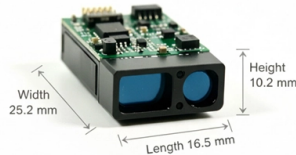


Network cabling in open cable trays



Overview

Their open design offers numerous advantages over other cabling methods, including ease of access, flexibility, and cost-effectiveness.

Key Takeaways

Open cable trays provide a flexible, organized, and code-compliant solution for routing network cables while ensuring proper ventilation and accessibility.

Types of Open Cable Trays for Network Cables

Ladder Trays: Feature side rails connected by rungs, offering strong support and excellent airflow. Ideal for heavy-duty applications or long cable runs, but can also be used for network cables in data centers where ventilation is critical.

Trough (Ventilated) Trays: Have a perforated or slotted bottom, providing continuous support and airflow.

Suitable for smaller network cables like Ethernet or fiber-optic lines, commonly used in commercial buildings and data centers.

Wire Mesh (Basket) Trays: Lightweight, flexible, and allow 360-degree access to cables. Perfect for environments with frequent changes or additions to network cabling, such as office networks or server rooms.

Solid Bottom Trays: Offer maximum protection from dust and debris but are less ventilated. Typically used for sensitive fiber-optic cables where physical protection is prioritized.

Installation Considerations

Cable Fill and Separation: Avoid overfilling trays to prevent overheating and maintain airflow. Power and data cables should be separated to reduce electromagnetic interference (EMI) and comply with NEC standards. **Support Spacing:** Proper support spacing prevents sagging.

Follow manufacturer recommendations and NEC guidelines for spacing based on tray type and cable weight. **Grounding and Bonding:** Metallic trays must be properly grounded and bonded to prevent electrical hazards and ensure safety. **Bend Radius:** Maintain minimum bend radius for network cables as they exit the tray to avoid signal degradation.

Accessibility: Open trays allow easy access for maintenance, upgrades, and troubleshooting, which is particularly important in dynamic network environments. **Compliance and Standards:** NEC Article 392 governs cable tray systems, specifying approved tray-rated cables, grounding, bonding, and fill limits.

Tray-

Rated Cables: Use cables rated for tray installation, such as CMR (riser-rated) or CMP (plenum-rated) for Ethernet, to ensure fire safety and performance. **Firestop and Penetrations:** Proper firestopping is required where trays pass through walls or floors to maintain building safety.

Material Selection

Steel: Strong and durable, suitable for industrial or high-load applications. Stainless steel offers corrosion resistance for harsh environments. **Aluminum:** Lightweight and corrosion-resistant, ideal for indoor commercial or data center installations.

Fiberglass or Resin-

Coated Trays: Used in corrosive or outdoor environments, providing high resistance to chemicals and moisture.

Best Practices

Plan tray routes to minimize sharp bends and excessive vertical drops. Group similar types of network cables together while maintaining separation from power lines. Regularly inspect trays for cable sag, damage, or overfill.

Use drop-outs or dedicated fittings for cables exiting the tray to equipment to maintain bend radius and organization. By following these guidelines, network cabling in open cable trays can achieve efficient organization, optimal airflow, compliance with safety standards, and ease of maintenance, making them a preferred choice for modern network infrastructure.

Article Content

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