

What is a parallel cable tray



Overview

Cables Allowed in NEC Tray Applications Cable tray is one of the most common methods of supporting wire and cable.

Key Takeaways

Parallel cable trays are cable tray systems where multiple conductors for each phase are installed in parallel to efficiently handle high-current circuits while saving material and installation costs. Definition and Purpose

Parallel cable trays are used in electrical installations to carry phase conductors in parallel rather than using a single large conductor per phase. This approach is particularly useful for high-ampacity circuits, where a single conductor would be impractically large or difficult to install. By splitting the current across multiple smaller conductors, the system maintains the required ampacity while improving flexibility and reducing material costs .

Advantages

- **Material Efficiency:** Using multiple smaller conductors in parallel reduces the total amount of copper or aluminum needed. For example, a 500-amp, three-phase feeder installed in a cable tray may require 6 – 350 kcmil conductors instead of 6 – 500 kcmil conductors in a conduit system, saving significant copper weight .
- **Ease of Installation:** Smaller conductors are easier to pull and handle, reducing labor and minimizing insulation damage compared to very large single conductors .



- **Improved Heat Dissipation:** Cable trays allow better airflow around the conductors, which helps dissipate heat generated by high currents, maintaining safe operating temperatures .

- **Scalability and Maintenance:** Parallel conductors in trays allow easier future upgrades or replacements without major modifications to the system .

Practical Considerations

- **Conductor Rating:** Each conductor must be rated appropriately for the expected current, and ampacity adjustments may be required for ambient temperature and grouping effects .

- **Insulation Type:** Common insulation types for parallel conductors include XHHW or THHN/THWN, chosen for mechanical strength and thermal performance .

- **Equipment Grounding:** The cable tray itself can serve as the grounding path, or separate grounding conductors may be installed depending on code requirements .

- **Design Compliance:** Installations must comply with standards such as the NEC, ensuring proper spacing, fill limits, and environmental considerations .

Summary

Parallel cable trays are an efficient solution for high-current electrical circuits, offering copper savings, easier installation, and better heat management compared to single large conductors in conduits. They are widely used in industrial, commercial, and utility-scale installations where large ampacity feeders are required .

Article Content

Cable Tray Technical Guide A practical guide to product selection

Cable tray is considered to be a system. It must provide continuous support for cables, and the electrical continuity of the cable tray

Paralleled Phase Conductors in Cable Trays Provide Copper Savings

Cable tray wiring systems have conductor advantages over conduit wiring systems where the installations involve phase conductors

Cable tray

To maintain support of cables at changes of elevation or direction of a tray, a large number of specialized cable tray fittings are made

Cable Tray Technical Guide A practical guide to product selection

A practical guide to product selection and installation This guide for engineers and installers has been developed by ABB as a

Cable Tray Type Selection

Ladder cable tray is used for about 75 percent of the cable tray wiring system installations. It is the predominate cable tray type due

Cable tray manual

INTRODUCTION The B-Line series Cable Tray Manual was produced by our technical staff. We recognize the need for a complete

What are Cable Trays? Everything you need to know

Discover everything about cable trays in industrial settings: types, benefits, installation tips, and compliance with NEC

Cables Allowed in NEC Tray Applications

Cables Allowed in NEC Tray Applications Cable tray is one of the most common methods of supporting wire and cable. There are

Cable Tray Types and Sizes

Explore various cable tray types and sizes for electrical installations. Learn about ladder, perforated, solid-bottom, wire mesh, and

Cable Tray

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

What is Cable Tray and How it is used in Industrial applications?

What is Cable Tray? In electrical cabling, a cable tray is a metallic structure used to handle insulated electrical power

Paralleled Phase Conductors in Cable Trays Provide Copper

Paralleled Phase Conductors in Cable Trays Provide Copper Savings Cable tray wiring systems have conductor advantages over

Cable Tray Questions | Cable Tray Institute

This can be accomplished by a separate cable tray system or by a divider within a cable tray. NEC section 318-5 (e) indicates that

Equipment Grounding Conductors for Cable Tray Systems

Use a single conductor cable as the common EGC for all the circuits in the cable tray [NEC Section 318-3(b)(1) Exception 2]. Use

Cable Tray Institute

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

Related Video Reference

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

Contact Us

Continue your research online:

Website: <https://coetzerinvestments.co.za>

Technical inquiry: <https://coetzerinvestments.co.za/contact.html>

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

