

Rotating tube cable tray



Overview

Tubing Trays | McMaster-Carr These are the most corrosion-resistant tray systems we offer for routing cable and hose in configurations such as curves, slope.

Key Takeaways

Rotating tube cable trays are specialized cable management systems designed to guide and protect cables or hoses in circular or rotary motion applications. Overview

Rotating tube cable trays, often implemented as energy chain cable carriers, are used in applications where cables or hoses must move in a circular, spiral, or twisting path. These systems are essential for articulated robots, revolving tables, radar equipment, and other machinery where standard straight or single-bend trays cannot accommodate rotational movement efficiently .

Types of Rotating Cable Carriers

- Twisterchain
- Designed for space-restricted rotary applications.
- Can perform circular or spiral motions up to 540 degrees.
- Modular design allows easy replacement of cables via snap-open crossbars.
- Ideal for robots, handling machines, and revolving tables .
- Twisterband
- Compact and cost-effective for high-speed rotary motion.

- Can rotate through 3,000 degrees in minimal space, staying close to the axis.
- Guides energy, data, and media with minimal wear.
- Suitable for medical equipment, theme park rides, telescopes, and test equipment .
- Standard Cable Carriers with Rotary Capability
- Can bend in one direction and handle moving angles up to 450 degrees.
- Easier to install and lower cost but may require longer lengths and more mounting support .

Design Considerations

- Material Selection: Stainless steel, aluminum, or fiberglass composites are used depending on environmental conditions and load requirements .
- Load Capacity: Determined by tray width, height, and mounting spacing; proper support prevents sagging and stress on cables .
- Space Constraints: Twisterband and twisterchain are optimized for tight spaces, while standard trays require more room.
- Cable Protection: Crossbars, drop-outs, and strain relief mechanisms reduce wear and prevent cable damage during rotation .
- Environmental Resistance: Systems can withstand temperatures from -22°F to +122°F, dirt, lubricants, and steel wool exposure .

Applications

- Industrial Automation: Articulated robots, conveyor systems, and packaging machines.
- Rotary Machinery: Revolving tables, bucket wheel reclaimers, and radar/telescope equipment.
- Medical and Laboratory Equipment: Devices requiring precise, repetitive rotary motion.
- Offshore and Harsh Environments: Corrosion-resistant trays for cable routing in challenging conditions .

Summary

Rotating tube cable trays are critical for managing cables in rotary or twisting applications, providing protection, flexibility, and reliability. Choosing the right system—whether twisterchain, twisterband, or standard rotary-capable carriers—depends on space availability, rotation angle, speed, and environmental conditions. Proper installation ensures long-term durability and minimal maintenance while maintaining cable accessibility and safety.

Article Content

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