

How to Choose Armored Optical Cables



Overview

Armored vs Non-Armored Optical Cables – Buyer's Guide Compare armored and non-armored optical cables. Learn structure, standards, global 28 Selection_of_the.

Key Takeaways

Armored optical cables are selected based on environmental exposure, mechanical protection needs, installation method, and material type to ensure long-term reliability. Key Factors in Selecting Armored Optical Cables

1. Mechanical Protection Requirements Armored cables are designed to withstand external forces such as crushing, impact, bending, and rodent attacks. Steel tape armor (STA) or steel wire armor (SWA) provides radial compression and tensile strength, while double-armored designs offer extra protection for harsh environments like mining or submarine applications . Non-metallic or aluminum armor can be used where flexibility or corrosion resistance is important . 2. Installation Environment

- Direct Burial: Armored cables are preferred for underground installations to resist soil pressure, backfill impact, and potential future excavation .
- Industrial or Manufacturing Areas: Corrugated steel wire armored cables (GYTY53-type) are suitable for areas with heavy machinery or forklift traffic .
- Rodent-Prone Areas: Steel armor effectively prevents damage from rodents, which account for a significant portion of underground cable failures .



- Indoor vs Outdoor: Outdoor armored cables require UV resistance and weatherproofing, while indoor applications may not need full armor . 3. Cable Construction and Material

- Single vs Double Jacket: Single jacket with single armor is commonly used; double jackets are reserved for extreme conditions .

- Armor Type: Corrugated steel tape (STA) offers crush resistance, steel wire armor (SWA) provides superior tensile and impact resistance, and non-metallic armor offers corrosion resistance and EMI protection .

- Outer Jacket Material: PE, LSZH, or PVC jackets are selected based on fire safety, UV exposure, and environmental conditions . 4. Environmental and Climate Considerations Cables must withstand temperature extremes, moisture, ice, wind, and potential chemical exposure. Armored cables provide additional protection against water ingress and swelling . 5. Installation and Maintenance Considerations

- Armored cables are heavier and more difficult to handle, requiring proper bonding and grounding for metallic elements to prevent electrical hazards .

- Non-armored cables are lighter, easier to install, and suitable for conduit installations where mechanical protection is provided by the duct .

- Rip cords under the armor facilitate jacket removal during splicing . 6. Cost vs Longevity While armored cables have higher upfront costs, they reduce repair frequency and extend service life in harsh environments, making them cost-effective for long-term deployments .

Practical Decision Framework

- Use armored cables for direct burial, rodent-prone areas, industrial environments, or locations exposed to mechanical stress.

- Use non-armored cables in protected environments such as conduits, indoor backbones, or areas with minimal mechanical threats.

- Select armor type and jacket material based on flexibility, corrosion resistance, and environmental exposure.

- Ensure metallic armor is properly bonded and grounded to prevent electrical hazards . By evaluating these factors—mechanical protection, installation environment, material type, climate, and cost—network designers can select the most appropriate armored optical cable for reliable, long-term performance.

Article Content

28 Selection_of_the_Correct_Optical_Cable

This Cable Jacket Selection Note is intended to provide the reader with an organized selection methodology when selecting the

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Armored Fiber Optic Cables

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