Cable tray support and hanger weight conversion



Overview

Use this cable tray weight calculator to estimate tray dead load, cable fill weight, and support loading for ladder, basket, or trough systems. Try it now.

Key Takeaways

The weight of cable tray supports and hangers depends on material, tray type, dimensions, and span, typically ranging from a few kilograms per meter for aluminum or light steel to over 20 kg/m for heavy-duty steel trays.

Factors Affecting Weight

Material: Cable trays and supports are commonly made from carbon steel, stainless steel, aluminum, or FRP. Carbon steel has a density around 7,850 kg/m³, stainless steel about 8,000 kg/m³, aluminum 2,700 kg/m³, and FRP 1,800–2,000 kg/m³. The choice of material significantly affects the weight of both the tray and its supporting elements.

Tray Type and Geometry: Ladder trays, perforated trays, and solid-bottom trays differ in weight. Ladder trays consist of two side rails and rungs, with rung spacing typically 200–300 mm, which contributes to the overall weight. Perforated trays reduce metal volume by 10–35% depending on the pattern, while solid trays are heavier.

Tray width, side height, and flange dimensions directly increase the developed width and thus the weight per meter. Thickness: Even small changes in metal thickness, for example from 1. 6 mm to 2.

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0 mm, can increase the tray weight by approximately 25% for the same profile. Support Type: Supports include wall brackets, cantilever brackets, pendant hangers, and trapeze frames. Standard support constructions, such as RS 60 systems, use brackets and rods sized according to tray width and load.

Longer spans or heavier trays require more robust supports, which increases the total weight of the support system. Typical Weight RangesLight-duty aluminum trays with minimal supports: 3–6 kg/m for the tray itself, with supports adding 1–2 kg/m depending on spacing. Medium-duty steel ladder trays: 8–15 kg/m for the tray, with supports adding 2–5 kg/m.

Heavy-duty steel trays (wide or deep): 15–25+ kg/m for the tray, with supports and hangers adding 5–10 kg/m or more, especially for long spans or congested installations.

Design Considerations

Separate Tray and Cable Weight: Engineers often calculate tray self-weight separately from cable fill weight to ensure accurate load paths and structural checks. Support Spacing: The spacing of hangers or brackets affects both the load on each support and the total weight of the support system. Closer spacing reduces bending stress but increases the number of supports and total weight.

Environmental Factors: Supports must withstand mechanical loads, corrosion, and environmental conditions. Galvanized or stainless steel supports may weigh slightly more but provide better durability. In summary, the weight of cable tray supports and hangers is highly variable, depending on material, tray type, dimensions, thickness, and support configuration.

For precise planning, it is recommended to use manufacturer specifications or a cable tray weight calculator to determine the exact load per meter for both trays and their supports.

Article Content

Cable Tray Weight Calculator

Use this cable tray weight calculator to estimate tray dead load, cable fill weight, and support loading for ladder, basket, or trough systems. Try it now.

Cable Tray Weight Calculator | Steel, SS & Aluminum

Use this reference table to quickly identify approximate weights per meter for various standard cable tray configurations. Sizing assumes standard industrial designs in galvanized steel and aluminum.

GUIDE CABLE TRAYS TECHNICAL

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NEMA VE 1-2017 Specifies requirements for metal cable trays and associated fittings designed for use in accordance with the rules of Canadian Electrical Code, Part I and the National Electrical Code®

Guide to cable support systems

This chapter deals with the correct dimensioning and the final selection of a cable support system, depending on the application, according to various influencing factors, such as cable volume, cable

Cable Tray Load and Support Calculations | PDF

The document provides specifications for cable tray and cable weights, support spacing, and live load factors. It includes calculations for total load per meter, load per support, and load per threaded rod,

Cable Tray Weight Calculator for Tray Load Planning

Use this cable tray weight calculator to estimate tray load, cable mix weight, support reactions, fill area, and safety margin before planning a run today.

TECHNICAL AND SIZING DATA

Complete technical support and service for Unitray product lines. Custom sizing and non-standard tray lengths are available.

Cable Tray Weight and Support Calculations | PDF | Mechanical

The document provides information on cable tray sizing including cable types and weights, tray sizes and weights, bending moment and deflection calculations to check if the tray sizes are adequate.

Wire Weight Calculator | Cable Weight Tool

Calculate electrical wire weight for copper and aluminum conductors. Free tool for cable tray loading and shipping estimates.

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

In designing supports for a cable tray system, consideration should be given to the loads associated with future cable additions and any additional loading that may be applied to the cable tray system (e.g.,

Cable Tray Load Calculation and Sizing: Your Easy Guide

Worried about cable tray capacity? Learn simple cable tray load calculation steps. This guide helps you pick the right tray every time, keeping

EzyCalculator

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EzyCalculator is an interactive online tool designed to help you calculate safe loads to spans for steel, aluminium and FRP strut and cable support components.

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

SOLID-BOTTOM CABLE TRAY Providing additional cable protection, solid-bottom cable tray is sometimes preferred to support and protect numerous small instrumentation and control cables.

B-Line series Cable Tray Design Considerations

As an industry leader in cable tray, Eaton offers one of the widest ranges of cable management solutions available in the market today with its B-Line series portfolio. With unmatched quality and service, we

Cable Tray Load and Weight Calculations

The maximum values calculated are 17.56kg/m for angle support weight, 54kg/m for cable weight, and 38.4kg/m for cable tray weight. With 4 anchor fasteners per support, each with a tensile strength of

Cable weight and flexibility in context of cable tray capacity ...

Conclusion: The influence of cable weight and flexibility on the capacity calculations of cable tray systems cannot be overstated. By considering these factors, designers and engineers can

How to Choose the Right Cable Tray Support for Your

Determine Load Requirements Before choosing a cable tray support, calculate the total weight of the cables, including allowances for future

Cable Tray Sizing & Load Calculations Made Simple

Step 2: Choose Tray Type and Width For heavy power cables or long spans, ladder trays typically perform best. For mixed small cables, perforated works well. Width is set by total cable area

Related Video Reference

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

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