

Ladder rack used as a trough-type cable tray



Overview

Cable tray ladder, tray and trough structures Ladder-type cable tray has the advantages of light weight, low cost, easy installation, good heat dissipation.

Key Takeaways

A ladder rack cannot fully replace a trough-type cable tray because it provides open support rather than the enclosed protection of a trough, though it can be used for large-diameter cables where ventilation is prioritized. Structural Differences

Ladder racks consist of two side rails connected by transverse rungs, resembling a ladder. They are ideal for heavy-duty cable runs, large-diameter power cables, and applications requiring maximum ventilation and heat dissipation . In contrast, trough-type cable trays are fully enclosed or semi-enclosed, offering protection from dust, debris, and electromagnetic interference (EMI/RFI), and are better suited for environments where cable safety and cleanliness are critical .

Functional Considerations

- **Ventilation:** Ladder racks provide superior airflow, which helps prevent overheating of high-current cables . Trough trays have limited ventilation but protect cables from environmental contaminants.
- **Cable Protection:** Trough trays shield cables from mechanical damage, dust, and moisture, whereas ladder racks leave cables exposed .



- **Cable Types:** Ladder racks are suitable for ordinary power and communication cables, especially larger diameters, but are not recommended for fire-resistant or mineral-insulated cables requiring high-temperature ratings . Trough trays can accommodate a wider range of cable types, including sensitive or smaller-diameter cables.

Practical Application

While a ladder rack can support cables in a manner similar to a trough tray, it cannot provide the same level of enclosure or protection. In industrial or civil installations where ventilation and easy access are priorities, ladder racks are advantageous. However, in dusty, high-EMI, or safety-critical environments, a trough-type tray is preferred .

Conclusion

Using a ladder rack as a trough-type cable tray is feasible only when cable protection is not a primary concern and ventilation is more important. For applications requiring full enclosure, environmental protection, or compliance with fire-resistant cable standards, a true trough-type cable tray should be used. Proper selection depends on cable type, load, environmental conditions, and maintenance requirements .

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A cable ladder is generally regarded as being the strongest type of cable support product and can be made from steel, aluminum or

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