Connecting jumpers between cable trays

Overview

Are Bonding Jumpers Required for Standard Cable Tray Splice Plates?

Learn when bonding jumpers are mandatory for cable trays and when UL-rated splice plates.

Key Takeaways

Connecting jumper cable trays requires secure mechanical joining and proper bonding jumpers to ensure electrical continuity and system safety.

Mechanical Connection of Cable Trays

Splice Plates and Bolted Connections: Use flat metal splice plates with pre-drilled holes to join two tray sections in a straight line. Bolt the plates securely to each tray end using the recommended fasteners, ensuring a tight fit to maintain system stability and load support. This method is strong, reliable, and allows for future maintenance or adjustments.

Quick Connect Systems: Some manufacturers offer snap, slide, or twist-lock systems that reduce installation time and require minimal tools. These are ideal for large projects where speed is important, but they may only be compatible with specific brands. Angle or Junction Plates: For L, T, or cross-shaped connections, use specialized plates to route cables around corners or splits.

These plates ensure proper alignment and maintain structural integrity.

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Installing Bonding Jumpers

Bonding jumpers are essential for maintaining electrical continuity, especially in painted, powder-coated, or expansion-joint-equipped trays. Follow these steps: Select the Correct Jumper: Use a flexible copper bonding jumper, typically 2 AWG soft-drawn tin-plated copper with flame-retardant insulation. Standard lengths are around 36 inches, but longer options are available for larger gaps.

Attachment Points: Bolt each lug of the jumper to a square hole at the end of the tray channel. Do not attach the jumper to splice plate bolts or pins; it must connect directly to the tray channel. Expansion Joints and Adjustable Splices: Always install jumpers across expansion splices or adjustable fittings to maintain continuity during movement or vibration.

Resistance Check: Ensure the connection resistance is below 0. 0003 ohms to comply with safety standards and pass inspections.

Grounding Considerations

All metallic cable trays should be grounded according to local electrical codes, regardless of whether they are used as the equipment grounding conductor (EGC),. Avoid placing bare copper conductors in aluminum trays to prevent electrolytic corrosion; use insulated conductors with exposed ends at bonding points. For stainless steel or aluminum trays, verify that the bonding jumper and fasteners are compatible with the material to prevent corrosion and ensure reliable grounding.

Best Practices

Plan for bonding jumpers during the ordering phase to avoid delays or inspection failures. Ensure all mechanical connections are tight and aligned to prevent sagging or cable damage. Use UL-rated splice plates when possible, but supplement with jumpers for painted or coated trays.

Regularly inspect connections for looseness, corrosion, or wear, especially in high-vibration environments. By following these steps, you can ensure that jumper cable trays are mechanically secure, electrically continuous, and compliant with safety standards, providing long-term stability and ease of maintenance.

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Article Content

Are Bonding Jumpers Required for Standard Cable Tray Splice Plates?

Learn when bonding jumpers are mandatory for cable trays and when UL-rated splice plates are sufficient to ensure electrical continuity and pass your next site inspection.

Bonding Jumpers Not Required for Standard Cable Tray Splice Plates

It is not necessary to install bonding jumpers in parallel with the standard rigid aluminum or steel one-piece metallic bolted side rail splice plates that are the connections between the cable tray sections.

Equipment Grounding Conductors for Cable Tray Systems

Connections of conduits and/or cables (Bonding and/or EGC) to the cable trays should be made with UL Listed Connectors that are properly installed to insure that there is good electrical continuity between

Bonding Jumpers

A bonding jumper is required to be installed with adjustable splices and expansion splices. Install Bonding Jumpers by bolting each lug to a 5/16 square hole

Practices for grounding and bonding of cable trays

In addition to providing an electrical connection between the cable tray sections and the EGC, the grounding clamp mechanically anchors the EGC to the cable tray so that under fault current

When are bonding jumpers required for use with cable tray?

GEIS, B-Line, Bonding jumpers, Cable tray, dscontinuous Bonding jumpers are required to be used on both rails when the tray is not continuously grounded or when splice plates that aren''t UL listed are

Grounding & Bonding Connectors

Cables must be secured to the cable tray prior to and after the transition, and protected by guarding or location. The electrical connection between sections can be maintained with bonding jumpers or a

Cable Tray Bonding Jumper Insights | PDF | Cable | Industries

The document discusses bonding jumpers for cable tray splice plates. It summarizes that: 1) Bonding jumpers are not required for standard metallic splice plates that connect cable tray sections, as the

Bonding Jumper-Cable Tray) | PDF | Equipment | Electrical Equipment

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Metallic cable trays shall be bonded to building steel and earth as supplemental grounding for ground fault protection and signal grounding (“noise” prevention).

26 05 36 Cable Trays for Electrical Systems

If cable trays are sized for future cables, specify provisions for penetrations with sleeves through fire-rated partitions or use "repairable" firestop-sealing material.

Bonding Jumpers

Ensure reliable grounding with Snap Track Cable Tray Bonding Jumpers from TechLine Mfg. Made from durable materials and designed for easy installation. Contact us today!

Understanding Cable Tray Grounding: A Comprehensive Guide

Cable tray grounding is an indispensable aspect of electrical installations that plays a pivotal role in ensuring safety, reliability, and efficiency. It involves connecting cable trays to the

Grounding Inspection of Steel and Aluminum Cable Tray Systems

For safety reasons, the grounding should be right before the wire is energized. This is true for cable tray, conduit, cable, or any electrical system. The grounding inspection should start with the installation

Cable Tray Bonding Jumper Insights

Cable Tray Bonding Jumper Insights The document discusses bonding jumpers for cable tray splice plates. It summarizes that: 1) Bonding jumpers are not required for standard metallic splice plates

Earthing of cable tray body

Why we put yellow/green earthing connector between parts of cable trays? does this have any relation to the bolts&nuts connecting the parts of the cable tray? (they cause a hotspot if any

Cable Tray Bonding Guide: When & Why to Bond with Conduit

Bonding a cable tray to conduit ensures electrical continuity and safety by preventing voltage differences. Connect bonding jumpers between the tray and conduit using approved clamps or lugs.

Grounding & Bonding Wire Mesh Cable Trays

However, while wire mesh trays offer mechanical and thermal advantages, proper grounding and bonding are critical to ensure electrical safety, NEC compliance, and long-term

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Bonding jumper for cable tray being used as EGC?

I''m being told that bonding jumpers are unnecessary for the cable tray I''m quoting. - Legrand Cablofil 09-6A12C-S144-36 (Cross sectional area of 1in2) The table at NEC article 392.60

Related Video Reference

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