

Singlemode Optical Fiber 09/125/500

The application of optical fibers in rough or demanding environments, such as in mining, industry, aerospace, military and transportation requires a maximum protection of the fiber. Especially designed for production of ruggedized cables j- fiber offers its Singlemode 500 fiber with enlarged coating diameter. It features low dispersion and is specified for use in both 1310nm and 1550nm wavelength operation.

Features and Benefits

- Fully compatible to worldwide standards, meets or exceeds: ITU-T Recommendation G.652 , TIA/EIA 492 , EN/IEC 60793-2-50, and GR 20 CORE requirements
- Specified for use in 1310nm and 1550nm applications
- Specialty coating design for deployment in harsh environments
- Excellent compatibility in all cable constructions, such as tight buffering and loose tube
- Proven product consistency and reliability through our patented MCVD based process manufacturing technology

Coating

j-fiber optical fiber Singlemode 500 is protected with FCC-15, an enhanced coating material that guarantees long-term performance and reliability for deployment in harsh environments. This dual layer acrylate material is user friendly and easily mechanically strippable without leaving residue.

Optical Characteristics

		Spec. Value Range	Unit
Attenuation Coefficient ¹	1310nm	≤ 0.35 – ≤ 0.40	dB/km
	1550nm	≤ 0.22 – ≤ 0.30	dB/km
Attenuation Variance Range ²	1285 – 1330nm	≤ 0.05	dB/km
	1530 – 1570nm	≤ 0.05	dB/km
Attenuation at the Water Peak	1383nm ± 3nm	≤ 2.00	dB/km
Mode Field Diameter	1310nm	9.2 ± 0.4	μm
	1550nm	10.5 ± 0.8	μm
Attenuation Uniformity		≤ 0.05	dB
Macrobending Loss			
Bend Induced attenuation, 100 turns around a mandrel of 50mm diameter	1310nm	≤ 0.05	dB
	1550nm	≤ 0.10	dB
1 turn around a mandrel of 32mm diameter	1550nm	≤ 0.50	dB
Fiber Cut-off Wavelength λ_c		1190 – 1330	nm
Zero Dispersion Wavelength λ_0		1300 ≤ λ_0 ≤ 1324	nm
Zero Dispersion Slope S_0		≤ 0.092	ps/nm ² ·km
Chromatic Dispersion	1270 – 1340nm	≤ 5.00	ps/nm·km
	1285 – 1330nm	≤ 3.50	ps/nm·km
	1550nm	≤ 18.00	ps/nm·km
Effective Group Index of Refraction	1310nm	1.467	
	1550nm	1.467	
Polarization Mode Dispersion	Individual Fiber ³	≤ 0.50	ps/√km

For further information about our 500 micron Singlemode Fiber and other j-fiber products and services, please contact us:

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¹ Special attenuation cells available upon request

² Fiber attenuation in specified ranges doesn't exceed nominal values @ 1310/1550nm by more than this values.

³ Individual values may change when cabled

Geometrical Characteristics

	Spec. Values	Unit
Core/Clad Concentricity Error	≤ 0.8	μm
Cladding Diameter	125 ± 1.0 ¹	μm
Cladding Non-Circularity	≤ 1.0	%
Coating Diameter	500 ± 15.0	μm
Coating/Clad Concentricity Error	≤ 20.0	μm
Fiber Curl Radius	≥ 2.0	m
Standard Lengths	2.2 – 8.8	km

¹ other tolerances are available upon request

Mechanical Characteristics

	Spec. Values	Unit
Proof Test	≥ 100	kpsi
	≥ 8.8	N
	≥ 0.7	GPa
Dynamic Tensile Strength Unaged Fiber (0.5m)	≥ 3.8	GPa
Median Tensile Strength		
15th Percentile Tensile Strength Aged Fiber (0.5m)	≥ 3.3	GPa
Median Tensile Strength	≥ 3.03	GPa
15th Percentile Tensile Strength	≥ 2.76	GPa
Dynamic Fatigue Stress Corrosion Parameter n_d	≥ 20	
Operating Temperature Range	-60°C to +85°C	
Coating Strip Force (typical)	3.0	N

Environmental Characteristics

	Spec. Values	Unit
	at 1310/1550nm	
Change of Temperature Attenuation increase, -60°C to +85°C	≤ 0.05	dB/km
Dry Heat Attenuation increase, 30 days at 85°C	≤ 0.05	dB/km
Damp Heat Attenuation increase, 30 days at 85°C/85% R.H.	≤ 0.05	dB/km
Water Immersion Attenuation increase, 30 days in 23°C water	≤ 0.05	dB/km

Quality Procedure

All fibers comply with or exceed the ITU recommendation G.652 IEC 60793-2-50 and GR-20-Core optical fiber specifications. Each fiber is 100% quality measured according to ITU recommendations G.650 and IEC 60793-1.

Environmental Friendly Packaging

The shipping spool is designed to safeguard j-fiber optical fiber not only during shipping but also during subsequent handling in the customer's plant. It features smooth inside surfaces to ensure that the fiber is wound on and off the reel without the risk of breaking. The reel barrel is isolated via a polyethylene cover. The inside end of the fiber can be accessed for various measurements while still on the shipping spool. Each spool carries product information, including fiber type, measurement data and peel-off bar coding to assist with inventory control. All reels and transport boxes are designed to take advantage of our recycling program.

Spool Sizes

	small	large
Fiber length	≤ 4.4km	> 4.4km
Spool diameter	9.25"/23.5cm	10.4"/26.4cm
Spool width	4.21"/10.7cm	6.65"/16.9cm
Spindle	1"/2.54cm	1"/2.54cm
Traverse width	3.75"/9.5cm	5.9"/15.0cm

Ordering Information

To order j-fiber Singlemode optical fiber please call, fax or email us and specify the following parameters when ordering:

Fiber Type:	Singlemode Fiber 09/125/500μm
Desired Attenuation:	at 1310nm/1550nm
Fiber Quantity:	kms
Other:	desired ship date, reel length, special requests

All fibers and preforms are subject to j-fiber's ongoing process and quality improvement programs ensuring excellent performance and high reliability. We reserve the right to make changes to the above specification without notice.

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