Direct Fabrication Method for Mesh Cable Trays



Overview

The choice of method should be discussed with a local inspector. The best decision may be to extend only the cables, creating a discontinuity in the cable tray.

Key Takeaways

Mesh cable trays are fabricated through a precise process involving material selection, cutting, welding, forming, and surface finishing to ensure durability, ventilation, and ease of installation.

Material Selection

The first step is choosing the appropriate material based on environmental conditions and load requirements. Common materials include galvanized steel, stainless steel, aluminum, or fibreglass. Galvanized steel is widely used for indoor applications, while hot-dip galvanizing or powder coating enhances corrosion resistance for outdoor or harsh environments.

Stainless steel is preferred for chemical or high-moisture areas due to its corrosion resistance.

Cutting and Shaping

Once the material is selected, wires are cut to precise lengths using laser cutting machines or shearing tools. Accuracy is critical to ensure the mesh dimensions match design specifications and to minimize material waste. Both longitudinal and cross wires are prepared for assembly.

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Welding and Mesh Formation

The cut wires are assembled into a grid and welded using automated or precision welding machines. Linear feeding systems insert the longitudinal wires, while horizontal wires are positioned and controlled by servo motors or SMC cylinders. Welding electrodes are then applied to join the wires, forming a strong, durable mesh.

Multiple mesh panels can be welded simultaneously for efficiency.

Bending and Tray Formation

After welding, the mesh panels are bent into the required tray shape using bending machines. This step creates the tray's sides and base, forming straight sections or complex connectors such as elbows, tees, crosses, reducers, and vertical bends.

Surface Treatment and Finishing

To extend the lifespan of the trays, surface treatments are applied. Options include powder coating, hot-dip galvanizing, or electrolytic polishing for stainless steel. Smooth weld seams are ensured to prevent cable damage during installation.

Quality and Customization

Mesh cable trays can be customized in widths, depths, and lengths according to project requirements. Standard spans are typically 4–8 feet, with support systems like trapeze, wall, floor, or channel mounts. The trays are designed to withstand temperatures from -40°C to +150°C without compromising structural integrity.

Summary

The fabrication of mesh cable trays involves careful material selection, precise cutting, automated welding, bending into tray shapes, and protective surface finishing. This process ensures the trays are lightweight, ventilated, durable, and adaptable for various industrial, commercial, and telecommunication applications.

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Mesh cable tray systems

4 1 Product description OBO mesh cable tray systems stand out through their high load capacity and good ventilation. They can be used universally. The mesh cable trays are suitable for the installation

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