



Radiation Resistant Multi-mode Fibre (RRF)

To meet the special application requirements of the optical fibre in the radiation environment, the multi-mode fibre with radiation resistance is developed by adjusting the optical fibre components and improving the process technology. This fibre has graded refractive index profile, which fully optimizes the waveguide characteristics of 850nm & 1300nm operating wavelength, and has very low attenuation and high bandwidth. YOFC radiation resistant multi-mode fibres have 50 μ m core, Besides, YOFC also can make customized tight-buffered radiation resistant multi-mode fibre.

Process

- The fibre is produced by plasma activated chemical vapor deposition (PCVD) process. the radiation resistant multi-mode fibre fabricated by PCVD process has excellent radiation resistant properties at 850nm & 1300nm based on its special glass components and manufacturing process
- Due to the accurate control of deposition of PCVD process, YOFC radiation resistant multi-mode fibre has perfect waveguide refractive index profile, which guarantees the excellent geometrical, attenuation and bandwidth characteristics

Characteristics

- Stable transmission property under radiation environment
- High bandwidth and low attenuation @ 850nm & 1300nm
- Excellent stripping and welding properties
- Suitable for various cable structures and favorable for tight/ loose tubes

Standard

- YOFC radiation resistant fibre complies with or exceeds ITU-T.G651 & IEC 60793-2-10 A1a fibre specification

Applications

- Aerospace / Aircraft
- Atomic energy industry
- Petroleum & Offshore exploration
- Medical equipment
- Basic research

Specifications

Fibre Type		RDG 50/125	
Part No.		RD2011-A	
Optical Properties			
Attenuation@850/1300nm (dB/km)		2.5/1.0	
Bandwidth@850/1300nm (MHz·km)		300/300	
Numerical Aperture		0.200±0.015	
Geometrical Properties			
Core Diameter (μm)		50.0 ± 2.5	
Cladding Diameter (μm)		125.0 ± 1.0	
Coating Diameter (μm)		245.0 ± 10.0	
Core/Cladding Concentricity (μm)		≤ 1.5	
Core Non-circularity (%)		≤ 6	
Coating/Cladding Concentricity (μm)		≤ 12.0	
Cladding Non-Circularity (%)		≤ 1.0	
Spool Length (km)		1.1 - 8.8	
Material Composition			
Core Material		F Doped Silica Glass	
Cladding Material		F Doped Silica Glass	
Coating Material		Dual-layer UV-acrylate	
Environmental Properties			
Test Item	Wavelength(nm)	Conditions	-
Temperature-humidity Cycling Induced Attenuation (dB/km)	850, 1300	-10°C, "X ¹ "% RH to +85°C, 85%-98% RH	≤ 0.2
Temperature Induced Loss (dB/km)		-60°C to +85°C	≤ 0.2
Watersoak Dependence Induced Attenuation (dB/km)		23°C, 30days	≤ 0.2
Damp Heat Dependence Induced Attenuation (dB/km)		85°C, 85%RH, 30 days	≤ 0.2
Dry Heat Aging (dB/km)		85°C, 30 days	≤ 0.2
Mechanical Properties			
Proof Test (kpsi)		Off-line	≥ 75
Strip Force (N)		Average Value	1.0 - 5.0
		Peak Value	1.3 - 8.9
n _d		-	≥ 20
Radiation-resistance Characteristics			
According to TIA/EIA 455-64(dB/100m)	Wavelength(nm)	Conditions	-
	1300	Total dose 310KGy, dose rate 750Gy/h (25°C), Induced Attenuation	≤ 2.5

1. "X¹" means uncontrolled when temperature decrease to -10°C