Calculation of cable tray hanger spacing

Article Overview

Cable tray hanger spacing is determined based on tray type, load, and cable weight, typically ranging from 1.5 to 3 meters, with adjustments for bends, tees, and special conditions.

Determining Support Spacing

The spacing of cable tray hangers depends on the type of tray, material, and load of cables. Standard practice for straight runs is to install supports at intervals of 1.5 to 3 meters, ensuring the tray remains stable and prevents excessive sagging or mechanical strain on the cables . For heavier cable loads or wider trays, supports should be placed closer together.

Formula for Support Quantity

To calculate the number of supports required for a cable tray: Support Quantity = (Total Tray Length / Support Spacing) + 1 For example, a 20-meter tray with 2-meter spacing requires: 20 / 2 + 1 = 11 supports . This formula includes supports at both ends and ensures even load distribution.

Special Considerations

o Bends, Tees, and Elbows: These areas experience uneven load distribution and may require additional supports to maintain stability .
o Vertical Runs: Hanging rod supports should be at least 8 mm in diameter to ensure stability and prevent stress on cables .
o Horizontal Spacing: When installing parallel trays, maintain a minimum distance of 0.6 meters for maintenance access and airflow. For power and signal trays crossing each other, a minimum of 0.5 meters is recommended .
o Height Above Ground: Trays should be installed at least 2.2 meters above the floor, with a minimum 0.3 meters clearance from ceilings or obstructions .
o Cable Binding: Tie cables at intervals not exceeding 1.5 meters to maintain order and prevent sagging .

Material and Fire Safety

All supports should be made from fire-resistant materials to prevent premature failure in case of fire, in compliance with BS 7671 Clause 521.10.202 . The stiffness and weight of the cable also affect support spacing; stiffer cables like MDPE sheathed types can span longer distances than LSOH cables for the same allowable sag .

Summary

o Identify tray type, material, and cable load.
o Determine standard support spacing (1.5-3 meters for straight runs).
o Apply the support quantity formula: Length / Spacing + 1.
o Add extra supports for bends, tees, and heavy loads.
o Ensure compliance with fire safety, clearance, and accessibility standards. By following these guidelines, cable trays will remain mechanically stable, safe, and accessible for maintenance and future expansion.

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

One of the most important features of cable tray is that tray cable can easily be installed in existing trays if there is space available.

As per the NEC, the maximum allowable rung spacing is 9 inches (230 mm) when cable tray carries sin-gle-conductor cables of 1/0

Cable Tray Support System Cable tray supports shall be fabricated from standard MS angles/channels/flats and

The following recommendations are intended to be a practical guide to ensure the safe and proper installation of cable ladder and

Learn how to calculate cable tray size using formulas, fill ratio guidelines, and practical examples. Select the right tray

This is best exhibited by cable tray width calculations for three different examples of single conductor cables in ladder or ventilated

Use this cable tray sizing calculator to check fill %, select tray size, and comply with IEC

Learn how to accurately calculate cable tray support quantities in electrical installation

Easily calculate cable tray fill ratios with our free tool. Supports mixed cable sizes, NEC 40% rules, and metric/imperial units.

9.7 Cable-Tray Support: Cable trays shall be fastened to support steel by using guides that allow for longitudinal movement. 9.7.1

The Wire Mesh / Cable Tray Fill table in below section shows the number of cables and the load in lbf/lineal

foot

Free cable tray sizing calculator to BS 7671. Tray width, grouping factor Cg, drop rod loading, and cable fixing spacings with BS EN

How to design cable tray? Most projects are roughly defined at the start of cable tray design. For projects that are not

Calculate tray and ladder sizes by cable capacity with our IEC-compliant calculator for efficient and accurate electrical installations.

This standard defines configurations for the mechanical tests to be performed on cable trays, brackets, hangers and other

Web: https://bssoda.pl