How far apart do cable trays need expansion joints



Overview

Metal actually expands and contracts with weather change, and leaving some small gap in between tray sections is a must.

Key Takeaways

Cable tray expansion joints should be installed based on material type and expected temperature variations, typically every 128 feet for steel and 65 feet for aluminum under a 100°F temperature differential.

Key Guidelines for Expansion Joint Installation

Material Considerations: Steel and aluminum cable trays expand and contract at different rates. Steel requires fewer expansion joints due to its lower thermal expansion, while aluminum expands more and needs joints more frequently (approximately every 128 feet for steel and 65 feet for aluminum for a 100°F temperature change). Temperature Differential: The spacing of expansion joints depends on the expected temperature range.

Larger temperature variations require closer spacing to prevent bending, distortion, or bolt elongation at splice plates. Support Placement: Supports should be located within 2 feet of each side of the expansion joint splice plate. The tray should not be clamped too tightly at these supports, allowing it to slide freely with expansion guides at other support points.

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The tray should be anchored at the midpoint between expansion joints with hold-down clamps. Gap Setting: The expansion joint gap must be calculated based on the installation temperature and expected maximum and minimum temperatures. For example, if the installation temperature is 50°F and the expected range is -28°F to 100°F, the gap may be set at 3/8 inch.

Standards Compliance: Follow NEMA VE 1 and NEC Section 300-7(b) guidelines, which emphasize accommodating thermal expansion and contraction to maintain system integrity and prevent damage to cables or the tray. Practical Tip: Use slotted holes on expansion plates to allow sliding motion. Standard round holes can restrict movement and cause stress on the tray.

By considering these factors—material, temperature differential, support placement, and proper gap settings—cable trays can safely accommodate thermal expansion and contraction, ensuring long-term structural stability and preventing damage to the system.

Article Content

Managing Thermal Expansion and Contraction in Cable Tray Systems

Metal actually expands and contracts with weather change, and leaving some small gap in between tray sections is a must. When the distance between the metals is too low, the metals will

Thermal Contraction and Expansion of Cable Tray

A cable tray support should be located within 2 feet of each side of the expansion joint splice plates position. The cable trays must not be clamped to each support so firmly that the cable tray cannot

Cable Tray Expansion Joint Installation: Comprehensive Guide

Expansion joints must be installed at regular intervals along the cable tray system, especially in areas where significant temperature changes occur. The distance between expansion

Cable Tray Thermal Expansion Guidelines

2) Factors like material, temperature range, and installation temperature determine the required gap size and spacing of expansion joints. For a 100°F temperature differential, steel trays require a joint every

Cable tray (expansion joints) | Information by Electrical Professionals ...

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NEMA has a free PDF installation guide that gives you the information needed to calculate how many expansion joints are needed. The code never tells you that you need one every so many

Cable tray support spacing calculator

Not sure how far apart to space your cable tray supports? Use our free cable tray support spacing calculator to find the precise spacing.

INSTALLATION GUIDE

Except as provided for in Subrules (2) and (3), metal cable tray shall be bonded at intervals not exceeding 15 m and the size of bonding conductors shall be based on the ampacity of the largest

Fiberglass Cable Tray Thermal Expansion Data

It is important that thermal contraction and expansion be considered when installing cable tray systems. The length of the straight cable tray runs and the temperature differential govern the number of

Cable Tray Thermal Expansion Guidelines

NEMA standards provide guidelines for placement of expansion joints based on expected temperature ranges and material type. Expansion joints should be installed at regular intervals and allow the

392.44 Expansion Splice Plates.

2020 Code Language: N 392.44 Expansion Splice Plates. Expansion splice plates for cable trays shall be provided where necessary to compensate for thermal expansion and contraction.

Thermal Contraction and Expansion of Cable Tray

It is important that cable tray installations incorporate features which provide adequate compensation for their thermal contraction and expansion.

Managing Thermal Expansion and Contraction in Cable Tray Systems

Learn how to manage thermal expansion and contraction in cable tray systems with expert tips on expansion joints, guides, and spacing to ensure long-term structural integrity.

Precautions for Cable Tray Installation

We have summarized the precautions for cable tray installation to help customers quickly and correctly install cable trays.

Best Practice Guide to Cable Ladder and Cable Tray Systems

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This guide covers cable ladder systems, cable tray systems, channel support systems and associated supports intended for the support and accommodation of cables and possibly other electrical

Thermal Contraction and Expansion of Cable Tray

The cable tray needs to be anchored at the support closest to the midpoint between the expansion joints with hold down clamps and secured by expansion guides at all other support locations. The

Cable Tray Installation and Cable Handling Method Statement

Cable trays should be fastened to the support system using guides that allow for longitudinal movement. 5.4.4 Expansion Connectors and Bonding Expansion connectors must be provided at building

Cable Tray Thermal Expansion Guidelines

Thermal expansion and contraction of cable trays must be accounted for through the use of expansion joints. Proper installation of expansion joints is important to prevent tearing, bending, or damage

What is Expansion Joint Cable Tray Installation

Learn the essentials of expansion joint cable tray installation and how they ensure safe and durable cable tray systems in various environments.

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