SPECIALTY OPTICAL FIBER

IXF-RAD-MMSI-L-105-125-022-HT

Radiation Hardened Multimode Fiber

Radiation hardened optical fibers are designed to mitigate the effects of Radiation Induced Attenuation (RIA) and extend the fiber's lifetime when used in radiative environments. Leveraging a decade of investiments in R&D and research collaborations, Exail offers singlemode and multimode radiation hardened fibers for use in harsh environments with high radiation levels and/or extreme temperatures.

Step-index multimode fibers are available with low-OH, mid-OH and high-OH content depending on the operating wavelength range. Other coatings and geometries are available upon request.

Benefits & Features

- Ø105 µm pure silica core, F-doped cladding
- Radiation hardened fiber
- 0.22 numerical aperture, step-index profile
- Low-OH content
- High temperature acrylate coating

Applications

- Diode pigtailing for space applications
- High power delivery
- Opto pyrotechnics
- Spectroscopy in nuclear or fusion facilities
- Plasma diagnostics and monitoring

Related Products

- IXF-RAD-MMSI-L-105-125-022-PI

Related Publications

- Campanella, C.; De Michele, V.; Morana, A.; Mélin, G.; Robin, T.; Marin, E.; Ouerdane, Y.; Boukenter, A.; Girard, S. Radiation Effects on Pure-Silica Multimode Optical Fibers in the Visible and Near-Infrared Domains: Influence of OH Groups. Appl. Sci. 2021, 11, 2991. https://doi.org/10.3390/app11072991

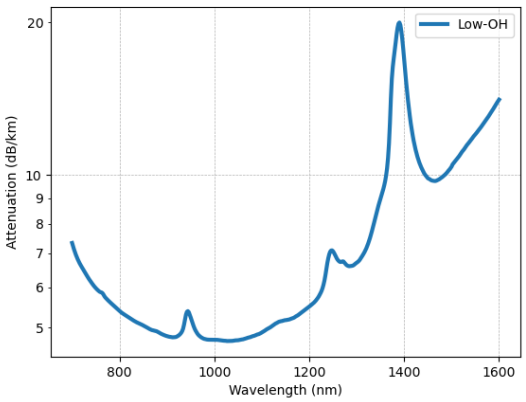
Parameters

Core diameter (µm)	105 ± 3
Cladding diameter (µm)	125 ± 1
Numerical aperture	0.22 ± 0.02
Attenuation @940 nm (dB/km)	< 6
Attenuation @1310 nm (dB/km)	< 10
Attenuation over 800-1600 nm (dB/km) *	< 20
Core/Clad concentricity (µm)	< 1
Coating diameter (µm)	245 ± 15
Proof test level (kpsi)	100
RIA (dB/m/kRad) over 900 - 1000 nm ** @100 kRad, γ ray, 300 Rad/h, room temperature	< 0.002

* except 1380 nm OH peak
** RIA = Radiation Induced Attenuation

Design parameters

Core material	Pure silica core
OH content	Low-OH
Coating material	High-temperature acrylate
Operating temperature range (°C)	-60 to +150



Typical attenuation profile of a step-index low-OH fiber.

Cleave of of a 105-125 multimode fiber.

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