WAVEGUIDE TECHNOLOGIES

○ ENGINEERING ○ DESIGN ○ MANUFACTURING

UV-Vis & Vis-IR

Aluminum Coated - Step Index Multimode Optical Fibers

Description

Aluminum coated step index multimode optical fibers are designed to operate in the UV-VIS and VIS-IR wavelength window. The fiber is supplied with a 99.99% Aluminum protective coating, capable of withstanding elevated temperatures in the range of -269°C to +400°C. Electrically conductive this type of coating provides the user with the ability to connectorize directly to the coating, resulting in a hermetically sealed assembly. Aluminum coatings offer excellent protection over a wider temperature range than conventional coatings. The Aluminum coating is chemically bonded to the Silica cladding enabling high performance terminations without pistoning. Along with an excellent stress corrosion susceptibility parameter beyond 100, it offers improved mechanical protection to the optical fiber when used in the most challenging environments. Combined with solarization resistant glass Aluminum coating is the ideal choice to preserve deep UV performance at short UV wavelengths. Step index multimode optical fibers are quality tested in accordance with the Telecommunications Industry Association (TIA) and Fiber Optic Test Procedures (FOTP). These fibers can also be tested to MIL-SPEC standards when necessary.

Principal Features

- High Operating temperature
- Sterilizable
- Radio Opaque
- Chemical corrosion resistance
- Solarization Resistant
- Radiation Resistant
- Cryogenic operating temperature
- Solderable directly to connectors
- Non-contaminating

Specifications

Physical Characteristics	***UV-Vis***	***Vis-IR***
Core Composition	Pure Fused Silica	Pure Fused Silica
Clad Composition	Fluorine Doped SIO_2	Fluorine Doped SIO_2
Core/Clad Offset	≤ 1% of φ Core	≤ 1% of φ Core
Coating Composition	99.99% Aluminum	99.99% Aluminum
Core Hydroxy (OH) Content	1200 ppm (High OH)	0. 7ppm (Low OH)
Clad/Core ratios	1.1, 1.2, 1.4, and 2.5	1.1, 1.2, 1.4, and
2.5		

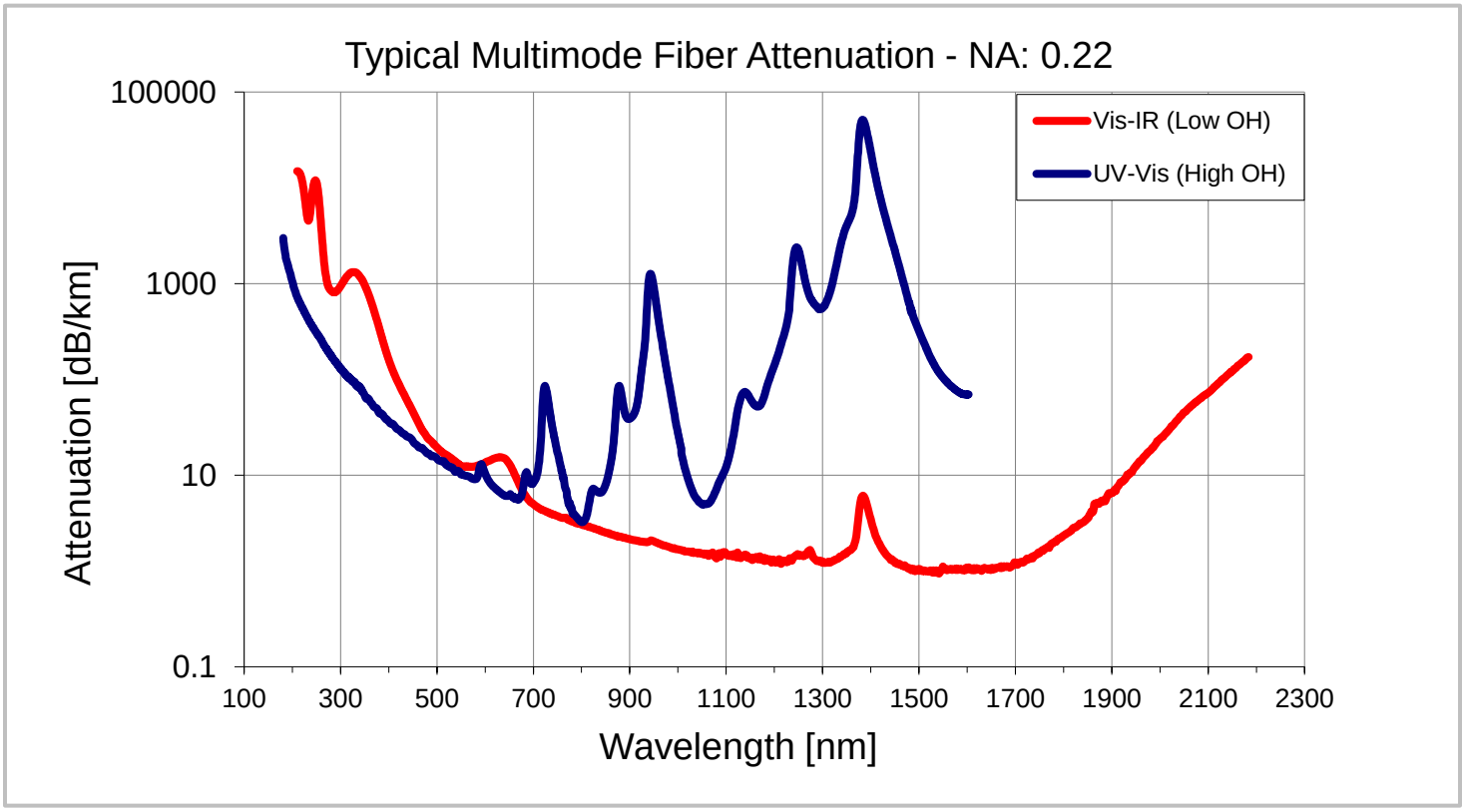
Optical Characteristics		
Wavelength Range	200-1200nm	400-2400nm
Numerical Apertures	0.22 ± 0.02	0.22 ± 0.02
Typical Attenuation @ 850nm	≤ 20 dB/Km	≤ 16 dB/Km
Index of Refraction @ 850nm	1.45250	1.45250

Mechanical Characteristics		
Proof Test Level	≥ 100Kpsi	≥ 100Kpsi
Median Tensile Strength	≥ 3.3GPa	≥ 3.3GPa
Corrosion Parameter	≥ 100	≥ 100
Young's Modulus	71.7 GPa	71.7 GPa
Operating Temperature Range	−269°C to 400°C	−269°C to 400°C
Bend Radius Short Term	200X fiber radius	200X fiber radius
Bend radius Long Term	400X fiber radius	400X fiber radius

Applications

Aluminum Coated Step Index Multimode Optical Fibers are typically used in a variety of challenging applications such as: High temperature sensing, Down-hole sensing, Corrosive environments, High radiation environments, Turbine and jet engine monitoring, High power laser delivery systems, High vacuum devices, Aircraft, Missile, and Spacecraft sensing and measurement.

Spectral Attenuation



Tables Below Reflect Standard Aluminum Coated Fiber Geometries

Visible to IR Transmission (400-2400nm) Low OH			
Product Type	**ϕ Core µm) ± 2%**	**ϕ Clad (µm) ± 2%**	**ϕ Jacket (µm) ± 10%**
Vis-IR 100/110/150A	100	110	150
Vis-IR 050/125/175A	50	125	175
Vis-IR 050/125/180A	50	125	180
Vis-IR 105/125/175A	105	125	175
Vis-IR 200/220/280A	200	220	280
Vis-IR 200/220/285A	200	220	285
Vis-IR 300/330/430A	300	330	430
Vis-IR 400/440/530A	400	440	530

UV to Visible Transmission (200-1200nm) High OH			
Product Type	**ϕ Core (µm) ± 2%**	**ϕ Clad (µm) ± 2%**	**ϕ Jacket (µm) ± 10%**
UV-Vis 100/110/150A	100	110	150
UV-Vis 050/125/175A	50	125	175
UV-Vis 050/125/180A	50	125	180
UV-Vis 105/125/175A	105	125	175
UV-Vis 200/220/280A	200	220	280
UV-Vis 200/220/285A	200	220	285
UV-Vis 300/330/430A	300	330	430
UV-Vis 400/440/530A	400	440	530

Notes:

- The items listed in these tables are standard configurations. Other configurations are available on special request.
- Solarization Resistant fiber is also available with Hydrogen Loading.
- Thicker Coatings are available for soldering applications.