How to connect large cables when running them through cable trays



Overview

Learn how to connect multiple sections of wire mesh baskets or cable trays efficiently. Tips, tools, and techniques from cable management experts at CMW.

Key Takeaways

Large cables should be supported on appropriately sized cable trays using secure clamps, proper spacing, and mechanical connections to prevent sagging, damage, or safety hazards.

Selecting the Right Cable Tray

Choose a tray type that can support the weight and size of your cables. Ladder trays are ideal for large power cables because their rungs provide strong support and allow airflow to prevent overheating, while ventilated troughs offer continuous support for heavy or wide cables. Ensure the tray width and depth accommodate the cable diameter and fill ratio, typically not exceeding 50% of tray capacity.

Supporting Large Cables

Proper support is critical. Mount trays using wall brackets, cantilever arms, or ceiling trapeze hangers, spaced according to load—usually 1. 5 to 3 meters apart depending on cable weight and tray type.

For very heavy cables, shorter support spacing prevents sagging and reduces stress on tray joints.

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Securing Cables

Use cable clamps, ties, or straps to secure large cables to the tray rungs or side rails. Avoid over-tightening, which can damage insulation. For long runs, consider cable tray rollers to guide cables smoothly and prevent kinks or abrasion.

Connecting Tray Sections

When joining tray sections, use splice plates, bolted connections, or quick-connect systems. Splice plates are flat metal plates bolted to the ends of two tray sections, providing strong, reliable support for heavy cables. Quick-connect systems can reduce installation time but may be manufacturer-specific.

Ensure all connections are tight, level, and properly grounded to maintain system stability and safety.

Handling Bends and Junctions

For corners, tees, or cross junctions, use L, T, or cross-shaped plates to maintain support and prevent cable stress. Always deburr cut edges to avoid insulation damage.

Grounding and Bonding

Large cables often carry significant current, so bonding and grounding the tray system is essential to prevent electrical hazards. Use grounding straps or bonding jumpers at tray joints and supports.

Summary

To safely connect large cables to cable trays: Select a tray type and size suitable for cable weight and diameter. Space supports appropriately to prevent sagging. Secure cables with clamps or ties without damaging insulation.

Join tray sections with strong mechanical connections. Use proper fittings for bends and junctions. Ensure grounding and bonding for electrical safety.

Following these steps ensures a durable, safe, and code-compliant installation for large cables in industrial or commercial settings.

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