

# SM FIBER FOR VISIBLE RGB THROUGH TO NEAR IR



Fibercore's range of specialty single-mode (SM) fibers are designed to offer customers the best choice of fiber for their application without the performance sacrifices that would be experienced by using standard telecoms fibers.

These specialty fibers are available with medium and high numerical aperture (NA) to give dramatically reduced bend losses in comparison with telecoms fibers. This allows smaller packaging sizes to be achieved, particularly useful for coiled sensors and the next generation small form factor telecoms equipment.

The reduced cladding diameter fibers are designed to reduce static fatigue when the fiber is coiled, giving a longer mechanical lifetime in small coil diameters. Reduced cladding diameter fibers are offered with a high NA to benefit both from improved bend losses and improved mechanical lifetime when coiled tightly.

## FEATURES

### Advantages

- Designs optimized for visible to near-Infrared (IR) transmission
- High NA variants for extremely low macro and micro bend losses
- Reduced cladding options for high reliability coils and reduced package volume
- Photosensitive core designs for Fiber Bragg Grating (FBG) inscription
- 'Bridging Fibers' for reduced splice losses between standard SM fiber and reduced core or cladding diameter sensor fibers

### Typical Applications:

- Hydrophones
- Geophones
- Down-link fibers
- FBGs
- DTS/DAS/DSS
- Laser Diode Pigtailed
- Biomedical Illumination

### Product Variants

- SM450
- SM600
- SM750
- SM800(5.6/125)
- SM980(3.7/125)
- SM980(4.5/125)
- SM980(5.8/125)
- SM1500(4.2/125)
- SM1500(6.4/125)
- SM1500(7.8/125)
- SM1500(9/125)
- SM1500ES(3/125)
- SM800(4.2/80)
- SM980(4.5/80)
- SM1250(5.4/80)
- SM1250(9/90)
- SM1500(4.2/50)
- SM1500(4.2/80)
- SM1500(5.3/80)
- SM1500(6.4/80)
- SM1500(7.8/80)

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# SPECIFICATIONS

## 125µm diameter SM specialty fibers

	SM450	SM600	SM750	SM800 (5.6/125)	SM980 (3.7/125)	SM980 (4.5/125)	SM980 (5.8/125)
Operating Wavelength (nm)	488 - 633	633 - 780	780 - 830	830 - 980	980 - 1550		
Cut-Off Wavelength (nm)	350 - 450	500 - 600	610 - 750	660 - 800	870 - 970		
Numerical Aperture	0.10 - 0.14				0.21 - 0.23	0.17 - 0.19	0.13 - 0.15
Mode Field Diameter (µm)	2.8 - 4.1 @488nm	3.6 - 5.3 @633nm	4.4 - 6.5 @780nm	4.7 - 6.9 @830nm	3.4 - 4.0 @980nm	4.2 - 4.9 @980nm	5.3 - 6.4 @980nm
Attenuation (dB/km)	≤50 @488nm	≤15 @633nm	≤5.0 @780nm	≤5.0 @830nm	≤2.0 @980nm		
Proof Test (%)	1, 2 or 3 (100, 200 or 300 kpsi)						
Cladding Diameter (µm)	125 ± 1						
Core Cladding Concentricity (µm)	≤0.75	≤1.0			≤0.50		
Coating Diameter (µm)	245 ± 7						
Coating Type	Dual Acrylate						
Operating Temperature (°C)	-55 to +85						

	SM1500(4.2/125)	SM1500(6.4/125)	SM1500(7.8/125)	SM1500(9/125)
Operating Wavelength (nm)	1520 - 1650			
Cut-Off Wavelength (nm)	1350 - 1520			1300 - 1500
Numerical Aperture	0.29 - 0.31	0.19 - 0.21	0.15 - 0.17	0.13 - 0.15
Mode Field Diameter (µm)	4.0 - 4.5 @1550nm	6.0 - 6.8 @1550nm	7.4 - 8.6 @1550nm	8.5 - 9.9 @1550nm
Attenuation (dB/km)	≤1.5 @1550nm	≤0.5 @1550nm	≤0.4 @1550nm	≤0.35 @1550nm
Proof Test (%)	1, 2 or 3 (100, 200 or 300 kpsi)			
Cladding Diameter (µm)	125 ± 1			
Core Cladding Concentricity (µm)	≤0.50	≤0.75		≤0.40
Coating Diameter (µm)	245 ± 7			
Coating Type	Dual Acrylate			
Operating Temperature (°C)	-55 to +85			

Specifications continued on next page.

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# SPECIFICATIONS CONTINUED

## Silicon photonic fiber

	SM1500ES(3/125)
Operating Wavelength (nm)	1510 - 1650
Cut-Off Wavelength (nm)	1400 - 1500
Numerical Aperture	0.38 - 0.42
Mode Field Diameter (μm)	3.0 - 3.4 @1550nm
Attenuation (dB/km)	≤30 @1550nm
Proof Test (%)	1 (100 kpsi)
Cladding Diameter (μm)	125 ± 1
Core Cladding Concentricity (μm)	≤0.3
Coating Diameter (μm)	245 ± 7
Coating Type	Dual Acrylate
Operating Temperature (°C)	-55 to +85

## Reduced diameter SM specialty fibers

	SM800(4.2/80)	SM980(4.5/80)	SM1250(5.4/80)	SM1250(9/80)
Operating Wavelength (nm)	830 - 980	980 - 1550	1310 - 1550	
Cut-Off Wavelength (nm)	660 - 800	870 - 970	1150 - 1250	
Numerical Aperture	0.14 - 0.18	0.17 - 0.19	0.19 - 0.21	0.11 - 0.13
Mode Field Diameter (μm)	3.7 - 4.9 @830nm	4.2 - 4.9 @980nm	5.0 - 5.7 @1310nm	8.2 - 9.9 @1310nm
Attenuation (dB/km)	≤3.0 @830nm	≤2.0 @980nm	≤1.0 @1310nm	≤2.0 @1310nm
Proof Test (%)	1, 2 or 3 (100, 200 or 300 kpsi)			
Cladding Diameter (μm)	80 ± 1			
Core Cladding Concentricity (μm)	≤0.50			
Coating Diameter (μm)	170 ± 5			
Coating Type	Dual Acrylate			
Operating Temperature (°C)	-55 to +85			

Specifications continued on next page.

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## SPECIFICATIONS CONTINUED

	SM1500 (4.2/50)	SM1500 (4.2/80)	SM1500 (5.3/80)	SM1500 (6.4/80)	SM1500 (7.8/80)
Operating Wavelength (nm)	1520 - 1650				
Cut-Off Wavelength (nm)	1350 - 1520				
Numerical Aperture	0.29 - 0.31		0.23 - 0.25	0.19 - 0.21	0.15 - 0.17
Mode Field Diameter (μm)	4.0 - 4.5 @1550nm		5.0 - 5.6 @1550nm	6.0 - 6.8 @1550nm	7.4 - 8.6 @1550nm
Attenuation (dB/km)	≤2.0 @1550nm	≤1.5 @1550nm	≤0.8 @1550nm	≤0.5 @1550nm	≤0.35 @1550nm
Proof Test (%)	1, 2 or 3 (100, 200 or 300 kpsi)				
Cladding Diameter (μm)	50 ± 1	80 ± 1			
Core Cladding Concentricity (μm)	≤0.50				
Coating Diameter (μm)	110 ± 6	170 ± 5			
Coating Type	Single Acrylate	Dual Acrylate			
Operating Temperature (°C)	-55 to +85				

## RELATED PRODUCTS

- Polyimide Coated SM Fiber
- High Temperature Acrylate Coated Fiber
- Pure Silica Core SM Fiber
- Photosensitive Fiber

**Fibercore** House | Southampton Science Park  
 United Kingdom | SO16 7QQ  
 T +44 (0)23 8076 9893 | E [info@fibercore.com](mailto:info@fibercore.com)

[fibercore.com](http://fibercore.com)