

SPECIALTY OPTICAL FIBER

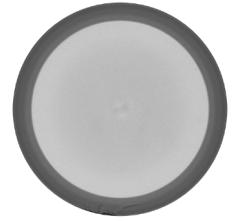
IXF-RAD-MMSI-M-200-240-022-AL

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 investments 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.

Aluminum coated fibers offer a wide operating temperature range, from cryogenic temperatures up to +400 °C. They are also hermetic to hydrogen, mitigating hydrogen darkening in hydrogen-rich environments.

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

- Ø200 µm pure silica core, F-doped cladding
- 0.22 numerical aperture
- Aluminum coating
- Operating temperature up to +400 °C
- Mid-OH content, optimized for VIS-IR operation

Applications

- Spectroscopy
- Plasma diagnostics and monitoring
- High power delivery

Related Products

- IXF-MMSI-L-200-220-022-AL Step-index multimode, Low-OH
- IXF-MMGI-50-125-020-AL Graded-index multimode

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>](https://doi.org/10.3390/app11072991)

Parameters

Core diameter (µm)	200 ± 4
Cladding diameter (µm)	240 ± 4
Numerical aperture	0.22 ± 0.02
Attenuation over 750 - 1150 nm (dB/km) *	≤ 25
Attenuation @600 nm (dB/km)	≤ 30
Attenuation @500 nm (dB/km)	≤ 40
Attenuation @400 nm (dB/km)	≤ 70
Core/Clad concentricity (µm)	≤ 1
Coating diameter (µm)	300 ± 15
Proof test level (kpsi)	100
RIA over 900 - 1100 nm (dB/km) ** X-rays, 300 kGy(SiO ₂), 5 Gy/s, +30 °C	≤ 20

* except 940 nm OH peak

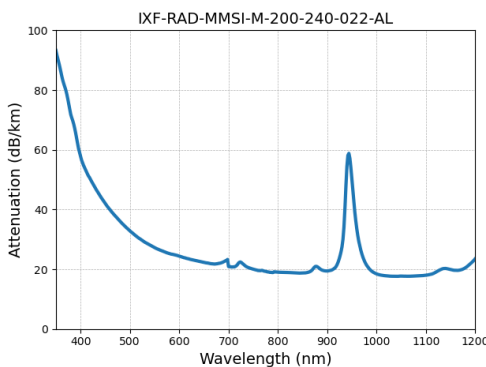
** RIA = Radiation Induced Attenuation

Design parameters

Core material	Pure silica core
OH content	Mid-OH
Coating material	Aluminum
Operating temperature range (°C)	-269 to +400



[More information about the 3F2E project](#)



Typical attenuation profile of the IXF-RAD-MMSI-M-200-240-022-AL fiber.



Exail reserves the right to change, at any time and without notice, the specifications, design, function or form of its products described herein.

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