tray Systems for the mechanical and electrical services industry. For any queries, contact our team on +44 (0)121 6016000.

GUIDE CABLE TRAYS TECHNICAL

Specifies requirements for metal cable trays and associated fittings designed for use in accordance with the rules of Canadian Electrical Code, Part I and the National Electrical Code®

NEMA Class Load Capacity Guide

The document provides a quick reference guide for various NEMA classes that specify load ratings and dimensions for cable tray systems. It includes NEMA classes 8A, 8B, 8C, 12A, 12B, 12C, 16A, 16B,

Cable Tray Technical Guide A practical guide to product selection and ...

In designing supports for a cable tray system, consideration should be given to the loads associated with future cable additions and any additional loading that may be applied to the cable tray system (e.g.,

26 05 36 Cable Trays for Electrical Systems

In addition to the uniformly distributed load the cable tray shall support 200 lbs. concentrated load at mid-point of span. Load and safety factors specified are applicable to both the side rails and rung

NEMA Class Load Capacity Guide | PDF | Structural Engineering

NEMA Class Load Capacity Guide The document provides a quick reference guide for various NEMA classes that specify load ratings and dimensions for cable tray systems. It includes NEMA classes

Non-Metallic Cable Tray Load Guidelines | PDF | Snow | Cable

This document provides information on selecting cable tray classes and load capacities. It includes tables that define the standard loading classes and designations for cable trays according to CSA

TECHNICAL AND SIZING DATA

Steel ladder tray has load thermal expansion (low coefficient) and provides electric shielding for low level control circuits when used in electro-magnetic shielded ladder trays.

Cable Tray Technical Guide A practical guide to product selection and ...

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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

Steel Structure Calculation for Cable Tray | PDF | Structural Load ...

This document provides a calculation report for the steel structure of a cable tray rack. It includes details on the scope, references, loading assumptions, load combinations, and allowable deflections used

Wyr-Grid® Overhead Cable Tray System

Wyr-Grid® Cable Tray Load Rating Report Limits on deflection from cable loading are set forth in EN 61537:2007. The safe working load (SWL) is the evenly distributed load at which the transverse

Understanding NEMA Standards for Cable Tray Systems

However, tray load ratings are no longer limited to the four spans and three loads listed above. NEMA VE 1 now requires the marking on the cable

Cable Tray Selection: Strength & Deflection Guide

A guide to cable tray selection, focusing on strength, deflection, load capacity, and beam configurations. Ideal for engineering applications.

Cable Tray Raceway Fill and Load Calculations

The load ratings of the hardware that supports the cable tray must also be considered. Load ratings for some commonly used supports are shown in the tray support maximum load table in

Instrument Cable Tray Load Calculation: A Detailed Guide

Cable tray systems are essential for supporting and routing instrument cables in industrial and commercial installations. Proper load calculation ensures the safety, efficiency, and longevity of the

Technical information

Technical information CSA and NEMA loading classes The standard classes of cable trays, as related to their maximum design loads and to the associated design support spacing based on a simple beam

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

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