COETZER OPTICAL SYSTEMS (Pty) Ltd

Busbar Trunking Wiring Method

Overview

The conduits and cables are installed in the trunking interior. Mounting boxes are installed to the trunking cover opening.

Key Takeaways

Busbar trunking systems are prefabricated, modular electrical distribution assemblies that efficiently transport and distribute power through enclosed copper or aluminium conductors.Overview

A busbar trunking system (BTS) is a prefabricated power distribution solution designed to replace traditional cable bundles. It consists of rigid copper or aluminium bars housed in metal or non-metallic enclosures, allowing power to be distributed safely and efficiently across a facility ( ). BTS is modular, with straight lengths, joints, elbows, and tap-off points, enabling flexible routing and easy expansion ( ).

Components
• Busbars: Conductive strips or bars made of copper or aluminium, sized according to current rating and load requirements ( ).

• Enclosures: Protective housings that provide mechanical support, insulation, and fire protection.

• Tap-off units: Connection points for branch circuits, which can include fuses, MCBs, RCBOs, or metering devices ( ).

• Joints and bends: L, Z, T, and flexible elements allow directional changes and system expansion ( ).

• Support brackets: Ensure mechanical stability and proper alignment during installation ( ).

Installation Best Practices

• Pre-Installation Planning: Review project drawings, load requirements, and busbar specifications. Plan routing, clearance, and support points. Prepare tools such as torque wrenches, alignment jigs, and insulation testers ( ).

• Site Preparation: Ensure floors, walls, or ceilings are level and clean. Mark installation lines using laser alignment tools and pre-install support brackets at intervals specified by the manufacturer ( ).

• Assembly: Align busbar sections precisely, secure joints with correct torque, and install tap-off units as required. Ensure proper ventilation to prevent overheating ( ).

• Safety Checks: Verify insulation, mechanical stability, and electrical continuity. Follow IEC 61439-6 standards for low-voltage busbar trunking systems ( ).

• Testing: Conduct temperature-rise, dielectric, and functional tests to ensure compliance with manufacturer and safety standards ( ).

Advantages

• Efficiency: High current-carrying capacity with minimal voltage drop.

• Flexibility: Modular design allows easy expansion or reconfiguration.

• Safety: Enclosed conductors reduce risk of electrical faults and fire.

• Space-saving: Compact layout compared to multiple cable runs.

• Maintenance: Tap-off units can be added or relocated without major rewiring ( ).

Conductor Material Considerations

• Copper: Higher conductivity, smaller cross-section for the same current, but heavier.

• Aluminium: Slightly larger profile for the same rating, lighter, easier to handle, and cost-effective ( ).

Applications

Busbar trunking is widely used in commercial, industrial, and infrastructure projects, including data centers, manufacturing plants, EV charging stations, and high-rise buildings, where reliable, flexible, and scalable power distribution is required ( ). By following proper planning, installation, and safety practices, busbar trunking systems provide a durable, efficient, and future-proof alternative to traditional cabling for modern electrical distribution needs.

Article Content

Cable Trunking System Installation and Operation Manual

The conduits and cables are installed in the trunking interior. Mounting boxes are installed to the trunking cover opening. After the

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