

Single-Mode Bend Insensitive &/or Radiation Hardened Fibers



This family of three different single-mode fibers is specifically designed for non traditional data and telecom applications that use standard telecom wavelengths. Tactical fiber survives and transmits light even under extreme mechanical duress. The R1310-HTA operates identically to SMF-28™ with improved radiation performance. It is also EMP immune and can withstand very high electrical field strengths. The pure silica core S1550-HTA fiber is also designed to be bend insensitive and withstand extreme pulsed and continuous ionizing radiation. All fibers in this series come with high proof strength, large Weibull modulus, and superior dynamic fatigue parameter to maintain high mechanical reliability (long lifetimes). To meet the challenges of the harsh tactical, avionics/aerospace, missile and UAV working environments, the fibers have high temperature acrylate as the standard coating.

Typical Applications

- Airframe, Spacecraft, Missile and UAV optical interconnects
- Large bandwidth tactical cables
- Miniature fiber optic packages

Features & Benefits

- Exceptional uniformity and core/clad concentricity — Low connectorization losses
- High proof test level, high Weibull modulus and high dynamic fatigue parameter — Long lifetimes in deployment conditions
- High temperature coating — Survival in hostile environment
- Bend insensitive versions — Survives application in tight confines
- Rad resistant & rad hard versions — Useful in radiation environments

Optical Specifications

Operating Wavelength (nominal)
Mode Field Diameter
Mode Field Diameter
Second Mode Cutoff
Attenuation
Attenuation
Numerical Aperture (nominal)

R1310-HTA

1310 – 1620 nm
9.1 ± 1.0 μm @ 1310 nm
10.5 ± 1.0 μm @ 1550 nm
1250 ± 50 nm
≤ 0.75 dB/km @ 1310 nm
≤ 0.5 dB/km @ 1550 nm
0.12

1310M-HTA

1310 – 1620 nm
6.7 ± 1.0 μm @ 1310 nm

1250 ± 50 nm
≤ 0.75 dB/km @ 1310 nm
≤ 0.5 dB/km @ 1550 nm
0.16

S1550-HTA**

1530 – 1630 nm

7.0 ± 1.0 μm @ 1550 nm
1450 ± 70 nm

≤ 1.0 dB/km @ 1550 nm
0.16

Geometrical & Mechanical Specifications

Clad Diameter
Coating Diameter
Core-Clad Concentricity
Coating/Clad Offset
Coating Material
Core Type
Operating Temperature
Short-Term Bend Radius
Long-Term Bend Radius
Proof Test Level

125 ± 1 μm
245 ± 15 μm
< 0.5 μm
≤ 5 μm
Dual Layer,
High Temperature Acrylate
Step Index,
Radiation Resistant
- 55 to + 125°C
≥ 6 mm
≥ 13 mm
≥ 200 kpsi (1.4 GN/m²)

125 ± 1 μm
245 ± 15 μm
< 0.5 μm
≤ 5 μm
Dual Layer,
High Temperature Acrylate
Step Index
- 55 to + 125°C
≥ 6 mm
≥ 13 mm
≥ 200 kpsi (1.4 GN/m²)

125 ± 1 μm
245 ± 15 μm
< 0.5 μm
≤ 5 μm
Dual Layer,
High Temperature Acrylate
Pure Silica Core,
Radiation Hard
- 55 to + 125°C
≥ 12 mm
≥ 25 mm
≥ 100 kpsi (0.7 GN/m²)

**US Department of Commerce Export Controlled.

Festoon Architecture Application Guideline:

Fiber: Bend insensitive SM fiber Nufern
part number: 1310M-HTA

Length: 100 meters

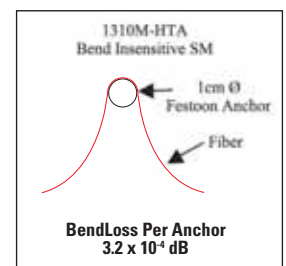
Anchors: 30 half bends 1cm in diameter or greater*

Breaks: 6 standard mechanical splices. (0.45dB per splice)

Life exp: Minimum 22 years

Attenuation: < 3db

*Nufern recommends a minimum bend radius of 13 mm for long length, long term deployment. However for localized point bends, such as 1cm festooned diameters, COST 218 predicts Nufern fiber will survive tighter bends with a 22 year life expectancy and 100 ppm FIT.



RoHS



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