What is SOFC optical cable



Overview

Submarine Fiber Optic cable ZTT SOFC was approved and accepted by many international end users and clients, including Saudi Aramco, Qatar Petroleum, Optica.

Key Takeaways

SOFC stands for Submarine Optical Fiber Cable, a specialized fiber optic cable designed for underwater telecommunications and offshore applications.Overview

SOFC, or Submarine Optical Fiber Cable, is a type of optical fiber cable specifically engineered for underwater deployment, including deep-sea and offshore environments. Unlike standard optical cables, SOFC is built to withstand high water pressure, mechanical stress, and harsh marine conditions while transmitting data over long distances using light signals .

Structure and Design

SOFC typically features a multi-layered construction to ensure durability and signal integrity:

• Core and Fiber Jelly: Optical fibers are housed in a seamless welded stainless steel tube filled with fiber jelly to protect against water ingress and mechanical stress .

• Armoring: Galvanized steel wires or other metallic armoring provide tensile strength and protection against external damage .

• Outer Sheath: Polyethylene (PE) or polypropylene (PP) yarn layers shield the cable from abrasion, corrosion, and environmental hazards .

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• Excess Fiber Control: On-line fiber excess control ensures fibers are not overstressed during installation and operation . SOFC can be designed for repeater systems (S17 series) to amplify signals over very long distances or non-repeater systems (Q10 series) for shorter spans .

Applications

SOFC is widely used in:

• Telecommunications: High-speed internet and data transmission across continents .

• Offshore Oil and Gas: Connecting offshore platforms and subsea equipment .

• Ocean Observation Networks: Environmental monitoring and scientific research .

• Seismic and Oceanographic Surveys: Data collection for geological and marine studies .

Advantages

• Long-distance transmission: Maintains high bandwidth over hundreds or thousands of kilometers .

• Durability: Resistant to deep-sea pressures (up to 8000 meters) and mechanical stress .

• High reliability: Complies with international standards (IEC, ITU) and certified by third-party organizations like DNV and SGS .

• Operational experience: Proven performance in both domestic and international projects .

Comparison with Standard Optical Cables

While standard optical fiber cables transmit data via light through glass or plastic fibers, SOFC is specifically reinforced for underwater use, with additional armoring, water-blocking materials, and structural design to handle extreme marine conditions . This makes SOFC suitable for submarine telecommunication networks, unlike typical indoor or terrestrial fiber optic cables. In summary, SOFC optical cables are robust, high-performance submarine fiber optic cables designed for reliable long-distance data transmission in challenging underwater environments, combining advanced optical technology with specialized mechanical protection .

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Article Content

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Metallic underwater cable with optical fibres in one central or in several stranded stainless steel loose tubes. Interstices filled with

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Special cable design is available upon request Double armor central tube SOFC data sheet Doc. No.: D2009-93 ZT International Ltd.

ZTT Submarine Cable Solutions Overview

Applied standards Zhongtian Technologies SOFC follows with the specifications of the National Standards GB/T 18480-2001

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Hermetically metallic (copper) sealed tube Available in single armored, double armored for different application.

SOFC fiber optical cable, Armoured, 5 Km

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The fiber connector types, sometimes referred to as terminations, link fiber optic cables

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Fiber Optic Cable Types – Multimode and Single Mode

The Optical Core – a glass tube (core) propagates the light signals through the fiber cable.

Fiber Optic Basics | Optical Fiber 101 | Corning

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The FOA Reference For Fiber Optics

Outside Plant Fiber Optic Cable Jump To: Fiber Optic Cable Construction Fiber Optic Cable Types Cable

Fiber Optic Cable Buying Guide

Fiber Optic Cable Buying Guide Understand how to choose fiber optic cable by comparing single-mode vs. multimode, network

What Is a Fiber Optic Cable and How Does It Work?

A fiber optic cable is a specialized cable that uses light to transmit data. Unlike traditional

Optical fiber

An optical fiber, or optical fibre, is a flexible glass or plastic fiber that can transmit light from one end to the other. Such fibers are

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Fiber Optic Cable Types: Comprehensive Guide

Explore the different types of fiber optic cables and understand which type suits your specific needs for speed, distance,

Fiber Optic Cable Types: A Complete Guide

The plethora of fiber optic cable types can seem overwhelming, but choosing the right cable for the job is important.

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What Is Fiber Optics? Definition from SearchNetworking

What is fiber optics? Fiber optics, or optical fiber, refers to the technology that transmits information as light pulses

Fiber-optic cable

Fiber-optic cable A TOSLINK optical fiber cable with a clear jacket. These cables are used mainly for digital audio connections

Fiber Optic Cable: Types, Uses, Benefits & How to Choose the Right Cable

Fiber optic cable is a cable assembly that transmits information as pulses of light through very thin strands of glass or

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