The copper-plated cable tray made a rattling sound



Overview

In a moisture laden environment, a bare copper EGC should not be installed in an aluminum cable tray due to the potential for electrolytic corrosion of the aluminum cable tray.

Key Takeaways

A rattling sound from a copper-plated cable tray usually indicates mechanical looseness, vibration, or insufficient fastening, which should be inspected and corrected to ensure safety and stability.

Common Causes of Rattling

Loose Bolts or Fasteners Over time, the weight of cables and environmental vibrations can cause bolts, nuts, or tray supports to loosen. This is one of the most frequent causes of rattling in cable trays and can compromise stability and cable integrity. Vibration from Equipment or Environmental Factors Nearby machinery, HVAC systems, or even foot traffic can transmit vibrations to the tray, causing rattling if the tray is not securely anchored.

Corrosion or Material Degradation Copper-plated trays can experience surface corrosion or wear at joints, especially in humid or industrial environments. Corrosion can reduce the tightness of connections, leading to rattling. Improper Grounding or Bonding If the tray is used as an equipment grounding conductor (EGC) or is bonded at multiple points, magnetic forces during fault currents can cause movement or vibration.

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Ensuring proper bonding and grounding practices can reduce this effect.

Recommended Actions

Inspect and Tighten Fasteners: Check all bolts, nuts, and support brackets. Use lock washers or anti-loosening mechanisms at critical joints to prevent recurrence. Check for Corrosion: Examine tray sections for rust or plating wear.

Replace or treat affected sections with corrosion-resistant coatings if necessary. Verify Grounding and Bonding: Ensure the tray is properly bonded according to electrical codes, and avoid creating loops that could induce vibration from magnetic forces. Secure Supports: Confirm that all tray supports are firmly anchored and that the tray is not overhanging unsupported sections.

Adding additional supports can reduce rattling. Regular Maintenance: Schedule periodic inspections to detect loosening or wear early, preventing operational disruptions and safety hazards.

Safety Considerations

A rattling tray may not immediately indicate electrical danger, but it can lead to cable damage, short circuits, or mechanical failure if left unaddressed. Prompt inspection and corrective action are essential to maintain both electrical safety and system reliability.

Article Content

Equipment Grounding Conductors for Cable Tray Systems

In a moisture laden environment, a bare copper EGC should not be installed in an aluminum cable tray due to the potential for electrolytic corrosion of the aluminum cable tray.

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GUIDE CABLE TRAYS TECHNICAL

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Is this really a question? You see cables rattling, ruled out other things like loose bolts, tested the cables by rattling it manually and yet you still ask how to fix the rattling sound? You could''ve just posted it

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