Smart Link Better Life.

Carbon-coated Fibre

Yangtze Optical Fibre and Cable Joint Stock Limited Company

The carbon-coated fibre features a nanoscale carbon film layer applied to the cladding surface through a specialized process. This dense structure ensures exceptional sealing performance, effectively protecting the optical fibre from erosion caused by hydrone and hydrogen molecules. As a result, the carbon-coated fibre is highly resistant to fatigue and hydrogen damage, ensuring reliable optical fibre lines for oil and gas wells, underwater applications, and miniaturized devices. YOFC is committed to the research and development of carbon fibres for use in various special environments. Leveraging its independently designed preparation platform and advanced drawing process, YOFC has developed a series of carbon-coated fibre products with performance that meets international leading standards. Furthermore, YOFC has achieved continuous production over lengths exceeding 100 km, establishing a strong foundation for the large-scale application of carbon-coated fibre.

Applications

- Production of oil and gas wells
- Underwater
- Miniaturized optical fibre devices

Product Features

- Exceptional sealing performance and high reliability (nd value)
- Protection against hydrogen damage
- Protection against moisture erosion

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Performance Parameters of Carbon-coated Fibre

Table 1 Geometrical, Optical and Reliability Parameters of Carbon-coated Fibre

Fibre Type	HT 9/125-14/250(150)-C	HTG 50/125-20/250(150)-C
Core diameter (μm)	9±1	50±2.5
Cladding diameter (μm)	124.7±1	125±1
Coating diameter (μm)	245±10	245±10
Attenuation @ 850 nm (dB/km)	/	⩽3.0
Attenuation @ 1,300 nm (dB/km)	/	⩽0.8
Attenuation @ 1,310 nm (dB/km)	⩽0.4	/
Attenuation @ 1,550 nm (dB/km)	⩽0.25	/
Mode field diameter (μm)	10.4±0.5@1550nm	/
Proof test level	100 (200)	100 (200)
n_d	>50	>50
Protection against hydrogen damage (3 days at 150°C and 12 MPa)(dB/km)	⩽0.1@1310nm/1550nm	⩽0.1@1300nm

*Other types of carbon-coated fibres can be customized.

**The delivery length can be customized to meet the customer's requirements.

Stripping and Splicing of Carbon-coated Fibre

The hot stripping process or plastic stripping pliers is recommended for carbon-coated fibres to prevent potential damage during the stripping process.

The splicing of carbon-coated fibre adheres to the same techniques as those used for conventional fibre.