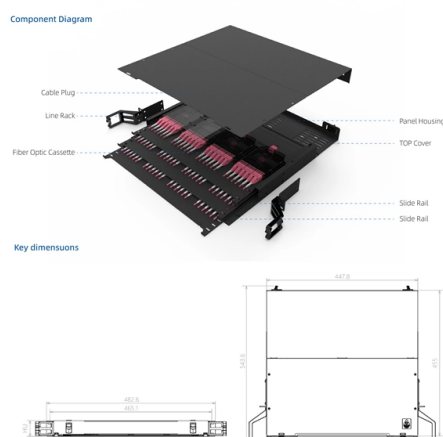


RIVO MULTITRADE OPTICAL SYSTEMS

Wiring inside carbon fiber support tube



Overview

How to Connect Carbon Fiber Tubes: Methods, Joints & Tips Learn how to connect carbon fiber tubes using clamps, bonded inserts, sleeve joints, and threaded.

Key Takeaways

Wiring can be safely routed inside carbon fiber tubes using internal sleeves or inserts to protect both the wire and the tube structure. Using Internal Sleeves or Inserts

Carbon fiber tubes are strong but can be damaged by sharp edges, drilling, or excessive bending. To run wiring inside a tube, it is recommended to use an internal sleeve or insert made of plastic, POM, or lightweight metal. The sleeve serves multiple purposes:

- Protects the wire from abrasion against the carbon fiber inner wall
- Maintains tube strength by avoiding direct drilling or stress points
- Facilitates assembly if the tube is part of a modular or telescopic system To install, lightly sand and clean the inside of the tube, then insert the sleeve. Wires can be threaded through the sleeve, which can be bonded with epoxy or mechanically retained depending on the application .

Routing Techniques

- Pre-threading: Feed the wire through the sleeve before final assembly of the tube sections.
- Flexible conduit: For longer runs or multiple wires, a thin flexible conduit inside the tube can prevent tangling and allow easy replacement.

- **Avoid sharp bends:** Carbon fiber tubes are stiff; sharp bends can pinch wires or damage insulation. Gentle curves or straight runs are preferred.

- **Secure connections:** Use connectors or plugs at tube ends to prevent wire movement and reduce stress on solder joints .

Considerations for Electrical Safety

- **Insulation:** Ensure wires are fully insulated; carbon fiber is conductive along fibers and can cause short circuits if exposed.

- **Strain relief:** At entry and exit points, provide strain relief to prevent wire fatigue.

- **Modular access:** If the tube is part of a modular assembly, consider removable inserts or quick-release connectors to allow maintenance without disassembling the entire structure .

Summary

By using internal sleeves, careful routing, and proper insulation, wiring can be safely integrated inside carbon fiber support tubes without compromising structural integrity. This approach is widely used in drones, telescopic poles, and camera rigs, where both lightweight construction and reliable electrical connections are critical .

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I was thinking of getting the thinnest possible tubing off speedymetals and epoxying a carbon tube to the inside for

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Shown here are photos from one article that caught my eye (PDF), by J.R. Watson, showing how to form straight and

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Aluminum connector inside to hold whatever angle you want, and then wrap with a few layers of new carbon fiber and epoxy Or just

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A decently big risk. Holes in tubes (production frames) are reinforced in some manner. You're tempting fate, some

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