

Technical Requirements for Galvanized Cable Trays

Article Overview

Galvanized cable trays must meet specific standards for zinc coating thickness, corrosion resistance, material type, and installation conditions, with hot-dip galvanization preferred for harsh environments.

Material and Construction Requirements

Galvanized cable trays are typically made from carbon steel and must be protected against corrosion. The trays are prefabricated in various types such as ladder, trough, or channel trays, with rung spacing and tray width following standards like NEMA VE-1 for ladder and trough types, and channel trays not exceeding 150 mm in width for solid or ventilated bottoms. The sheet metal thickness usually ranges from 1.5 mm to 3 mm, depending on the tray type and load requirements.

Galvanization Methods

There are two main galvanization processes for cable trays:

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Electro-Galvanization (Electrolytic)

- o Deposits a thin, uniform zinc layer on the steel surface.
- o Minimum zinc thickness: 12 μm , suitable for dry indoor environments.
- o Provides limited corrosion resistance and is not recommended for outdoor or marine environments.

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Hot-Dip Galvanization (HDG)

- o Steel components are submerged in molten zinc, forming a zinc-iron alloy layer and a pure zinc layer.
- o Minimum zinc thickness: 45 μm , corresponding to a coating mass of $\geq 325 \text{ g/m}^2$.
- o Offers superior corrosion resistance, ideal for outdoor, coastal, or industrial environments.
- o Coating must comply with standards such as ASTM A123/A123M with Coating Grade 65, providing an average zinc coating weight of 460 g/m^2 per side or thickness of 0.065 mm per side.

Corrosion Protection and Maintenance

- o Cuts or damaged areas of hot-dip galvanized trays must be repaired with compatible materials to maintain coating integrity.
- o Corrosion-inhibiting compounds should be applied at junctions of dissimilar metals (e.g., aluminum and galvanized steel) to prevent galvanic corrosion in wet environments.

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o Electro-galvanized trays are unsuitable for sea freight or humid marine conditions, as thin coatings can develop white or red rust during transport .

Standards and Compliance

- o NEMA VE-1: Specifies manufacturing, load/span designations, and tray types for metal cable trays .
- o CSA C22.2 #126.1: Harmonized with NEMA VE-1 for Canadian applications .
- o IEC 61537: International standard for metal cable tray systems, including testing and performance requirements .
- o GB/T 13912-2020: Specifies hot-dip galvanized coating requirements for fabricated steel articles .
- o GB/T 26941.1-2011: Defines electro-galvanized tray requirements .

Summary

To comply with galvanized cable tray requirements:

- o Use carbon steel with appropriate tray type and dimensions.
- o Select hot-dip galvanization for outdoor or corrosive environments; electro-galvanization is limited to indoor dry conditions.
- o Ensure minimum zinc thickness and coating mass per applicable standards.
- o Repair damaged coatings and apply corrosion inhibitors at dissimilar metal junctions.
- o Follow NEMA, CSA, IEC, ASTM, and GB/T standards for manufacturing, installation, and maintenance .

The document specifies requirements for cable trays, including that they be fabricated from galvanized sheet steel in standard

Not all cable trays are equivalent. The mechanical and electrical characteristics, tests, certifications, overall quality management,

The document outlines codes and standards that must be followed for design and construction of cable trays and their components.

Comprehensive guide to galvanized cable tray zinc coatings. Know HDG vs electro

Per NEC 392, the national electrical code section for cable tray, all cable tray systems must be properly BONDED, per section

The Cable Tray Institute (CTI) was founded in 1991 to support the cable tray industry by engaging in research,

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development,

With in-depth knowledge and experience, our expert cable management team provides customers with support and advice for any

This SEC Distribution Material Specification requirements for design, materials, manufacturing, indoor/outdoor Metallic Cable Tray

Discover galvanized cable trays for industrial wiring, with installation tips, load data, and corrosion-resistant solutions

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

Hardware shall be zinc plated in accordance with ASTM B633 SC1 for pre-galvanized cable trays, or Chromium Zinc in accordance

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The galvanized wire then welded and formed into the appropriate basket tray size. Hubbell's pre-galvanized finish performs the same

Learn when to choose hot-dip galvanized steel cable trays according to EN ISO 1461: advantages, recommended

75kg/m rdance with the NEMA requirements. The data displayed is based on physical test results of a 600 wide sec ion and may

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