

Function of Expansion Joints in Cable Trays

Article Overview

An expansion joint in a cable tray is a specially designed connection that allows the tray to safely expand and contract due to temperature changes, preventing structural stress and damage to cables.

Purpose and Function

Cable trays, typically made of metal, expand and contract with temperature fluctuations. Without proper accommodation, this movement can cause bending, misalignment, or even tearing of the tray and cables. Expansion joints are installed to absorb these movements, allowing the tray to slide or expand without causing strain on the system, ensuring long-term reliability and safety of the electrical installation .

How Expansion Joints Work

Expansion joints usually consist of splice plates, sliding guides, and bonding jumpers. The tray is anchored at specific points, while expansion guides allow sections to move back and forth. This setup ensures that the tray can expand or contract freely without distorting or damaging the cables . The correct placement and sizing of expansion joints depend on the material of the tray, the length of the run, and the expected temperature variations .

Installation Guidelines

- o Spacing: For steel trays, expansion joints are typically installed every 30 meters, and for aluminum trays, every 15 meters. Shorter intervals may be required if temperature differences exceed 50°C .
- o Support: Supports should be placed within 2 feet of each side of the expansion joint, but the tray should not be clamped so tightly that it cannot move .
- o Standards: Installation should follow NEC Section 300-7(b) and NEMA VE 1 guidelines, which emphasize compensating for thermal expansion and contraction to maintain system integrity .

Importance

Properly installed expansion joints prevent structural stress, bolt elongation, and cable damage, especially in environments with large temperature swings, such as rooftops or outdoor industrial settings. They are essential for maintaining the safety, alignment, and longevity of cable tray systems .

To determine the number of expansion splice plates you need, decide the length of the straight cable tray runs

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and the total

Learn how to manage thermal expansion and contraction in cable tray systems with expert

The cable ladders & trays should be anchored at the support nearest to its midpoint between the expansion splice plates and

See answer below. A. Expansion splice plates for cable trays must be provided where necessary to compensate for thermal

The cable tray needs to be anchored at the support closest to the midpoint between the expansion joints with hold down clamps and

These include splice joints, tee joints, cross joints, and expansion joints. Each type serves a unique purpose, accommodating

Step 2: Determine the gap setting between the cable tray expansion splice joints at the time of the installation to account properly the

Cable Tray Thermal Expansion Guidelines 1) Cable trays need expansion joints to allow for thermal contraction and expansion due

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1. Introduction Deck expansion joints generally perform a critical function in bridges of any significant span length, by enabling the

Cable ladders PTR type have been tested to verify the electrical continuity in accordance with CEI EN 61537 standard. The test

Learn the essentials of expansion joint cable tray installation and how they ensure safe and durable cable tray

When performing cable tray expansion joint installation, it is essential to follow best practices for anchoring and

Cable Tray Technical Guide A practical guide to product selection and installation This guide for engineers and installers has been

1) Cable trays need expansion joints to allow for thermal contraction and expansion due to temperature

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changes. The NEC requires

At the midpoint between two expansion joints the tray should be secured (no longitudinal movement). At all other support locations,

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