

Description

Waveguide's Single Mode (SM 4.3/125), metal coated fiber was designed to provide optimum performance in the 633nm to 680nm wavelength operating range. The fiber is supplied with either 24kt Gold or Aluminum coatings. These coatings are electrically conductive and provide the user with the ability to connectorize directly to the coating, resulting in a hermetically sealed assembly. Gold and Aluminum coatings offer excellent protection over a wider temperature range compared to conventional coatings. These types of metal coatings offer excellent stress corrosion susceptibility parameters, resulting in improved mechanical protection to the optical fiber, along with durability and robustness in harsh environments previously unseen in the industry.

Waveguide's Single Mode Fibers are quality tested in accordance with the Telecommunications Industry Association (TIA) Fiber Optic Test procedures (FOTP) as well as other industry standards.

Specifications

Physical Characteristics

Core Composition
 Mode Field Diameter @633nm
 Core/Clad Concentricity Error
 Clad Diameter
 Clad Non-Circularity
 Coating Diameter
 Coating Non-Circularity

SM 4.3/125/155 Gold

Ge Doped Silica
 4.3 $\mu\text{m} \pm 0.3\mu\text{m}$
 $\leq 0.5 \mu\text{m}$
 125 $\mu\text{m} +1/-3$
 $\leq 0.07 \mu\text{m}$
 155 $\mu\text{m} \pm 10\%$
 $\leq 6\%$

SM 4.3/125/175 Aluminum

Ge Doped Silica
 4.3 $\mu\text{m} \pm 0.3\mu\text{m}$
 $\leq 0.5\mu\text{m}$
 125 $\mu\text{m} +1/-3$
 $\leq 0.07 \mu\text{m}$
 175 $\mu\text{m} \pm 10\%$
 $\leq 6\%$

Optical Characteristics

Numerical Aperture
 Operating Wavelength
 Attenuation @ 633nm
 Cut off wavelength

0.12 ± 0.02
 633-680nm
 $\leq 18 \text{ dB/Km}$
 500-600nm

0.12 ± 0.02
 633-680nm
 $\leq 22 \text{ dB/Km}$
 500-600nm

Mechanical Characteristics

Proof Test Level
 Median Tensile Strength
 Corrosion Parameter
 Operating Temperature Range
 Bend Radius Short Term
 Bend radius Long Term
 Lead time (Standard Lengths)

$\geq 100\text{Kpsi}$
 $\geq 3.3\text{GPa}$
 ≥ 50
 -269°C to 700°C
 200X fiber radius (mm)
 400X fiber radius (mm)
 4-6 wks.

$\geq 100\text{Kpsi}$
 $\geq 3.3\text{GPa}$
 ≥ 100
 -269°C to 400°C
 200X fiber radius (mm)
 400X fiber radius (mm)
 4-6 wks.

Applications

Gold and Aluminum Coated Single Mode 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 vacuum devices, Aircraft, Missile, and Spacecraft sensing and measurement.