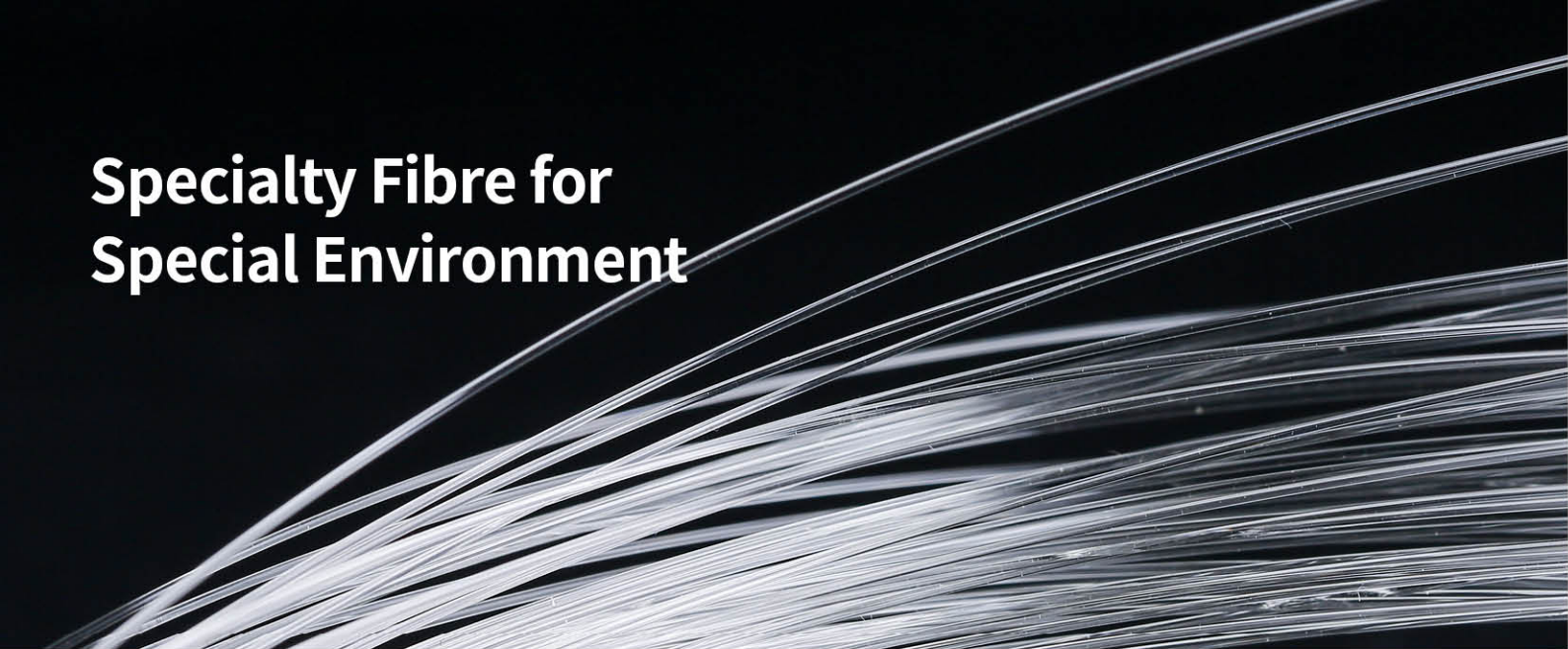




Specialty Fibre for Special Environment

Radiation Resistant Fibre

Radiation Resistant Single-mode Fibre (RRF)

YOFC radiation resistant single-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 operating wavelength. 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 single-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	Wavelength(nm)	Condition	RD 1310-G2 (HT)	RD SM-G3	RD SM-G3(YH)
Part No.	-	-	RD1311-D	RD1012-A	RD1012-B
Optical Properties					
Attenuation (dB/km)	1270	-	-	≤1.0	≤1.0
	1310	-	≤0.5	≤0.4	≤0.4
	1330	-	-	≤0.5	≤0.5
	1550	-	-	≤0.3	≤0.3
Zero Dispersion Wavelength (nm)	-	-	1287 - 1337	1300 - 1324	1300 - 1324
Zero Dispersion Slope (ps/(nm²· km))	-	-	≤0.1	≤0.091	≤0.091
The Maximum Value of a Single Fibre (ps/√km)	-		≤0.2	≤0.2	≤0.2
Fibre Chain Value (M=20, Q=0.01%) (ps/√km)	-		≤0.2	≤0.2	≤0.2
Cable Cut-off Wavelength (λ _c)(nm)	-		≤1290	≤1260	≤1260
MFD (μm)	1310		7.5 - 9.5	8.6 - 9.6	8.6 - 9.5
	1550		8.0-10.0	9.6 - 10.9	9.9 - 10.9
Geometry Properties					
Cladding Diameter (μm)	-	-	125.0±1.0	125.0±1.0	124.5±0.4
Cladding Non-Circularity (%)	-	-	≤0.7	≤1.0	≤1.0
Coating Diameter (μm)	-	-	245.0±10.0	245.0±10.0	250.0±5.0
Coating/Cladding Concentricity (μm)	-	-	≤12.0	≤12.0	≤8.0
Coating Non-Circularity (%)	-	-	≤6.0	≤6.0	≤6.0
Core /Cladding Concentricity (μm)	-	-	≤0.6	≤1.0	≤0.6
Twist Radius (m)	-	-	≥2.0	≥2.0	≥2.0
Environmental Properties					
Temperature-humidity Cycling Induced Attenuation (dB/km)	1310, 1550	-10°C to 85°C, Relative Humidity of 98%	≤0.1	≤0.1	≤0.1
Temperature Induced Attenuation (dB/km)		-65°C to +85°C	≤0.2	≤0.2	≤0.2
Water Induced Attenuation (dB/km)		23°C, 30 Days	≤0.3	≤0.3	≤0.3
Wet Heat (dB/km)		85°C, Relative Humidity of 85%, 30 Days	≤0.2	≤0.2	≤0.2
Dry Heat (dB/km)		85°C, 30 Days	≤0.2	≤0.2	≤0.2
Temperature shock test (dB/km)		-70°C to +125°C ≥40°C/min, 5cycles	-	-	≤0.3
Store temperature test (dB/km)		-70°C, 120h; 125°C 120h	-	-	≤0.3
Temperature Cycling(dB/km)		-70°C to +125°C 2-5°C/min, 5cycles	-	-	≤0.3
Macrobend Properties					
Radius(mm)	-	Turns	-	-	-
30	1310	100	-	≤0.1	≤0.1
	1550		-	≤0.5	≤0.5
Mechanical Properties					
Proof Test (kpsi)	-	Off-line	≥100	≥100	≥100
Strip Force (N)	-	Average Value	1.0 - 5.0	1.0 - 5.0	1.0 - 5.0
	-	Peak Value	1.3 - 8.9	1.3 - 8.9	1.3 - 8.9
n _d	-	-	≥20	≥20	≥20
Radiation-resistance Characteristics					
According to Standard TIA/EIA 455-64 (dB/100m)	1310	Total dose 50Krad dose rate 0.1rad/s(25°C) induced attenuation	-	≤0.3	≤0.3
	1310, 1550	Total dose 2000Gy dose rate 0.5Gy/s(25°C) induced attenuation	≤0.9	≤0.8	≤0.8
	1310, 1550	Total dose 200000Gy dose rate 0.5Gy/s(25°C) induced attenuation	≤2.5	≤2.0	≤2.0