Manufacturing and fabricating cable trays



Overview

Explore the cable tray manufacturing process, types of cable trays, and important factors. Learn how it all works in an easy-to-understand guide.

Key Takeaways

Cable trays are manufactured through a series of material selection, cutting, forming, punching, and finishing processes, with variations depending on whether they are metal or FRP trays.

Metal Cable Tray Manufacturing

Material Selection: The process begins with choosing the appropriate material based on strength, corrosion resistance, and application environment. Common materials include steel, stainless steel, aluminum, and sometimes galvanized steel for added durability and corrosion protection. Cutting and Shaping: Metal sheets or coils are cut to precise dimensions using shearing, laser cutting, or punching machines.

This ensures uniformity and smooth edges for structural integrity. Forming: The cut metal is shaped into the desired tray profile using roll forming machines. These machines progressively bend the metal into U-channel, C-channel, ladder, or perforated tray shapes.

Press brakes are used for secondary bending, flanges, and complex shapes. Punching and Slotting: Punch presses create mounting holes, ventilation slots, or knockouts for cable entry. This step is crucial for airflow, cable management, and installation flexibility.

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Shearing and Finishing: The trays are cut to final lengths using shearing machines. Surface treatments such as galvanizing, powder coating, or painting may be applied to enhance corrosion resistance and aesthetics. Quality Control: Throughout the process, dimensional checks, load-bearing tests, and surface inspections ensure compliance with standards and structural reliability.

FR

P (Fiber Reinforced Plastic) Cable Tray ManufacturingMaterial Preparation: FRP trays use resins (polyester, vinyl ester, or epoxy) combined with fiberglass reinforcements. The resin acts as a binding matrix providing corrosion resistance and mechanical strength. Pultrusion Process: Continuous fiberglass strands are pulled through a resin bath and then through a heated die that shapes and cures the material into a consistent tray profile.

This produces lightweight, high-strength trays suitable for harsh environments. Cutting and Finishing: The pultruded trays are cut to required lengths, and quality control checks are performed on resin-to-fiber ratios, curing, surface finish, and mechanical properties to ensure compliance with standards such as ASTM D635, NEMA FG 1, and IEC 61537.

Automation and Machinery

Modern cable tray production often uses automated lines combining decoilers, roll forming stations, CNC press brakes, punch presses, and shearing units. Automation improves precision, production speed, and consistency, especially for high-volume manufacturing.

Summary

The manufacturing of cable trays involves careful material selection, precise cutting, forming, punching, and finishing, with specialized machinery for metal trays and pultrusion for FRP trays. Quality control at each stage ensures durability, safety, and compliance with industry standards, making cable trays reliable components for electrical installations in industrial, commercial, and outdoor environments.

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Article Content

Cable Tray Manufacturing: A Simple Guide to the Process

Explore the cable tray manufacturing process, types of cable trays, and important factors. Learn how it all works in an easy-to-understand guide.

Top 10 Cable Trays Manufacturers And Suppliers | B2B

This list of top 10 online B2B marketplaces and manufacturers will lead you to find your perfect cable trays based on your business requirements.

Inside the World of Cable Tray Manufacturing

Understanding the intricate world of cable tray manufacturing reveals the sophisticated processes, quality standards, and technical expertise required to produce these essential electrical

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Global Metal Cable Trays Market Growth 2026-2032

The global Metal Cable Trays market size is predicted to grow from US$ 3713 million in 2025 to US$ 5718 million in 2032; it is expected to grow at a CAGR of 6.5% from 2026 to 2032.

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