

How to make cable tray expansion joints

Article Overview

Cable tray expansion joints are installed to accommodate thermal expansion and contraction, ensuring structural integrity and preventing stress on cables and trays.

Understanding Thermal Expansion in Cable Trays

Cable trays, especially metal ones, expand and contract with temperature changes. Steel and aluminum trays have different expansion rates; for example, a 100-foot aluminum tray can expand or contract by approximately 2 inches with a 100°F temperature change, while steel expands less. Without proper expansion joints, trays can bend, tear from supports, or cause bolt elongation at splice points.

Components of an Expansion Joint

- o Expansion Joint Splice Plates: These connect two tray sections while allowing movement. They should be installed at calculated intervals based on tray material and expected temperature variation.
- o Bonding Jumpers: Ensure electrical continuity across the joint.
- o Expansion Guides: Allow the tray to slide back and forth at support points, preventing distortion.
- o Hold-Down Clamps: Used at the midpoint between expansion joints to anchor the tray while allowing movement at other supports.

Installation Guidelines

- o Support Placement: Place supports within 2 feet of each side of the expansion joint splice plate. Do not clamp the tray too tightly; it must be free to expand and contract.
- o Joint Spacing: Follow NEMA VE 1 standards for maximum tray lengths between expansion joints. For a 100°F differential, steel trays require joints every 128 feet, aluminum every 65 feet.
- o Gap Setting: Determine the expansion gap based on the highest expected tray temperature at installation. Use nomographs or manufacturer guidelines to calculate the correct gap.
- o Environmental Considerations: Install expansion joints in areas with significant temperature fluctuations, such as rooftops or outdoor industrial settings.

Best Practices

- o Evaluate the type of cable and environmental conditions to determine joint placement.
 - o Ensure proper alignment and secure bonding to maintain electrical continuity.
 - o Use expansion guides at all supports except the hold-down clamp location to allow smooth movement.
 - o Regularly inspect joints for wear or misalignment, especially in high-temperature or outdoor installations.
- By following these guidelines, cable tray expansion joints can effectively absorb thermal movements, maintain system integrity, and prevent damage to both the trays and the cables they support.

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Cable Trays and Trunking shall be fixed with metal bracket at an interval of 1200mm or less as per manufacturer recommendations

Reasonable setting of cable tray expansion joints is a key link to ensure the safe operation of the cable tray system,

An expansion joint is disclosed for a cable tray apparatus for a people mover system. An expansion joint is inserted or positioned

For a 100°F differential (winter to summer), a steel cable tray will require an expansion joint every 128 feet and an aluminum cable

This video is a short excerpt from our full video that can be found

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

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

Supports should be located within 600 mm (2 ft) of each side of the expansion splice plates. Expansion splice joints should be

Cable trays should be fastened to the support system using guides that allow for longitudinal movement. 5.4.4 Expansion Connectors

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

NEMA has a free PDF installation guide that gives you the information needed to calculate how many expansion joints

Discover best practices for cable tray expansion joint installation to accommodate thermal changes, ensuring

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

To ensure that the complete ladder tray wiring system performs as designed, it is important that it is properly installed. Personal

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A cable tray system may be affected by thermal expansion and contraction, which must be taken into account during installation. To

Working with EzyTrays The EzyTray Cable Tray system is offered with a full range of accessories to allow you to assemble and work

Web: <https://bssoda.pl>

