Specialty Fibre for Special Environment

Radiation Resistant Fibre

Radiation Resistant Single-mode Fibre (RRF)

YOFC radiation resistant sigle-mode fibres are developed by adjusting the composition of optical fibre and improving the process technology to meet the special application requirements of the fibre in the radiation environment. The optical properties of RRF are optimized at 1310nm and 1550nm oprerating wavelenghth. Low attenuation and low dispersion can be achieved.

Process

- YOFC fibre are manufactured with PCVD process. The fibres have excellent radiation resistant properties at 1310nm and 1550nm operating wavelength by special glass components and manufacturing process. Due to the accurate control of refractive index profile by PCVD process, YOFC radiation resistant sigle-mode fibres have excellent geometrical, attenuation and dispersion properties

Characteristics

- Low dispersion and low attenuation
- Superior mechanical protection and excellent stripping performance
- Outstanding uniformity and geometry control
- Low radiation loss

Applications

- Aerospace
- Atomic energy
- Medical
- Oil/gas
- Scientific research

Specifications

Fibre Type		RD1310-G1	RD1310-G2
Part No.		RD1011-C	RD1011-D
Optical Properties			
Attenuation (dB/km)	1310nm	⩽ 0.45	⩽ 0.5
Zero Dispersion Wavelength (nm)	-	1312 ± 12	1312 ± 25
Zero Dispersion Slope (ps/(nm² · km))	-	⩽ 0.091	⩽ 0.1
The Maximum Value of a Single Fibre (ps/$\sqrt{km}$)	-	⩽ 0.1	⩽ 0.2
Fibre Chain Value (M=20, Q=0.01%) (ps$\sqrt{km}$)	-	⩽ 0.06	⩽ 0.2
Cable Cut-off Wavelength (λ_{cc})(nm)	-	⩽ 1260	⩽ 1290
MFD (μm)	1310nm	8.7 - 9.5	7.5 - 9.5
Geometry Properties			
Cladding Diameter (μm)	-	125.0 ± 1.0	125.0 ± 2.0
Cladding Non-Circularity (%)	-	⩽ 1.0	⩽ 1.0
Coating Diameter (μm)	-	245.0 ± 7.0	245.0 ± 10.0
Coating/Cladding Concentricity (μm)	-	⩽ 12.0	⩽ 12.0
Coating Non-Circularity (%)	-	⩽ 6.0	⩽ 6.0
Core /Cladding Concentricity (μm)	-	⩽ 0.6	⩽ 0.6
Twist Radius (m)	-	⩾ 4.0	⩾ 4.0
Environmental Properties			
Temperature Induced Attenuation (dB/km)	-60°C~85°C	⩽ 0.05	⩽ 0.1
TCT (dB/km)	-10°C~85°C, Relative Humidity of 98%	⩽ 0.05	⩽ 0.1
Water Induced Attenuation (dB/km)	23°C, 30Days	⩽ 0.05	⩽ 0.1
Wet Heat (dB/km)	85°C, Relative Humidity of 85%, 30Days	⩽ 0.05	⩽ 0.2
Dry Heat (dB/km)	85°C, 30Days	⩽ 0.05	⩽ 0.1
Mechanical Properties			
Proof Test (kpsi)	Off-line	⩾ 100	⩾ 100
Strip Force (N)	Average Value	⩾ 1.0 ⩽ 5.0	⩾ 1.0 ⩽ 5.0
	Peak Value	⩾ 1.3 ⩽ 8.9	⩾ 1.3 ⩽ 8.9
n_d	-	⩾ 20	⩾ 20
Radiation-resistance Characteristcics			
According to Standard TIA/EIA 455-64 (dB/100m)	Total dose is 50k rad,with the continuous radiation whose dose rate is 0.1 rad/s(25℃), 1310nm wavelength induced attenuation	⩽ 0.3	N/A
	Total dose is 2000Gy,with the continuous radiation whose dose rate is 0.5Gy/s(25℃), 1310nm wavelength induced attenuation	N/A	⩽ 0.8
	Total dose is 200000Gy,with the continuous radiation whose dose rate is 0.5Gy/s(25℃), 1310nm wavelength induced attenuation	N/A	⩽ 2.5

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This datasheet can only be a reference, but not a supplement to the contract. Please contact our sales people for more detailed information