# Cable Types for Indoor Cable Tray Installations



## Overview

Ultimate Guide to Cable Tray Selection – Types, Learn how to choose the best cable tray system for your needs. Explore types, materials, installation tips.

## Key Takeaways

The most commonly used cables in indoor cable trays are Type TC (Tray Cable) and ITC (Instrumentation Tray Cable), with options for exposed run (TC-ER) and power-limited applications (PLTC).

### Type T

C (Tray Cable)Type TC cables are multi-conductor cables rated for 600 volts, designed for power, control, and lighting circuits in industrial and commercial settings (NEC Article 336). They feature a durable non-metallic jacket that resists heat, moisture, oil, and sunlight, making them suitable for indoor cable trays.

T

C cables can be armored or unarmored and are available in various conductor counts and gauges. Common subtypes include: VNTC (Vinyl Nylon Tray Cable): Cost-effective, PVC outer jacket with nylon-coated inner conductors, suitable for general industrial use.

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## XHH

W (Cross-linked Polyethylene High Heat-resistant Water-resistant Tray Cable): Offers higher resistance to heat and moisture, ideal for more demanding environments. TC-ER (Exposed Run Tray Cable)TC-ER cables are designed for short exposed runs (up to 6 feet) between the tray and equipment without conduit. They include impact- and crush-resistant jacketing and meet UL standards for mechanical protection.

TC-ER is useful when transitioning from the tray to devices or machinery in indoor installations.

IT

C (Instrumentation Tray Cable)ITC cables are intended for low-voltage control and instrumentation circuits (≤150 volts, ≤5 amps) such as PLCs, DCS systems, and transmitters (NEC Article 727). They are available in shielded or unshielded constructions, often with twisted pairs to reduce electromagnetic interference.

IT

C cables may also have an ER rating for short exposed runs, but must be continuously supported.

## PLT

C (Power-Limited Tray Cable)PLTC cables are low-voltage, power-limited cables suitable for control, fire alarm, and building automation systems. They are rated for 300 volts and are often dual-rated as PLTC/ITC for flexibility in indoor tray installations.

## PLT

C cables are flame-retardant and may include shielding for EMI protection.

## Key Considerations for Indoor Cable Tray Installation

Voltage rating: Ensure the cable matches the circuit voltage (TC: 600V, ITC/PLTC: 300V). Mechanical protection: Use TC-ER or armored cables where exposed runs are required. Flame retardancy: Most tray cables are UL-listed and flame-retardant for indoor use.

Support and spacing: Cables must be secured at intervals (typically every 6 feet for ER-rated cables) and supported to prevent sagging or damage. In summary, Type TC and ITC cables are the standard choices for indoor cable trays, with TC-ER and PLTC providing additional flexibility for exposed runs and low-voltage applications. Proper selection ensures compliance with NEC standards, mechanical durability, and safe operation in industrial and commercial environments.

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## Article Content

Ultimate Guide to Cable Tray Selection – Types,

Learn how to choose the best cable tray system for your needs. Explore types, materials, installation tips, and NEC compliance in this expert guide.

Tray Cable Applications & Selection Guide | TC, TC-ER, VNTC, EPR

Complete guide to tray cable types including TC, TC-ER, VNTC, EPR-CPE, and shielded instrumentation cable. Compare constructions, NEC requirements, and applications for industrial,

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

This guide for engineers and installers has been developed by ABB as a practical reference regarding cable tray characteristics, installation, and requirements.

Cable Tray Systems: A Complete Guide to Types & Installation

Discover the essential guide to cable tray systems. Learn about ladder, trough, and wire mesh types, key components, and expert installation tips for safe and organized cable management.

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The Ultimate Guide to Tray Cables: Types, Applications and

Whether you''re an engineer, contractor, facilities manager or simply curious, this ultimate guide provides an in-depth understanding of tray cables, covering their types, standards,

Cable Tray Types and Sizes

Explore various cable tray types and sizes for electrical installations. Learn about ladder, perforated, solid-bottom, wire mesh, and channel trays in this complete guide.

Cables Allowed in NEC Tray Applications

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Discover the essentials of cable tray installations, including permitted cable types, flame testing, mechanical and application requirements, and more.

Types of Cable Trays – Advantages, Applications and Sizes

Explore the types of cable trays, their advantages, applications, and standard sizes. Learn how they improve cable management and support various industries.

Cable Tray Price in Bangladesh 2026 | Updated Price List

Latest cable tray price in Bangladesh 2026. Compare types, materials, sizes & costs with a detailed buying guide for commercial and industrial projects.

Difference Between Cable Tray and Cable Trench | Hutaib Electrical

Read about the differences between cable trays and cable trenches, their applications, benefits, and how Hutaib Electrical ensures top-tier cable management solutions. Find out which

Cable Tray Installation Rules (NEC 392) – Electrical Trader

Here''s what you need to know: Cable Types: Only use conductors rated for open-air environments, such as Tray Rated (Type TC) or Metal-Clad (Type MC) cables. Clearances: Maintain

Cable tray

Cable tray Electrical installations Wiring practice by region or country North American practice United Kingdom practice Regulation of electrical installations International standard (IEC 60364) UK wiring

Cable Tray Manufacturers: Types, Uses & Buying Guide

Reputable cable tray manufacturers design these systems around three priorities: load-bearing strength, corrosion resistance, and ease of installation. Get any one of these wrong and the

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Ultimate Guide to Choosing the Best Cable Tray

Its defining characteristics include durability to withstand environmental stress, sufficient load capacity to handle cable weight, and

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That means the jacket must be rated for fire resistance, with ratings for general use, riser (a vertical cable feeds flames more than horizontal) and plenum (for

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