

What size cable tray should be used for 108 cable



Overview

Cable Tray Size Calculator | NEC & IEC Tray Sizing Estimate required cable tray width based on cable quantity, outside diameter, spacing, and allowable fill.

Key Takeaways

For 108 cables, a medium to wide cable tray with a width of 450-600mm and a depth of 75-150mm is typically recommended, depending on cable diameter and type. Determining the Correct Tray Size

Cable tray sizing is based on the total cross-sectional area of all cables and the allowable fill ratio, not just the number of cables. For power cables, the NEC recommends a maximum fill of 40%, while control or data cables may allow up to 50% fill. The calculation steps are:

- Measure the outer diameter of each cable and calculate its cross-sectional area.
- Sum the areas of all 108 cables to get the total cable area.
- Divide by the allowable fill percentage to determine the required tray area.
- Select a tray width and depth that provides at least this usable area, adding 25-40% spare capacity for future expansion.

Standard Tray Dimensions

- Widths: 50mm to 900mm; common medium to wide trays for large cable counts are 450mm, 500mm, or 600mm.

- Depths: 25mm to 150mm; for heavy or thick cables, 75mm to 150mm is recommended .
- Tray Types: Ladder trays are ideal for heavy power cables, perforated trays balance ventilation and containment, and wire mesh trays are suitable for data or light power cables .

Practical Recommendation

For 108 medium-sized power cables, a 450mm wide tray with 100mm depth is generally sufficient, assuming standard cable diameters and a single-layer installation. If cables are larger or multiple layers are required, consider 600mm width and 150mm depth to maintain proper ventilation and prevent overcrowding . Always ensure the tray is not filled beyond 40% for power cables to avoid overheating and allow for future cable additions.

Additional Considerations

- Future Expansion: Reserve 25–40% extra space for additional cables.
- Support Spacing: Ensure the tray is adequately supported to handle the total cable weight.
- Cable Type: Adjust fill ratio if mixing power, control, or data cables.
- Installation: Ladder trays are preferred for heavy loads, while wire mesh trays are easier to modify in the field . By following these guidelines, the selected cable tray will be safe, code-compliant, and capable of accommodating all 108 cables efficiently.

Article Content

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Estimate required cable tray width based on cable quantity, outside diameter, spacing, and allowable fill percentage per standard

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We will first explain standard cable tray dimensions used across the industry, then examine how dimensions vary by

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Cable Tray Technical Guide A practical guide to product selection

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Learn how to choose the right Cable Tray Size based on cable load, type, and environment to ensure safe, efficient, and scalable

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

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

Flextray load and fill recommendations

The NEC rule requires that the cable cross-sectional areas together may not exceed 50% of the tray area (width x depth = fill).

Cable Tray Size Calculation Guide

This document contains calculations to determine the appropriate size of cable trays between an LV room and electrical room based

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