

Article Overview

Cable tray systems typically use high-strength bolts such as hex head, carriage, or machine bolts, made from galvanized steel, stainless steel, or aluminum, sized according to tray type, load, and applicable standards like IEC 61537 and NEMA VE 1.

Common Bolt Types for Cable Trays

- o Hex Head Bolts - Widely used for connecting tray sections, supports, and splice plates due to their high torque capacity and ease of installation .
- o Carriage Bolts - Often used in ladder or channel trays where a smooth rounded head is preferred to avoid cable damage .
- o Machine Screws/Bolts - Used for lighter trays or accessories, typically with nuts and washers for secure fastening .
- o Self-Tapping Screws - Occasionally used for aluminum or thin-gauge trays where pre-drilling is not required .

Material and Corrosion Considerations

- o Galvanized Steel Bolts - Common for indoor and outdoor installations; provide corrosion resistance per ASTM A123 or ASTM B633 .
- o Stainless Steel Bolts (AISI 304 or 316) - Preferred in corrosive or marine environments for superior resistance to rust and chemical exposure .
- o Aluminum Bolts - Used with aluminum trays to prevent galvanic corrosion and reduce weight .

Size and Strength Specifications

- o Bolt diameters typically range from M6 to M12 (metric) or 1/4" to 1/2" (imperial), depending on tray width, load, and span .
- o Length is selected to accommodate tray thickness, splice plates, and washers.
- o Tensile strength should meet or exceed the tray manufacturer's recommendations, often grade 5 or 8 for steel bolts.
- o Washers and lock nuts are recommended to prevent loosening due to vibration or thermal expansion .

Standards and Compliance

- o IEC 61537 - Provides guidelines for mechanical performance, including bolt selection for load-bearing and deflection limits .
- o NEMA VE 1 - Covers metallic cable tray systems and specifies fasteners for structural integrity .
- o ASTM Standards - ASTM A123, A653, and B633 define coating, material, and corrosion resistance for bolts

Cable tray bolt type

and tray components .

Installation Tips

- o Ensure bolts are tightened to manufacturer-specified torque to prevent sagging or loosening.
- o Use compatible materials to avoid galvanic corrosion (e.g., stainless steel bolts with stainless steel trays).
- o For high-vibration environments, consider lock washers or nylon-insert lock nuts.
- o Verify that bolt selection meets local electrical codes and safety standards for grounding and bonding if the tray is part of an earthing system .

By following these guidelines, you can ensure that cable tray installations are mechanically secure, corrosion-resistant, and compliant with international and national standards.

Cable ladder and cable tray systems The following recommendations are intended to be a practical guide to ensure

As an industry leader in cable tray, Eaton offers one of the widest ranges of cable management solutions available in the market

Download submittals for B-Line series NEMA type cable ladder and tray Eaton's submittal builder tool for B-Line series cable ladder

Our Products Bolt & Nut Type Cable Trays Bolt and Nut Ladder Simple design comprising of side rails with rungs associated. The

There are a large number of cable tray fittings that are made compatible with each type of tray. These fittings help in maintaining

This guide covers cable ladder systems, cable tray systems, channel support systems and associated supports intended for the

The FlextrayTM system is a flexible, field-adaptable way to manage cables throughout your project. The tray can be cut and bent to

What is a cable tray ? ABB offers a number of different types of cable tray for use in a range of different applications and environments.

B. Cable tray systems are defined to include, but are not limited to straight sections of [ladder type] [trough type] [solid bottom type]

Cable tray bolt type

Cable trays support insulated electrical cables in industrial and commercial settings. There

SOLID-BOTTOM CABLE TRAY Providing additional cable protection, solid-bottom cable tray is sometimes preferred to support and

Cable Tray Cable trays are mechanical support systems that provide a rigid structural system for electrical cables, raceways, and

This tray bolt and flange nut set is ideal for electrical, mechanical, and construction applications where

When it comes to powering, automating and protecting facilities?from factories and petrochemical plants to data

Welcome to our step-by-step guide on installing cable trays! In this video, we'll explore the

NEMA VE 1-2017 Specifies requirements for metal cable trays and associated fittings designed for use in accordance with the rules

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