

How to route cables inside an aluminum frame



Overview

Wire through aluminum frame : r/lowvoltage This is probably easiest way, cut your hole and fish up. If you need to bore out of the frame, or any other fram.

Key Takeaways

Internal cable routing in aluminum frames can be achieved using integrated ducts, hollow profiles, or custom-modified ports to safely and efficiently guide cables, hoses, or data lines. Integrated Cable Ducts in Aluminum Profiles

Modern aluminum profiles, such as function-integrated profiles (FIP), feature built-in internal cable guides that allow cables, hoses, and data lines to be routed completely inside the frame. These profiles provide a large usable interior, enabling space-saving and protected cable management. The design often allows cables to pass through profile connectors, simplifying assembly and installation while maintaining compatibility with standard modular systems .

Custom Internal Routing Techniques

For applications where the aluminum frame was not originally designed for internal routing, custom modifications can be made. This may involve:

- Drilling precise ports in the frame walls.
- Inserting aluminum or steel tubes to create a smooth internal path for cables.

- Reinforcing the frame around the ports to maintain structural integrity, especially in thin-walled sections . These techniques are commonly used in bicycle frames, where internal routing improves aesthetics, aerodynamics, and cable protection. Foam tubes or rubber guides can be added to prevent rattling and reduce wear on the cables .

Modular Routing Systems

For more standardized solutions, modular internal routing systems are available. These systems use portals brazed or welded into the frame, into which aluminum inserts guide the cables. Components include:

- Housing guide inserts for smooth cable passage.
- Housing stop inserts to terminate cable housing.
- Wire routing inserts with rubber guides to protect wires. This approach allows for flexible, repeatable, and maintainable routing without compromising the frame's strength .

Best Practices

- Plan the cable path to minimize bends and friction.
- Use reinforcements or inserts at entry and exit points to prevent stress concentrations.
- Ensure compatibility with frame connectors if using modular profiles.
- Consider protective sleeves or foam tubing to reduce vibration and wear. By combining integrated profiles, custom ports, or modular inserts, aluminum frames can achieve clean, durable, and efficient internal cable routing suitable for industrial, cycling, or other technical applications.

Article Content

Internal Cable Routing Tips for Mountain Bikes

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If you have a full length housing, the best and easiest method to replace the cable is to NOT pull the old housing out. Pull the inner cable out and then use either a RockShox Stealth Barb Connector or (my favorite tool kit) the Park Tool Internal Cable Routing Kit IR-1.2. You should be able to get the RockShox barb from just about any bike shop as ... See more on singletracks
Reviews: 1
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Reddit

Best way to run wires in door frames? : r/accesscontrol - Reddit

I've never had to fish a door frame in my life, so I'd like to learn the proper procedure. The guy I started with makes it into a huge

Internal Cable Routing

Old Cables Routed: Shimano cable liners. Run these over the cable, through the frame. Remove the old cable (leaving the liner in

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Questions on internal cable routing for custom frame I am designing a custom titanium frame, and I want to know about internal

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