

980

Fiber Name	Operating Wavelength	MFD at Operating Wavelength	Numerical Aperture	Clad/Coating Diameter	Coating Type	Part Number
980 14	980/1550 nm	5.9/9.4	0.14	125/245 μ m	Dual Acrylate	F9232
980 16	980/1550 nm	5.0/7.5	0.16	125/245 μ m	Dual Acrylate	BF05635-02
980 20	980/1550 nm	4.0/6.5	0.20	125/245 μ m	Dual Acrylate	F10984

1310 & 1550

Fiber Name	Operating Wavelength	MFD at Operating Wavelength	Numerical Aperture	Clad/Coating Diameter	Coating Type	Part Number
1310 16	1310/1550 nm	6.7/7.5	0.16	125/245 μ m	Dual Acrylate	F9001
1310 21	1310/1550 nm	5.1/5.8	0.21	125/200 μ m	Single Acrylate	BF06160
1550 12	1550 nm	10.3	0.12	125/245 μ m	Dual Acrylate	F10819-01
1550 17	1550 nm	7.5	0.17	125/245 μ m	Dual Acrylate	BF06158

Micro

Fiber Name	Operating Wavelength	MFD at Operating Wavelength	Numerical Aperture	Clad/Coating Diameter	Coating Type	Part Number
Micro 820 16	820 nm	4.1	0.16	80/135 μ m	Single Acrylate	CF04246-03
Micro 980 17	980/1550 nm	4.7/7.3	0.17	80/165 μ m	Dual Acrylate	BF06681-02
Micro 1310 11	1310/1550 nm	9.3/10.5	0.11	80/165 μ m	Dual Acrylate	BF06257-01
Micro 1310 16S	1310/1550 nm	6.7/7.5	0.16	80/135 μ m	Single Acrylate	CF04246-31
Micro 1310 16D	1310/1550 nm	6.7/7.5	0.16	80/165 μ m	Dual Acrylate	F9002
Micro 1550 17 GyroSil	1550 nm	7.5	0.17	80/130 μ m	Single Acrylate	BF06159
Micro 1550 21	1550 nm	6.0	0.21	80/100 μ m	Carbon/Polyimide	F9697-03

GeoFibers

Fiber Name	Operating Wavelength	MFD at Operating Wavelength	Numerical Aperture	Clad/Coating Diameter	Coating Type	Part Number
Geo 1310 11	1310/1550 nm	9.3/10.5	0.11	125/155 μ m	Carbon/Polyimide	BF05717
Geo 1310 16	1310/1550 nm	6.7/7.5	0.16	125/155 μ m	Carbon/Polyimide	F9001-01



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Specialty Coated

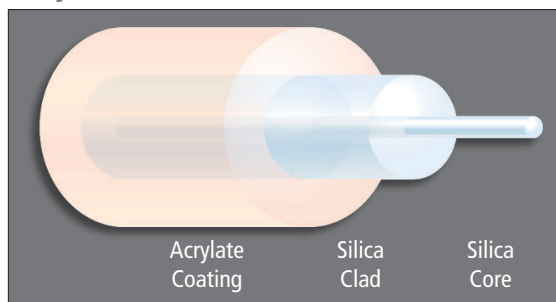
Fiber Name	Operating Wavelength	MFD at Operating Wavelength	Numerical Aperture	Clad/Coating Diameter	Coating Type	Part Number
Carbon/Poly 1310 11	1310/1550 nm	9.3/10.5	0.11	125/155 μm	Carbon/Polyimide	BF04447
Poly 1310 11	1310/1550 nm	9.3/10.5	0.11	125/155 μm	Polyimide	BF04446
Carbon/Acrylate 1310 16	1310/1550 nm	6.7/7.5	0.16	125/250 μm	Carbon/Dual Acrylate	BF06631
Poly 1310 21	1310/1550 nm	5.1/5.8	0.21	125/155 μm	Polyimide	BF06160-02
Poly 1550 17	1550	7.5	0.17	125/155 μm	Polyimide	BF06158-02

Short Wavelength

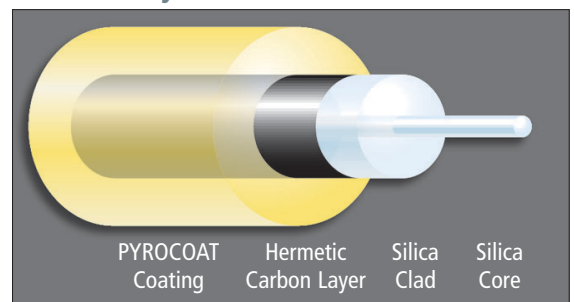
Fiber Name	Operating Wavelength	MFD at Operating Wavelength	Numerical Aperture	Clad/Coating Diameter	Coating Type	Part Number
630 11	630 nm	4.3	0.11	125/245 μm	Dual Acrylate	CF04247-02
780 11	780 nm	5.4	0.11	125/245 μm	Dual Acrylate	CF04247-03
820 16	820 nm	4.1	0.16	125/245 μm	Dual Acrylate	CF04246-04

Acrylate

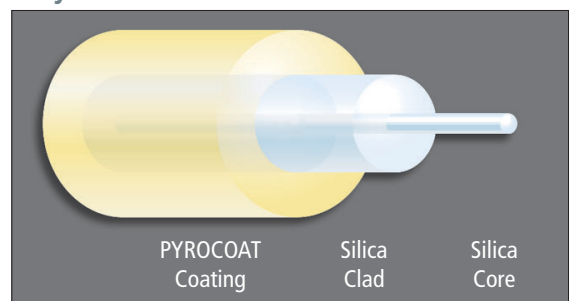
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Carbon/Poly



Poly



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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite 980 Photonic Fibers

CL 980 14



Leading Optical Innovations

Product Description

OFS offers this fiber optimized for use in pigtailed pump laser diodes emitting at 980 nm. 980 fibers with larger MFDs couple more light from the diode into the fiber. The exact pigtail MFD requirements are dependent upon your specific design and the other fibers used in your package. 980-14 Fiber with a 200 kpsi proof test suitable for submarine applications, offers a 5.9 μm MFD. Tight geometrical tolerances and low lot-to-lot variability help ensure premium performance in your device.

OFS Specialty Photonics can provide complete metalized fiber assemblies using this fiber that are ready for hermetic sealing into your package.

Typical Applications

- Laser diode pigtails
- EDFAs
- Photonic Devices

Features and Benefits

- 5.9 μm MFD with 0.14 NA
- Excellent compatibility with other ClearLite 980 fibers designed for WDM couplers
- Dual coated urethane acrylate

Related Products & Capabilities

- See our full line of ClearLite 980 Photonic Fibers with NAs ranging from 0.14 to 0.20
- Also available with 0.12 NA
- Micro 980 17 is available for miniaturized components
- We also offer TruePhase 980 nm wavelength fibers in polarization-maintaining construction in either 80 μm or 125 μm cladding for use in PM power combiners

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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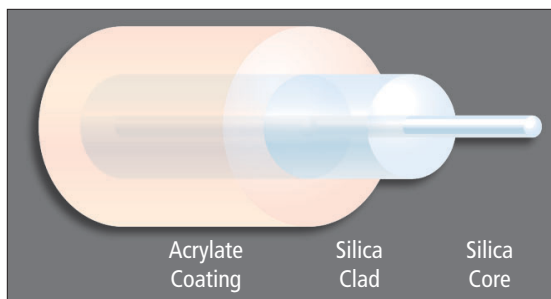
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Fax 1-860-674-8818
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Leading Optical Innovations

OFS Specialty Photonics Division

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Fiber Specifications

	CL 980 14
Operating wavelength	980 nm
Cutoff wavelength	≤970 nm
Mode field diameter @ 980 nm	5.9 ± 0.4 μm
Mode field diameter @ 1550 nm	9.4 ± 0.5 μm
Attenuation @ 980 nm	≤2 dB/km
Numerical aperture (nominal)	0.14
Dimensions/Geometric Properties	
Core diameter (nominal)	5.3 μm
Clad diameter	125 ± 1.5 μm
Coating/buffer diameter	245 ± 10 μm
Clad non-circularity	≤2.0%
Core/clad offset	≤0.4 μm
Coating concentricity	≥80%
Coating/Buffer Descriptions	
Coating material	Dual UV Acrylate
Operating temperature	-40 to +85°C
Mechanical and Testing Data	
Short-term bend radius	≥5 mm
Long-term bend radius	≥9 mm
Proof test level	≥200 kpsi (1.378 GPa)
Product Description Code	SMB-B0980B
Order by Part Number	F9232

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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite 980 Photonic Fibers

CL 980 16* and CL 980 20



Leading Optical Innovations

Product Description

Among the 980 nm Photonic Fibers, these two designed with high NAs offer the highest level of performance in fused fiber couplers. 980-16 Fiber, formerly known as "980 Coupler Fiber," with an NA of 0.16, has been optimized for WDM pump/signal couplers used in EDFAs, permitting volume production of low loss, highly reliable components. 980-20 Fiber delivers the best bend performance of all the ClearLite 980 Photonic Fibers. Both fibers guide light at wavelengths of 980 and 1550 nm. This allows WDM pump/signal couplers to combine the pump power at 980 nm and the transmission signal at 1550 nm into one fiber.

Our design expertise and stringent control of the MCVD preform manufacturing and volume production processes result in tight tolerances and minimal lot-to-lot variation in fiber manufacture. Proof test level of 200 kpsi helps ensure extended lifetime reliability of the fiber and its suitability in high-stress applications, such as submarine.

Typical Applications

- Fused fiber couplers
- WDM pump/signal couplers
- EDFAs
- Submarine applications

Features and Benefits

- Choice of NAs: 0.16 and 0.20
- Choice of MFDs (at 980 nm): 5.0 and 4.0 μm
- 125 μm cladding and 245 μm dual-coated urethane acrylate
- 200 kpsi proof test level for high reliability
- Tight geometrical tolerances for low lot-to-lot variability
- Low bend sensitivity
- Excellent compatibility with other OFS Photonic Fibers

Related Products & Capabilities

- Also available with 0.12 and 0.14 NA.
- Micro 980 17 is available for miniaturized components.
- We also offer TruePhase 980 nm wave-length fibers in polarization-maintaining construction in either 80 μm or 125 μm cladding for use in PM power combiners.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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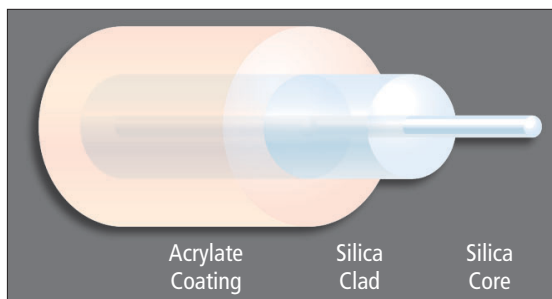
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Fiber Specifications

Single-Mode

Optical Properties	CL 980 16	CL 980 20
Operating wavelength	980/1550 nm	980/1550 nm
Cutoff wavelength	≤960 nm	≤960 nm
Mode field diameter @ 980 nm	5.0 ± 0.3 μm	4.0 ± 0.3 μm
Mode field diameter @ 1550 nm	7.5 ± 0.75 μm	6.5 ± 0.3 μm
Attenuation @ 980 nm	≤3.0 dB/km	≤2.5 dB/km
Bend loss @ 1550 nm (5 turns @ 10 mm radius)	not specified	≤0.075 dB
Bend loss @ 1610 nm (5 turns @ 10 mm radius)	not specified	≤0.1 dB
Core delta (nominal)	0.65%	1%
Numerical aperture (nominal)	0.16	0.20

Dimensions/Geometric Properties	CL 980 16	CL 980 20
Core diameter (nominal)	4.4 μm	3.6 μm
Clad diameter	125 ± 2 μm	125 ± 2 μm
Coating/buffer diameter	245 ± 15 μm	245 ± 15 μm
Clad non-circularity	≤2.0%	≤2.0%
Core/clad offset	≤0.3 μm	≤0.3 μm

Coating/Buffer Descriptions	CL 980 16	CL 980 20
Coating material	Dual UV Acrylate	Dual UV Acrylate
Operating temperature	-40 to +85°C	-40 to +85°C

Mechanical and Testing Data	CL 980 16	CL 980 20
Short-term bend radius	≥5 mm	≥5 mm
Long-term bend radius	≥9 mm	≥9 mm
Proof test level	≥200 kpsi (1.38 GPa)	≥200 kpsi (1.38 GPa)
Product Description Code	SMB-D0980B	SMB-F0980B

Order by Part Number	CL 980 16	CL 980 20
	BF05635-02	F10984

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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite 1310 and 1550 Photonic Fibers

CL 1310 16 and CL 1310 21



Leading Optical Innovations

Product Description

OFS offers two fibers operating at the standard transmission wavelengths of 1310 and 1550 nm. The difference between these fibers is the NA and corresponding MFD. The 1310-16 Fiber is designed with an NA of 0.16, an MFD of 6.7 μm , and a dual acrylate coating of 245 μm . The 1310-21 Fiber has an exceptionally high NA of 0.21, an MFD of 5.1 μm , and a single acrylate coating of only 200 μm .

Selecting the appropriate fiber involves trading off MFD (when other fibers must be spliced to) and bend performance requirements. When extremely tight bend radius is required for an application in these wavelengths, this fiber is also available with a reduced cladding (80 μm).

Typical Applications

- WDM fused fiber couplers
- Tap couplers
- CATV devices
- Photonic devices
- Tight coils and integrated modules

Features and Benefits

- Wavelength performance at both 1310 and 1550 nm
- Choice of NAs: 0.16 and 0.21
- Choice of mode field diameters: 6.7 and 5.1 μm
- 125 μm cladding and a choice of coatings: 200 μm single-coat acrylate or 245 μm dual-coat acrylate
- 100 or 200 kpsi proof test level

Related Products & Capabilities

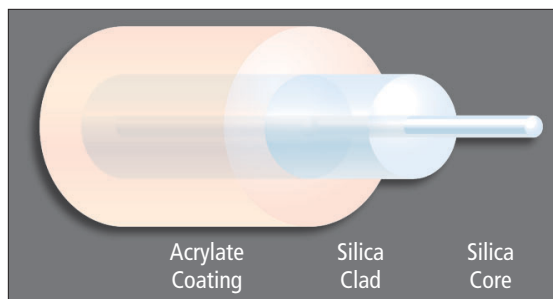
- Micro 1310 11, 1310 16S, and 1310 16D are available for miniaturized components.
- We also offer TruePhase 1310 nm wavelength fibers in polarization-maintaining construction in either 245 or 400 μm cladding.
- A specially constructed polarization-maintaining fiber is available for sensors and gyroscopes operating at the 1310 nm wavelength — ClearLite TruePhase 1310 sensor.
- For geophysical applications at 1310 nm, ClearLite GeoFibers are recommended.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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Fiber Specifications

Optical Properties	CL 1310 16	CL 1310 21
Operating wavelength	1310/1550 nm	1310/1550 nm
Cutoff wavelength	≤1290 nm	≤1300 nm
Mode field diameter @ 1310 nm	6.7 ± 1.0 μm	5.1 ± 1.0 μm
Mode field diameter @ 1550 nm	7.5 ± 1.0 μm	5.8 ± 1.0 μm
Attenuation @ 1310 nm	≤0.75 dB/km	≤0.7 dB/km
Attenuation @ 1550 nm	not specified	≤0.4 dB/km
Numerical aperture (nominal)	0.16	0.21
Induced attenuation @ operating wavelength due to 5 turns on a 10 mm mandrel	not specified	not detected/ 0.01 dB
Dimensions/Geometric Properties		
Core diameter (nominal)	6.0 μm	4.6 μm
Clad diameter	125 ± 2 μm	125 ± 2 μm
Coating/buffer diameter	245 ± 15 μm	200 ± 10 μm
Clad non-circularity	≤2.0%	≤2.0%
Core/clad offset	≤0.5 μm	≤1.0 μm
Coating/Buffer Descriptions		
Coating material	Dual UV Acrylate	Single UV Acrylate
Operating temperature	-40 to +85°C	-40 to +85°C
Mechanical and Testing Data		
Short-term bend radius	≥5 mm	≥10 mm
Long-term bend radius	≥9 mm	≥17 mm
Proof test level	≥200 kpsi (1.38 GPa)	≥100 kpsi (0.689 GPa)
Product Description Code	SMB-D1310B	SMB-G1310A
Order by Part Number	F9001	BF06160

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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite 1310 and 1550 Photonic Fibers

CL 1550 12 and CL 1550 17



Leading Optical Innovations

Product Description

OFS offers these two fibers at the standard transmission wavelength of 1550 nm. They are used when standard transmission fiber cannot deliver the bend performance necessary to meet the requirements of a photonic device. 1550-12 Fiber has an NA of 0.12 and a corresponding MFD of 10.3. Designed with a high second mode cutoff of 1500 nm, this fiber gives better bend performance than transmission fiber while still maintaining a large MFD for mode matching to standard fiber.

1550-17 Fiber is designed with a higher NA of 0.17 and a corresponding lower MFD of 7.5 μm . This fiber gives excellent optical bend performance and should be used when a reduced MFD can be tolerated. Fiber selection is also dependent upon other fibers used in the device.

Typical Applications

- Photonic devices at 1550 nm
- Fiber payout
- WDM devices
- Fiber optic strain, pressure, and acoustic sensors

Features and Benefits

- Choice of NAs: 0.12 and 0.17
- Choice of mode field diameters: 10.3 and 7.5 μm
- 125 μm cladding/245 μm dual-coated urethane acrylate
- Higher proof test levels also available

Related Products & Capabilities

- Micro 1550 17 GyroSil and Micro 1550 21 are available for miniaturized components.
- We also offer TruePhase 1550 nm wavelength fibers in polarization-maintaining construction in either 245 or 400 μm cladding.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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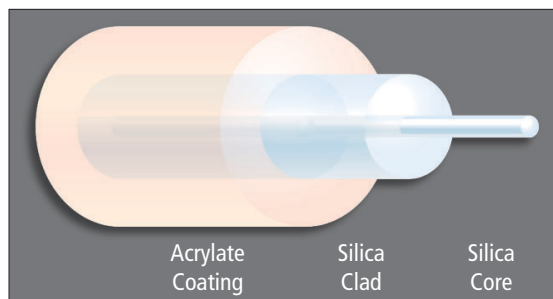
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Fiber Specifications

Optical Properties	CL 1550 12	CL 1550 17
Operating wavelength	1550 nm	1550 nm
Cutoff wavelength	≤1500 nm	≤1500 nm
Mode field diameter @ 1550 nm	10.3 ± 0.4 μm	7.5 ± 0.75 μm
Attenuation @ 1550 nm	≤0.6 dB/km	≤0.6 dB/km
Numerical aperture (nominal)	0.12	0.17
Dimensions/Geometric Properties		
Core diameter (nominal)	9.3 μm	6.5 μm
Clad diameter	125 ± 2 μm	125 ± 2 μm
Coating/buffer diameter	245 ± 15 μm	245 ± 15 μm
Clad non-circularity	≤2.0%	≤2.0%
Core/clad offset	≤1.0 μm	≤0.75 μm
Coating/Buffer Descriptions		
Coating material	Dual UV Acrylate	Dual UV Acrylate
Operating temperature	-40 to +85°C	-40 to +85°C
Mechanical and Testing Data		
Short-term bend radius	≥10 mm	≥10 mm
Long-term bend radius	≥17 mm	≥17 mm
Proof test level	≥100 kpsi (0.689 GPa)	≥100 kpsi (0.689 GPa)
Product Description Code	SMC-A1550B	SMB-E1550B
Order by Part Number	F10819-01	BF06158

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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite Micro 820 Photonic Fibers

CL MICRO 820 16



Leading Optical Innovations

Product Description

OFS offers Micro 820-16 fiber for use in couplers, pigtails, sensors, and other photonic devices operating at 820 nm. Micro photonic fibers are designed with cladding ODs of 80 μm versus the more common optical fiber cladding OD of 125 μm .

80 μm has long been the "standard" size in gyroscope and other sensor applications due to the tighter coils achievable when a thinner fiber is used. Micro Photonic Fibers perform equally well in integrated photonic packages where size is an issue and fibers undergo tight bend radii.

Typical Applications

- Laser diode pigtails
- Micro packaging
- Integrated photonic devices and components
- Couplers
- Sensors and gyroscopes

Features and Benefits

- High NA of 0.16 for excellent optical bend performance
- Operating wavelength of 820 nm
- Tight bend radius of ≥ 7 mm in the short-term and ≥ 11 mm over long-term life of the fiber
- Single acrylate coating of 135 μm (versus 245 μm in standard size fibers)

Related Products & Capabilities

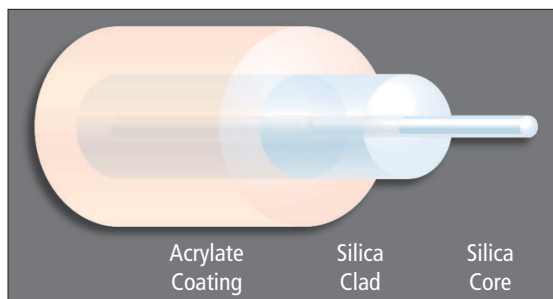
- See other fibers specifically formulated for sensor and gyroscope applications, such as ClearLite TruePhase 1310 Sensor and ClearLite Micro 1550 17 GyroSil.
- Full size fiber is also available at the 820 nm wavelength with a 245 μm dual acrylate coating.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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Fiber Specifications

Optical Properties	CL MICRO 820 16
Operating wavelength	820 nm
Cutoff wavelength	≤810 nm
Mode field diameter @ 820 nm	4.1 ± 1.0 μm
Attenuation @ 820 nm	≤5.0 dB/km
Numerical aperture (nominal)	0.16
Dimensions/Geometric Properties	
Core diameter (nominal)	3.7 μm
Clad diameter	80 ± 2 μm
Coating/buffer diameter	135 ± 5 μm
Clad non-circularity	≤2.0%
Core/clad concentricity	≤1.0 μm
Coating/Buffer Descriptions	
Coating material	Single UV Acrylate
Operating temperature	-40 to +85°C
Mechanical and Testing Data	
Short-term bend radius	≥7 mm
Long-term bend radius	≥11 mm
Proof test level	≥100 kpsi (0.689 GPa)
Product Description Code	SMM-D0820A
Order by Part Number	CF04246-03

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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite Micro 980 Photonic Fiber**CL MICRO 980 17**

Leading Optical Innovations

Product Description

OFS offers two Micro 980-17 fiber operating at both 980 and 1550 nm for use in WDM fused fiber couplers and other photonic devices. Micro photonic fibers are designed with cladding ODs of 80 μm versus the more common optical fiber cladding OD of 125 μm .

80 μm has long been the “standard” size in gyroscope and other sensor applications due to the tighter coils achievable when a thinner fiber is used. 80 μm fibers perform equally well in integrated photonic packages where size is an issue and fibers undergo tight bend radii. In addition, 200 kpsi proof test level helps ensure expanded lifetime reliability of the fiber and its suitability in high-stress applications such as submarine.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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www.SpecialtyPhotonics.com**Typical Applications**

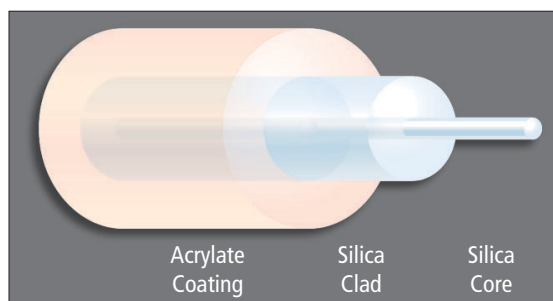
- Laser diode pigtailed
- Micro WDM pump/signal couplers
- Micro tap couplers
- Integrated photonic devices and components
- Sensors and gyroscopes
- Submarine applications

Features and Benefits

- Excellent optical bend performance
- Operating wavelength at both 980 and 1550 nm
- Extremely tight bend radius of ≥ 4 mm in the short-term and ≥ 6 mm over long-term life of the fiber
- 80 μm cladding/165 μm dual-coated urethane acrylate (versus 245 μm in standard size fibers)
- 200 kpsi proof test level for high reliability
- Tight core/clad offset spec for low splice loss

Related Products & Capabilities

- ClearLite Micro Photonic fibers are available in a variety of wavelengths or NAs.
- For transmission, coupling, and other applications at the 980 nm wavelength, we also offer polarization-maintaining and full-size OD fibers.



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Fiber Specifications

Optical Properties

CL MICRO 980 17

Operating wavelength	980/1550 nm
Cutoff wavelength	≤960 nm
Mode field diameter @ 980 nm	4.7 ± 0.3 μm
Mode field diameter @ 1550 nm (nominal)	7.3 μm
Attenuation @ 980 nm	≤3.0 dB/km
Numerical aperture (nominal)	0.17

Dimensions/Geometric Properties

Core diameter (nominal)	4.2 μm
Clad diameter	80 ± 2 μm
Coating/buffer diameter	165 ± 10 μm
Clad non-circularity	≤2.0%
Core/clad concentricity	≤0.5 μm

Coating/Buffer Descriptions

Coating material	Dual UV Acrylate
Operating temperature	-40 to +85°C

Mechanical and Testing Data

Short-term bend radius	≥4 mm
Long-term bend radius	≥6 mm
Proof test level	≥200 kpsi (1.38 GPa)

Product Description Code **SMM-E0980B**

Order by Part Number

BF06681-02

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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite Micro 1310 Photonic Fibers

CL MICRO 1310 11, 16S, and 16D



Leading Optical Innovations

Product Description

OFS offers three Micro 1310 Photonic Fibers operating at the standard transmission wavelengths of 1310 and 1550 nm and for use in WDM fused fiber couplers and other photonic devices. Micro photonic fibers are designed with cladding ODs of 80 μm versus the more common optical fiber cladding OD of 125 μm . 80 μm has long been the "standard" size in gyroscope and other sensor applications due to the tighter coils achievable when a thinner fiber is used. 80 μm fibers perform equally well in integrated photonic packages where size is an issue and fibers undergo tight bend radii.

Micro 1310 11 fiber is designed with an NA of 0.11 and a large MFD of 9.3/10.5 μm at 1310 and 1550 nm wavelengths, respectively, for splice compatibility with standard transmission fiber.

Micro 1310 16 fibers are designed with high NAs of 0.16 for enhanced optical bend performance. Both have the same MFD of 6.7/7.5 μm at 1310 and 1550 nm wavelengths, respectively. They are identical with the exception of the coatings. Micro 1310 16S fiber has a single acrylate coating of 135 μm ; while Micro 1310 16D fiber has a dual acrylate coating of 165 μm .

Typical Applications

- Micro WDM pump/signal couplers
- Micro tap couplers
- Integrated photonic devices and components
- Sensors and gyroscopes

Features and Benefits

- Choice of NAs: 0.11 and 0.16
- Operation at the standard transmission wavelengths of 1310 and 1550 nm
- Available in extremely tight bend radius configuration of ≥ 4 mm in the short-term and ≥ 6 mm over long-term life of the fiber
- 80 μm cladding with a choice of coating sizes: 135 μm single-coat or 165 μm dual-coat urethane acrylate (versus 245 μm in standard size fibers)

Related Products & Capabilities

- ClearLite Micro Photonic fibers are available in a variety of wavelengths.
- For use at 1310 nm wavelength, we also offer polarization-maintaining and full-size OD fibers.
- For geophysical applications at 1310 nm, we recommend ClearLite GeoFibers.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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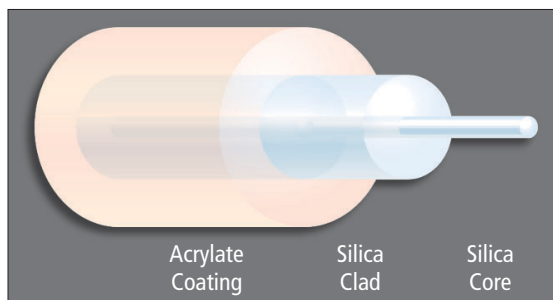
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www.SpecialtyPhotonics.com

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Fiber Specifications

Optical Properties	CL MICRO 1310 11	CL MICRO 1310 16S	CL MICRO 1310 16D
Operating wavelength	1310/1550 nm	1310/1550 nm	1310/1550 nm
Cutoff wavelength	≤1310 nm	≤1310 nm	≤1290 nm
Mode field diameter @ 1310 nm	9.3 ± 0.5 μm	6.7 ± 0.75 μm	6.7 ± 0.75 μm
Mode field diameter @ 1550 nm	10.5 ± 1.0 μm	7.5 (nominal)	7.5 (nominal)
Attenuation @ 1310 nm	≤0.75 dB/km	≤0.75 dB/km	≤0.75 dB/km
Attenuation @ 1550 nm	≤0.50 dB/km	≤0.50 dB/km	≤0.50 dB/km
Numerical aperture (nominal)	0.11	0.16	0.16
Induced attenuation @ 1550 nm due to 10 turns on a 15 mm mandrel	≤0.3 dB	≤0.01 dB	≤0.01 dB

Dimensions/Geometric Properties	CL MICRO 1310 11	CL MICRO 1310 16S	CL MICRO 1310 16D
Core diameter (nominal)	8.3 μm	6.0 μm	6.0 μm
Clad diameter	80 ± 2 μm	80 ± 2 μm	80 ± 2 μm
Coating/buffer diameter	165 ± 10 μm	135 ± 10 μm	165 ± 10 μm
Clad non-circularity	≤2.0%	≤2.0%	≤2.0%
Core/clad offset	≤0.5 μm	≤0.5 μm	≤0.5 μm

Coating/Buffer Descriptions	CL MICRO 1310 11	CL MICRO 1310 16S	CL MICRO 1310 16D
Coating material	Dual UV Acrylate	Single UV Acrylate	Dual UV Acrylate
Operating temperature	-40 to +85°C	-40 to +85°C	-40°C to +85°C

Mechanical and Testing Data	CL MICRO 1310 11	CL MICRO 1310 16S	CL MICRO 1310 16D
Short-term bend radius	≥4 mm	≥7 mm	≥4 mm
Long-term bend radius	≥6 mm	≥11 mm	≥6 mm
Proof test level	≥200 kpsi (1.38 GPa)	≥200 kpsi (1.38 GPa)	≥200 kpsi (1.38 GPa)
Product Description Code	SMM-A1310B	SMM-D1310A	SMM-D1310B
Order by Part Number	BF06257-01	CF04246-31	F9002

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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite Micro 1550 Photonic Fibers

CL MICRO 1550 17 GyroSil™ and CL MICRO 1550 21



Leading Optical Innovations

Product Description

OFS offers two Micro Photonic Fibers operating at 1550 nm for use in gyroscopes, military cables and devices, fused fiber couplers and other photonic devices. Micro photonic fibers are designed with cladding ODs of 80 μm versus the more common optical fiber cladding OD of 125 μm . 80 μm has long been the “standard” size in gyroscope and other sensor applications due to the tighter coils achievable when a thinner fiber is used. 80 μm fibers perform equally well in integrated photonic packages where size is an issue and fibers undergo tight bend radii.

OFS has been manufacturing GyroSil fiber for many years. Designed with an NA of 0.17, it has excellent bend performance in gyros and sensors. The single acrylate coating gives a slim fiber diameter of 130 μm .

Micro 1550 21 fiber offers an even higher NA of 0.21 for exceptional bend performance and a carbon/polyimide coating with a diameter of only 100 μm , making it the smallest diameter fiber offered by OFS. Carbon is a very thin undercoat (only a few hundred Angstroms thick) that provides a hermetic barrier and greatly extends the lifetime of fibers that experience high humidity environments. The carbon is followed by a polyimide coating that allows wide temperature performance of -65 to +300°C continuous operation. See our full line of ClearLite Specialty Coated Photonic Fibers for additional coated fibers with 125 μm cladding.

Typical Applications**Micro 1550 17 GyroSil Fiber:**

- Gyroscopes and sensors
- Integrated photonic devices and components

Micro 1550 21 Fiber:

- Small form sensors and devices that will experience exceptional environments
- Oil and gas applications
- Military cables

Features and Benefits

- 80 μm cladding with a choice of coatings:
 - 130 μm single-coat urethane acrylate for easy strippability and slim form
 - 100 μm carbon and PYROCOAT™ for -65 to +300°C temperature range and hermeticity
- Choice of NAs: 0.17 and 0.21
- Choice of mode field diameters: 7.5 and 6.0 μm

Related Products & Capabilities

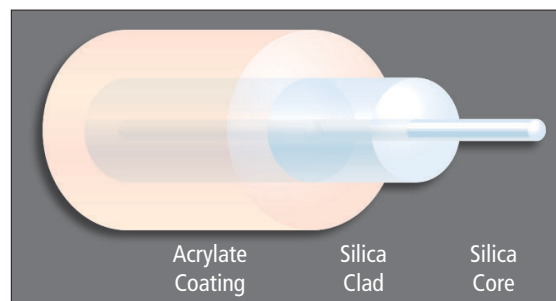
- ClearLite Micro Photonic fibers are available in a variety of wavelengths.
- For use at 1550 nm wavelength, we also offer polarization-maintaining and full-size OD fibers.
- ClearLite 1310 Micro Photonic fibers may also be used at the 1550 nm wavelength for certain applications.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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OFS Specialty Photonics Division

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www.SpecialtyPhotonics.com

Fiber Specifications

Optical Properties	CL MICRO 1550 17 GyroSil	CL MICRO 1550 21
Operating wavelength	1550 nm	1550 nm
Cutoff wavelength	≤1500 nm	≤1500 nm
Mode field diameter @ 1550 nm	7.5 ± 0.75 μm	6.0 ± 0.75 μm
Attenuation @ 1550 nm	≤0.70 dB/km	≤1.0 dB/km
Numerical aperture (nominal)	0.17	0.21
Dimensions/Geometric Properties		
Core diameter (nominal)	6.5 μm	5.3 μm
Clad diameter	80 ± 2 μm	80 ± 2 μm
Coating/buffer diameter	130 ± 4 μm	100 ± 4 μm
Clad non-circularity	≤2.0%	≤2.0%
Core/clad offset	≤0.75 μm	≤0.75 μm
Coating/Buffer Descriptions		
Coating material	Single UV Acrylate	Carbon/PYROCOAT
Operating temperature	-40 to +85°C	-65 to +300°C
Mechanical and Testing Data		
Short-term bend radius	≥7 mm	≥5 mm
Long-term bend radius	≥11 mm	≥6 mm
Proof test level	≥100 kpsi (0.689 GPa)	≥150 kpsi (1.034 GPa)
Product Description Code	SMM-E1550A	SMM-G1550JZ
Order by Part Number	BF06159	F9697-03

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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

GeoFibers

GEO 1310 11 AND GEO 1310 16



Leading Optical Innovations

Product Description

Single-mode GeoFibers are designed for use in geophysical applications at the dual wavelengths of 1310/1550 nm. They are offered with two different numerical apertures (NA) of 0.11 and 0.16. In general, fibers with higher NA have enhanced optical bend performance. The 0.11 NA is the standard for fibers deployed linearly and the 0.16 fiber performs well in coiled sensors or inside sensors with small bend radii. OFS is vertically integrated and manufactures fiber preforms using the OFS patented MCVD process. GeoFibers are protected with the dual carbon/polyimide coating system for optimal performance in down-hole deployment.

Primary Coating. Years of highly specialized experience and research have gone into designing these optical fibers and applying the customized coating combinations that enable their use in harsh environments. The first line of defense is a very thin primary coating of carbon that chemically bonds with the glass to provide a hermetic seal against moisture at all temperatures. Carbon dramatically extends the lifetime of the fiber by stopping fiber “fatigue” (crack growth activated by water vapor). Carbon has the additional feature of providing a barrier against H₂ ingress at temperatures up to 130°C.

Secondary Coatings. OFS recommends a secondary coating of PYROCOAT polyimide, a high-temperature material that allows fiber to perform in environments ranging up to 300°C. It is applied in a thin, continuous coating during the draw process and gives the fiber an outer diameter (OD) of only 155 μm.

Typical Applications

- Data links
- Single-mode sensors
- Down-hole deployment
- Above-ground well networking
- Raman back-scattering

Features and Benefits

- Tough glass for harsh environments
- Wavelength performance at both 1310 and 1550 nm
- Choice of NAs: 0.11 and 0.16
- High survivability in water, high temperatures, high pressure, and active chemical environments
- Abrasion resistant
- Long lengths up to 14 km

Related Products & Capabilities

- See our full line of ClearLite Specialty Coated fibers in a variety of wavelengths.
- Other fibers are available at 1310 nm wavelength without specialty coatings.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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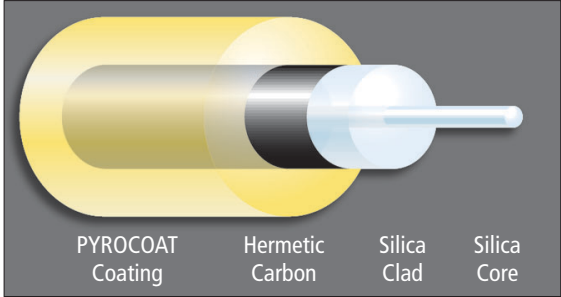
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Fiber Specifications

Optical Properties	GEO 1310 11	GEO 1310 16
Operating wavelength	1310/1550 nm	1310/1550 nm
Cutoff wavelength	≤1290 nm	≤1290 nm
Mode field diameter @ 1310 nm	9.3 ± 0.5 μm	6.7 ± 1.0 μm
Mode field diameter @ 1550 nm	10.5 ± 1.0 μm	7.5 ± 1.0 μm
Attenuation @ 1310 nm	≤0.7 dB/km	≤0.8 dB/km
Attenuation @ 1550 nm	≤0.6 dB/km	≤0.6 dB/km
Numerical aperture (nominal)	0.11	0.16
Dimensions/Geometric Properties		
Core diameter (nominal)	8.4 μm	6.3 μm
Clad diameter	125 ± 2 μm	125 ± 2 μm
Coating diameter	155 ± 5 μm	155 ± 5 μm
Clad non-circularity	<2.0%	<2.0%
Coating concentricity	≥80%	≥80%
Core/clad offset	≤1.0 μm	≤1.0 μm
Coating/Buffer Descriptions		
Coating material	Hermetic Carbon/PYROCOAT	Hermetic Carbon/PYROCOAT
Operating temperature	-65 to +300°C	-65 to +300°C
Mechanical and Testing Data		
Short-term bend radius	≥4 mm	≥4 mm
Long-term bend radius	≥4 mm	≥4 mm
Proof test level	≥200 kpsi (1.38 GPa)	≥200 kpsi (1.38 GPa)
Product Description Code	SMT-A1310JZ	SMB-D1310JZ
Order by Part Number	BF05717	F9001-01



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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite Specialty Coated Photonic Fibers**CL CARBON/POLY 1310 11 and CL POLY 1310 11**

Leading Optical Innovations

Product Description

Designed for performance in exceptional environments, these fibers operate at the standard transmission wavelengths of 1310 and 1550 nm.

Both of these fibers are coated with PYROCOAT™ polyimide coating that allows wide temperature performance of -65 to +300°C. Polyimide is a thin coating and is applied to a thickness of only 15 µm on a 125 µm cladding. This gives a coated fiber outer diameter (OD) of 155 µm, as opposed to a standard 250 µm OD for dual acrylate coatings. Both fibers feature a matched clad design with 0.11 NA and large MFDs of 9.3/10.5 µm at the opening wavelengths.

Carbon/Poly 1310-11 also has a base coating of carbon beneath the PYROCOAT coating to provide hermetic protection to the fiber. Most optical fiber breaks originate in microscopic cracks on the fiber surface that propagate over time due to the destructive effects of water vapor. These breaks can be significantly reduced by the

presence of the carbon layer, which provides a hermetic seal on the fiber. The carbon layer is only a few hundred Angstroms thick, but greatly enhances the N-value, or life-time, of the fiber.

Typical Applications

- Oil and gas applications
- High-temperature environments
- High application stress and tight coil applications
- High humidity environments

Features and Benefits

- Temperature performance of -65 to +300°C continuous operation
- Enhanced fiber lifetime
- 125 µm cladding with a choice of thin coating for smaller packages: 155 µm PYROCOAT polyimide or 155 µm Carbon/PYROCOAT
- Large MFD for mode matching with standard fibers

Related Products & Capabilities

- ClearLite specialty coated photonic fibers are available in a variety of wavelengths.
- Other fibers are available at 1310 nm without specialty coatings.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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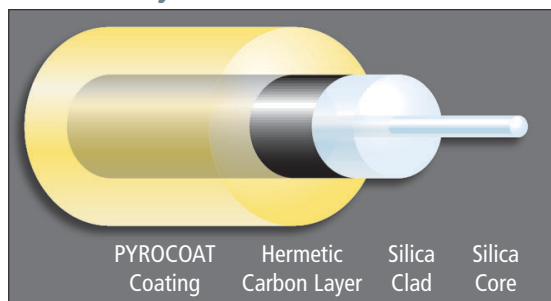
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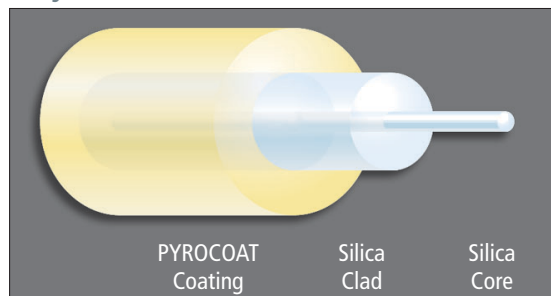
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www.SpecialtyPhotonics.com**Carbon/Poly 1310 11**

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Poly 1310 11

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Fiber Specifications

Optical Properties	CL CARBON/POLY 1310 11	CL POLY 1310 11
Operating wavelength	1310/1550 nm	1310/1550 nm
Cutoff wavelength	≤1290 nm	≤1290 nm
Mode field diameter @ 1310 nm	9.3 ± 0.5 μm	9.3 ± 0.5 μm
Mode field diameter @ 1550 nm	10.5 ± 1.0 μm	10.5 ± 1.0 μm
Attenuation @ 1310 nm	≤0.70 dB/km	≤0.70 dB/km
Attenuation @ 1550 nm	≤0.60 dB/km	≤0.60 dB/km
Numerical aperture (nominal)	0.11	0.11
Dimensions/Geometric Properties		
Core diameter (nominal)	8.4 μm	8.4 μm
Clad diameter	125 ± 2 μm	125 ± 2 μm
Coating/buffer diameter	155 ± 5 μm	155 ± 5 μm
Clad non-circularity	≤2.0%	≤2.0%
Core/clad offset	≤1.0 μm	≤1.0 μm
Coating/Buffer Descriptions		
Coating material	Carbon/PYROCOAT	PYROCOAT
Operating temperature	-65 to +300°C	-65 to +300°C
Mechanical and Testing Data		
Short-term bend radius	≥8 mm	≥10 mm
Long-term bend radius	≥10 mm	≥17 mm
Proof test level	≥100 kpsi (1.38 GPa)	≥100 kpsi (1.38 GPa)
Product Description Code	SMT-A1310J	SMT-A1310H
Order by Part Number	BF04447	BF04446

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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite Specialty Coated Photonic Fibers**CL CARBON ACRYLATE 1310 16**

Leading Optical Innovations

Product Description

OFS offers this fiber for high performance in exceptionally humid environments. The carbon is applied as a base coating to provide hermetic protection to the fiber. Most optical fiber breaks originate in microscopic scratches on the fiber surface and propagate over time due to the destructive effects of water vapor. These breaks can be significantly reduced by the presence of the carbon layer which provides a hermetic seal on the fiber. The carbon layer is only a few hundred Angstroms thick, but greatly enhances the n-value, or lifetime, of the fiber. Carbon is also resistant to most chemicals. The standard dual acrylate coating is applied over the carbon and allows easy strippability and a standard coated fiber diameter of 245 μm . The fiber's high NA of 0.16 allows for good bend performance across the dual operating wavelengths of 1310 and 1550 nm.

A full range of NAs is available with various specialty coatings for other applications.

Typical Applications

- High humidity environments
- Long lifetime requirements
- Military applications
- High application stress and tight coil applications

Features and Benefits

- Extended fiber lifetime
- Easy strippability
- High NA 0.16 for good bend performance
- 125 μm cladding/250 μm Carbon/dual-coat acrylate

Related Products & Capabilities

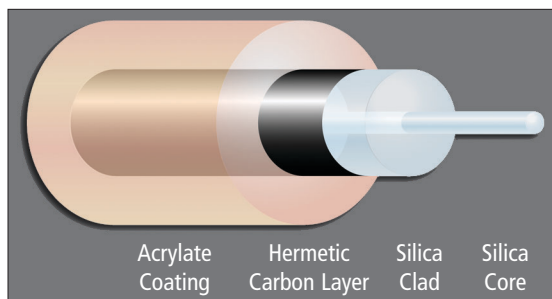
- ClearLite Micro Photonic fibers are available in a variety of wavelengths.
- Other fibers are available at 1310 nm without specialty coatings.
- For higher-temperature applications, see other ClearLite fibers coated with PYROCOAT polyimide.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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Fiber Specifications

Optical Properties

CL CARBON ACRYLATE 1310 16

Operating wavelength	1310/1550 nm
Cutoff wavelength	≤1310 nm
Mode field diameter @ 1310 nm	6.7 ± 1.0 μm
Mode field diameter @ 1550 nm	7.5 ± 1.0 μm
Attenuation @ 1310 nm	≤0.75 dB/km
Numerical aperture (nominal)	0.16

Dimensions/Geometric Properties

Core diameter (nominal)	6.0 μm
Clad diameter	125 ± 2 μm
Coating/buffer diameter	250 ± 15 μm
Clad non-circularity	≤2%
Core/clad concentricity	≤1.0 μm

Coating/Buffer Descriptions

Coating material	Carbon/Dual Acrylate
Operating temperature	-40 to +85°C

Mechanical and Testing Data

Short-term bend radius	≥4 mm
Long-term bend radius	≥4 mm
Proof test level	≥200 kpsi (1.38 GPa)

Order by Part Number

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SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite Specialty Coated Photonic Fibers

CL POLY 1310 21 and CL POLY 1550 17



Leading Optical Innovations

Product Description

Designed for performance in exceptional environments, OFS offers two PYROCOAT polyimide coated, high NA fibers, one operating at 1550 nm and the other at both 1310 and 1550 nm.

PYROCOAT polyimide allows wide temperature performance of -65 to +300°C. Polyimide is a thin coating and is applied to a thickness of only 15 µm on a 125 µm cladding. This gives a coated fiber outer diameter (OD) of 155 µm, as opposed to a standard 250 µm OD for dual acrylate coatings. The thin coating coupled with the high NAs of 0.17 and 0.21 allow these fibers to have excellent bend performance.

Typical Applications

- Military applications
- Oil and gas applications
- High-temperature environments
- High application stress and tight coil applications

Features and Benefits

- Temperature performance of -65 to +300°C continuous operation
- Thin-coated fiber diameter (155 µm) for smaller packages

Related Products & Capabilities

- Also available with a base carbon coating in 80 µm cladding . . . See ClearLite Micro photonic fibers.
- See other available ClearLite fibers for use at 1310 and/or 1550 nm.

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

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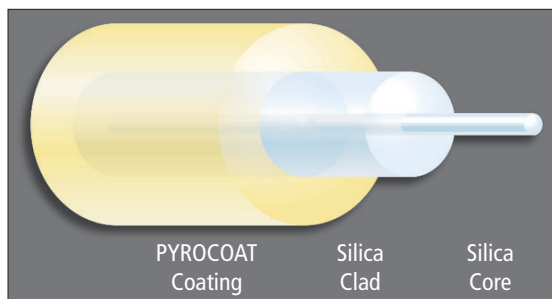


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Fiber Specifications

Optical Properties	CL POLY 1310 21	CL POLY 1550 17
Operating wavelength	1310/1550 nm	1550 nm
Cutoff wavelength	≤1290 nm	≤1500 nm
Mode field diameter @ 1310 nm	5.1 ± 0.5 μm	n/a
Mode field diameter @ 1550 nm	5.8 ± 0.5 μm	7.5 ± 0.5 μm
Attenuation @ primary operating wavelength	≤0.70 dB/km	≤0.70 dB/km
Numerical aperture (nominal)	0.21	0.17
Dimensions/Geometric Properties		
Core diameter (nominal)	4.6 μm	6.5 μm
Clad diameter	125 ± 2 μm	125 ± 2 μm
Coating/buffer diameter	155 ± 5 μm	155 ± 5 μm
Clad non-circularity	≤2.0%	≤2.0%
Core/clad concentricity	≤1.0 μm	≤1.0 μm
Coating/Buffer Descriptions		
Coating material	PYROCOAT	PYROCOAT
Operating temperature	-65 to +300°C	-65 to +300°C
Mechanical and Testing Data		
Short-term bend radius	≥10 mm	≥10 mm
Long-term bend radius	≥17 mm	≥17 mm
Proof test level	≥100 kpsi (1.38 GPa)	≥100 kpsi (1.38 GPa)
Product Description Code	SMB-G1310H	SMB-E1550H
Order by Part Number	BF06160-02	BF06158-02

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0505

SPECIALTY SINGLE-MODE FIBER

Specification Sheet

ClearLite Short Wavelength Photonic Fibers

CL 630 11, CL 780 11, and CL 820 16



Leading Optical Innovations

Product Description

OFS Short Wavelength Photonic Fibers are differentiated by operating wavelength. Offered in a standard size 125 μm core with 245 μm dual-acrylate coating, these fibers perform in a wide variety of applications, some requiring visible light.

Light sources for these fibers can be LEDs, laser diodes, visible lamps, or gas lasers.

Typical Applications

- Short wavelength laser and LED sources
- Sensors and communication systems
- Non-telco fused fiber couplers (printing and medical)
- Component fiber for EDFAs, couplers, and other DWDM components

Features and Benefits

- Consistent optical, geometric, and mechanical properties
- Low price

Related Products & Capabilities

- Hytrel or ETFE upjacketing for extra protection in laboratory environments.
- Preterminated jumpers
- Metalized pigtailling

Ask us about options available for these fibers:

- Cabling**
- Connectorization**
- Metalization**
- Additional Coatings**
- Other Upgrades**

To order items on this spec sheet, please contact our facility in:

- Avon, Connecticut
1-860-678-0371
1-888-438-9936 toll free
(USA and Canada only)
Fax 1-860-674-8818
- or by email inquiry to:
Info@SpecialtyPhotonics.com

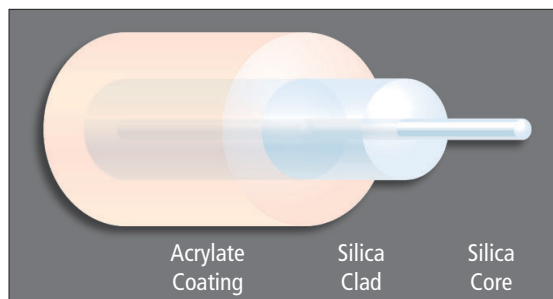


Leading Optical Innovations

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Drawing not to scale

Fiber Specifications

Single-Mode

Optical Properties	CL 630 11	CL 780 11	CL 820 16
Operating wavelength	630 nm	780 nm	820 nm
Cutoff wavelength	580 ± 40 nm	730 ± 40 nm	770 ± 40 nm
Mode field diameter @ operating wavelength	4.3 ± 1.0 μm	5.4 ± 1.0 μm	4.1 ± 1.0 μm
Attenuation @ operating wavelength	≤12.0 dB/km	≤4.0 dB/km	≤5.0 dB/km
Numerical aperture (nominal)	0.11	0.11	0.16
Refractive index of primary coat	1.54	1.54	1.54
Refractive index of secondary coat	1.53	1.53	1.53
Dimensions/Geometric Properties			
Core diameter (nominal)	3.9 μm	4.9 μm	3.7 μm
Clad diameter	125 ± 2 μm	125 ± 2 μm	125 ± 2 μm
Coating diameter	245 ± 15 μm	245 ± 15 μm	245 ± 15 μm
Clad non-circularity	≤2.0%	≤2.0%	≤2.0%
Core/clad concentricity	≤1.0 μm	≤1.0 μm	≤1.0 μm
Coating/Buffer Descriptions			
Coating material	Dual UV Acrylate	Dual UV Acrylate	Dual UV Acrylate
Operating temperature	-40 to +85°C	-40 to +85°C	-40°C to +85°C
Mechanical and Testing Data			
Short-term bend radius	≥10 mm	≥10 mm	≥10 mm
Long-term bend radius	≥17 mm	≥17 mm	≥17 mm
Proof test level	≥100 kpsi (0.689 GPa)	≥100 kpsi (0.689 GPa)	≥100 kpsi (0.689 GPa)
Product Description Code	SMC-A0630B	SMT-A0780B	SMB-D0820B
Order by Part Number	CF04247-02	CF04247-03	CF04246 04

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