Is welding allowed for trough-type cable trays



Overview

Cable tray installed in a hazardous location must contain only those cables that are appropriate for this type of environment as defined in Chapter 5 of the NEC.

Key Takeaways

Welding trough-type cable trays requires precise alignment, proper material preparation, and controlled welding techniques to ensure structural integrity and long-term durability. Material ConsiderationsTrough-type cable trays are commonly made from aluminum alloys (6063-T6), mild steel, hot-dip galvanized steel, or stainless steel (304/316) depending on environmental conditions and load requirements. Each material has specific welding requirements: Aluminum: Requires clean, oxide-free surfaces and often TIG or MIG welding with appropriate filler rods.

Steel: Can be welded using MIG, TIG, or resistance welding; hot-dip galvanized steel may require special precautions to avoid zinc fumes. Stainless steel: TIG welding is preferred to maintain corrosion resistance and avoid contamination.

Welding Procedure

Inspect Materials: Check for defects, burrs, or damage that could compromise weld quality. Measure and Mark: Accurately mark welding points to ensure proper alignment of longitudinal and transverse members. Clean Surfaces: Remove dirt, grease, and oxidation using wire brushes or chemical cleaners to ensure strong weld bonds.

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Set Up Welding Equipment: Adjust welding machines according to material type and thickness. Use high-quality electrodes or filler materials suitable for the tray metal. Align and Clamp Sections: Position tray sections in their intended layout and secure with clamps to prevent movement during welding.

Initiate Welds: Begin welding at small joints, maintaining consistent heat and pressure. For trough-type trays, transverse members are typically heliarc welded or resistance welded at each end to the longitudinal members. Complete Welds: Weld along edges and joints to create a continuous, uniform bond.

Avoid overheating, which can weaken the metal. Remove Slag and Inspect: Clean welds of any residue and inspect for weak spots or gaps. Ensure the welded sections can bear the required load.

Apply Protective Coatings: For steel trays, apply anti-corrosion treatments if necessary to extend lifespan.

Best Practices

Use welding machines and electrodes matched to the tray material thickness. Maintain proper heat control to prevent warping or weakening of the tray. Ensure all welds are continuous and aligned, especially in multi-level or high-vibration installations.

Follow manufacturer guidelines and local electrical codes to ensure compliance and safety.

Applications

Welded trough-type cable trays are ideal for industrial environments with heavy loads, high vibration, or multi-level wiring systems, providing a robust and durable support structure for electrical cables. Proper welding enhances structural stability, reduces mechanical failure risks, and ensures long-term reliability of the cable management system.

Article Content

Cable Tray Technical Guide A practical guide to product selection and ...

Cable tray installed in a hazardous location must contain only those cables that are appropriate for this type of environment as defined in Chapter 5 of the NEC.

GUIDE CABLE TRAYS TECHNICAL

NEMA VE 1-2017 Specifies requirements for metal cable trays and associated fittings designed for use in accordance with the rules of Canadian Electrical Code, Part I and the National Electrical Code®

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Cable Tray Type Selection

Cable Tray Type Selection What type of cable tray should be used for the main runs of a cable tray wiring system? The cable tray types to choose from are ladder, ventilated trough, or solid bottom.

NEC Article 392 Guide: Ensuring Compliance for Cable Tray Systems

When a tray contains too many cables, the heat is not allowed to get out, which can destroy the wires or even catch fire.

Full cable tray systems specification document

A. General: Except as otherwise indicated, provide metal cable trays, of types, classes and sizes indicated; with splice plates, bolts, nuts and washers for connecting units.

Article 392 Cable Trays | Wiring Methods and Materials

Where only qualified maintenance personnel are available, certain cables are permitted in ladder, ventilated trough, and ventilated channel-type cable trays. Single-conductor cable must be 1/0 AWG

Document DICOS

Do not use a cable tray as a walkway, ladder, or support for people; a cable tray is a mechanical support system for cables and raceways. Using cable trays as walkways can cause personal injury and can

Cable tray manual

Type MC, MI and TC [See Section 336.4(3)] cables may be installed in ladder, ventilated trough, or ventilated cable channel, but they are not allowed to be installed in solid bottom cable trays.

Cable Tray Manual: NEC Article 392 Guide

The exception is that 9 inches is the maximum allowable rung spacing for a ladder cable tray supporting any 1/0 through 4/0 single conductor cables [See Section 392.10 (B) (1) (a)].

Safely Installing, Maintaining and Inspecting Cable Trays

A generic guideline developed by the Cable Tray Institute indicates that cable trays should not be filled in excess of 40-50% of the inside area of the tray or of the tray''s maximum weight based on the cable

QCS 2010: Cable Tray Specifications | PDF | Cable | Screw

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Tray components must be accurately formed to tolerances with rounded edges. Cable trays installed in hazardous environments shall be constructed from heavy duty GRP or stainless steel. The document

Cable Trays Market in Finland | Report

The Finnish cable trays market represents a critical component of the nation''s industrial and construction infrastructure, characterized by its direct correlation with investment in energy, data,

100+ Essential Questions Answered About Cable Trays:

Discover over 100 expert answers about cable trays, covering key topics like material selection, load capacity, installation methods, and maintenance.

Cable tray manual

Where a cable tray wiring system containing Type ITC cables will be exposed to any significant amount of hot metal splatter from welding or the torch cutting of metal during construction or maintenance

Cable Tray SOP

Center hung tray supports allow for quicker and easier cable installation by allowing cables to be deposited into tray systems from each side. There is a maximum load capacity per hanger of 3g

Cable Tray Type Selection

The only reason to select a ventilated trough cable tray over a ladder type cable tray is aesthetics. No drooping of small cables is visible. The ventilated trough cable tray does provide more support to the

Wireways Selection Guide: Types, Features, Applications | GlobalSpec

The high cost of manufacturing and installing wireways limits their use to small sections of cable management systems, while most systems primarily consist of cable trays, conduit, and other types

Solved: Welding cable may only be installed in which type of tray ...

Explanation The question is asking about the specific type of cable tray suitable for welding cables. Welding cables are designed for high flexibility and are often used in industrial environments.

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

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