

High-Temperature Resistant Optical Cable Logging



AI Overview

High-temperature resistant optical cables are engineered for extreme downhole conditions, providing reliable data transmission, temperature, and acoustic monitoring in oil, gas, geothermal, and mining wells.

Cable Construction and Materials High-temperature optical cables for logging are designed to withstand temperatures exceeding 300°C, high pressures, and corrosive environments such as hydrogen sulfide or well fluids. Key construction features include:

- Optical fibers:** Single-mode or multimode fibers with high temperature and hydrogen resistance, often coated with hermetic carbon layers and high-temperature acrylates for durability.
- Mechanical protection:** Cables are reinforced with corrugated steel tape, steel wire, or foamed thermoplastic elastomer, providing tensile strength and resistance to abrasion during deployment.
- Water-blocking alternatives:** Instead of traditional gels or powders, some designs use solid foamed thermoplastic elastomers to prevent water ingress while maintaining flexibility.
- Hybrid designs:** Many cables integrate insulated copper conductors alongside optical fibers to power downhole tools or sensors.

Applications High-temperature optical cables are used in a variety of logging and monitoring operations:

- Wireline logging:** Transmitting telemetry, distributed temperature sensing (DTS), and distributed acoustic sensing (DAS) data from downhole tools to the surface.
- Geothermal and Hot Dry Rock (HDR) wells:** Continuous monitoring of temperature, acoustic signals, and microseismic events in enhanced geothermal systems.
- Production monitoring:** Multiphase flow profiling, water/gas breakthrough detection, and artificial lift optimization using permanent fiber installations.
- Seismic and VSP logging:** High-resolution vertical seismic profiling for reservoir characterization and fracture monitoring.
- Environmental and hydrogeo...**

Article Content

Fiber optic cables for harsh environmental conditions | AFL Global

Harsh environment fiber optic cable - Deploy in industrial facilities, mines, subsea and other environments where extreme conditions exist. Ultra-low and high temperature operations or

Optical data cable

Description Fibercore, in conjunction with selected partners, offer wireline logging cables that utilize Fibercore's hydrogen resistant, high temperature fibers. The

Optical fiber assemblies for high temperature environments

Optical fiber assemblies resistant to extreme temperatures Thanks to its know-how and expertise, SEDI-ATI Fibres Optiques can offer you optical fiber-based assemblies or solutions capable of

How Can Fiber Optic Cables Withstand Extreme Heat?

In industries like aerospace, oil and gas, and manufacturing, high temperatures can wreak havoc on standard fiber optic cables, causing signal

Optical fiber logging cable Special cable

Optical fiber logging cables are also designed to withstand high temperatures and pressures, making them suitable for use in deep and high

High-temperature optical cable

Find your high-temperature optical cable easily amongst the 11 products from the leading brands (Avantes, Endevco, Pavone sistemi, ...) on DirectIndustry, the

Wireline Fiber Optic Cable | Fibercore

Fibercore, in conjunction with selected partners, offer wireline logging cables that utilize Fibercore's hydrogen resistant, high temperature fibers. The optical fibers

The High-Temperature Resistant Well Logging Optical Cable

The High-Temperature Resistant Well Logging Optical Cable Adaptable para pozos de petróleo, pozos de gas, minas de carbón o bajo condiciones de temperaturas elevadas. Los cables marcados con

A High Data Rate Fiber Optic Well Logging Cable

This development has led to a new logging cable with superior mechanical properties, containing eight electrical wires and three optical fibers with a data rate of at least 10 Mbits/s each. This fiber

Downhole Logging

Rochester Cable has supplied wireline cables to logging service providers for more than 60 years. Our designs combine mechanical strength, thermal performance,

Hydrogen Sulfide Resistant Armoured Well Logging Cable for High ...

Deployed in environmental and hydrogeological applications, this cable supports distributed temperature and strain sensing to track groundwater flow, detect leakage pathways, monitor aquifer recharge,

Proterial High Temperature Fiber Cable | Industrial

Hitachi Proterial Fiber Cable - Industrial Fiber Optics, Inc. offers two highly heat-resistant plastic optical fiber (HPOF) (HPOF-S) for above 100 degrees C.

Application of optical-fiber temperature logging

Within this study, we show the influence of temperature changes on the acquisition of distributed acoustic/strain sensing data along a fiber-optic cable

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First, in view of the slow transmission rate of the logging cable, an advanced high-speed cable transmission module is adopted. Secondly, the ground system and the downhole instrument were

Wireline Fiber Optic Cable | Fibercore

Wireline Fiber Optic Cable Fibercore, in conjunction with selected partners, offer wireline logging cables that utilize Fibercore's hydrogen resistant, high

High-temperature fibers | WEINERT Industries AG

Singlemode and multimode fibers for data communications or light transmission at high temperatures For use in higher temperature ranges, all optical fibers based

(PDF) Memory high temperature production logging technology and ...

In combination with Production logging, Spectral Noise Log (SNL) & High Precision Temperature (HPT) tool string have been running in-memory mode. Combining the technologies

High Temp/Harsh Environment Fiber | OEM Optical

Corning's High Temperature Fibers are designed for applications requiring improved fatigue resistance, high usable strength, and excellent resistance to higher

High Temperature Cable | High Temp Cable | Eland Cables

Our Intemp 250 cables, sometimes referred to as a high performance glass fibre braid cable or mica glass tape cable, can withstand temperatures of up to 250°C whilst our mineral insulated cables are

The High-Temperature Resistant Well Logging Optical Cable

Resistant to high temperatures. Prevents loss of hydrogen in the optical cable.
Excellent mechanical operation. Suitable for oil wells, gas wells, coal mines or under high temperature conditions.

Contact Us

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