

# RARe Motheye Fiber: Anti-Reflective Nanosurface

**Fiber Type:**

Step Index  
Multimode  
Custom Single  
Mode

**Fiber**

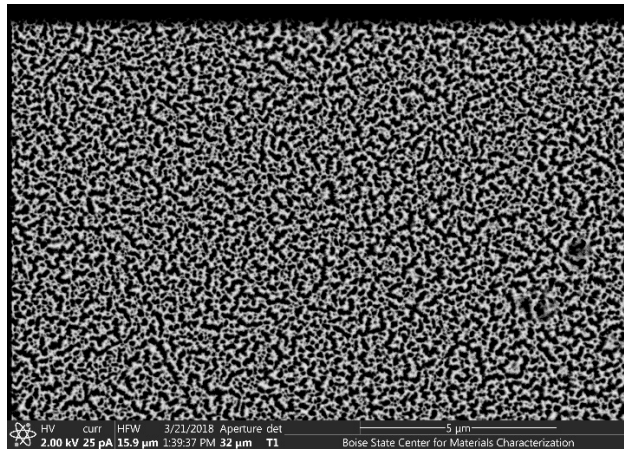
**Construction:**

Silica Core/  
Silica Clad/  
Polymer Coated  
Metal Coated

**Trade Name:**

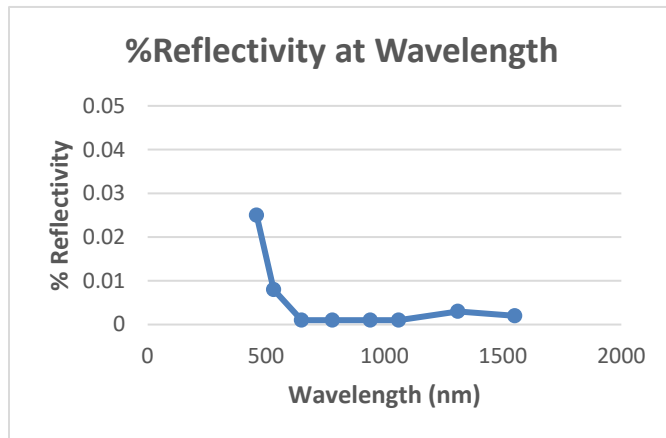
RARe Motheye

Fiberguide's patented RARe Motheye Fiber is based on a unique, randomized process which creates nanostructures on the fiber surface; This results in fiber optic cables with anti-reflective properties. Fiber produced using this process have superior wavelength range, durability and damage thresholds when compared with commonly used coated thin-film surfaces.



**Scanning Electron Micrograph of  
RARe Motheye Fiber Nanosurface**

RARe Motheye fiber enables faster delivery times due to more consistent and controlled processes.



**Typical wavelength  
dependence curve for  
AR nanostructured  
surfaces. Best case run  
for each wavelength.**

# RARe Motheye Fiber: Anti-Reflective Nanosurface

## Fiber Type:

Step Index  
Multimode  
Custom Single  
Mode

## Fiber

## Construction:

Silica Core/  
Silica Clad/  
Polymer Coated  
Metal Coated

## Trade Name:

RARe Motheye

RARe Motheye fiber offers additional benefits for high power applications where input power degrades coated surfaces. Since the anti-reflective structure is composed of the same underlying material, damage thresholds are typically close to those of bare fiber. The process also allows for high quality anti-reflection resulting in wider wavelength ranges (up to 20x wider) than coated fibers.

## SPECIFICATIONS:

Anti-Reflection Type	Randomized Nanosurface
Available Wavelength range	400nm-1550nm presently, other wavelengths upon request
Fiber Sizes	5um up to 3mm core
Reflectance	<0.05% From 460nm to 1550nm across 1090nm
Angle of Incidence	0-60 degrees
Laser Damage Threshold (CW)	59J/cm <sup>2</sup> or <3250MW/cm <sup>2</sup> . Tested at 1064nm, 16.4ns, 20Hz, Spot Dia. 0.405mm
Cleaning Protocols	Do not directly touch surface. Clean with N <sub>2</sub> (dry nitrogen) or CO <sub>2</sub> Snow gun. See sales rep for additional information
Certifications:	ISO 9001:2008 and ISO 13485:2003
Delivery Time	2-4 weeks ARO Typical for Custom Assemblies 1-3 days Typical for Standard Products

## Typical Applications:

- Digital Projection
- Medical Laser
- Aerospace
- Bioanalytical Instrumentation
- Laser Marking/Engraving
- Laser Welding/Cutting
- Directed Energy
- Construction/Demolition
- High Energy Spectroscopy

\* = Lower reflectance specifications available upon request