

RIVO MULTITRADE OPTICAL SYSTEMS

Aluminum strips for wiring in distribution boxes



Overview

Aluminum Strips | McMaster-Carr Choose from our selection of aluminum strips, including foam, rubber, and more. Same and Next Day Delivery. Amazon.com: Alum.

Key Takeaways

Aluminum strip wiring can be used in distribution boxes, but it requires careful installation, proper connectors, and regular maintenance due to higher risks of overheating and corrosion compared to copper. Use of Aluminum in Distribution Boxes

Aluminum busbars or strips are sometimes used in distribution boxes as a cost-effective alternative to copper. Aluminum has lower electrical conductivity than copper, which means it must have a larger cross-sectional area to carry the same current safely. Busbars made from aluminum strips provide a centralized, low-resistance path for electricity, allowing multiple circuits to connect efficiently while saving space compared to individual cables (busbars can be rigid or laminated) .

Safety Concerns

Aluminum wiring is more prone to overheating, oxidation, and galvanic corrosion, especially when connected to copper components. When aluminum contacts copper, a chemical reaction called galvanic corrosion can occur, creating high-resistance points that may overheat and become fire hazards . Historical data shows that homes wired with aluminum before 1972 had a significantly higher risk of fire at outlets and junctions due to poor connections and material degradation .

Installation Requirements

To safely use aluminum wiring in a distribution box:

- Use proper connectors: Compression-type connectors filled with joint compound are recommended to prevent oxidation and ensure a secure connection .
- Follow NEC and local codes: Installers must comply with the National Electrical Code (NEC) and any applicable state or local regulations .
- Correct sizing: Aluminum conductors must be sized appropriately (e.g., No.10 or No.12 AWG for 20-amp and 15-amp circuits, respectively) to handle the intended load safely .
- Torque and maintenance: Aluminum connections require periodic retorquing (typically at 6 months, then every 2-5 years) to maintain a reliable connection .
- Environmental control: Minimize moisture exposure and consider corrosion inhibitors to reduce the risk of galvanic corrosion .

Recommendations

While aluminum can be used, copper remains the preferred material for busbars and distribution box wiring due to its superior conductivity, stability under thermal cycling, and lower maintenance requirements . For existing aluminum systems, professional mitigation strategies—such as using approved connectors, thermal inspections, and load management—can reduce risks and improve long-term reliability . In summary, aluminum strip wiring is feasible in distribution boxes if installed correctly with proper connectors, sizing, and maintenance. However, due to its higher susceptibility to overheating and corrosion, careful adherence to standards and regular inspections are essential to ensure safety and reliability.

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