

## Fiberoptic Cable

# *SM Optical Fiber Specifications*

## Single Mode Fibers - Standard Specifications <sup>(1)</sup>

Parameter	Standard per ITU-T G.652D IEC 60793-2-50 B1.3	NZDS per ITU-T G.655 IEC 60793-2-50 B4	Bend-Insensitive ITU-T G.657A IEC 60793-2-50 B6_a	Units
<b>Fiber Code</b>	<b>9</b>	<b>8</b>	<b>I</b>	
Attenuation, Loose Tube Cables:				
@ 1310 nm	≤ 0.35		≤ 0.35	dB/km
@ 1550 nm	≤ 0.22	≤ 0.22	≤ 0.22	
@ 1625 nm	≤ 0.25	≤ 0.26	≤ 0.25	
Attenuation, Tight Buffer Cables:				
@ 1310 nm	≤ 0.38	-	≤ 0.50	dB/km
@ 1550 nm	≤ 0.28	-	≤ 0.50	
Dispersion: between 1285 and 1330 nm (O Band)	≤ 3.5	NA	≤ 3.5	ps/ (nm*km)
between 1460 and 1530 nm (S Band)	-	(2)	-	
between 1530 and 1565 nm (C Band)	≤ 18	2 – 6 <sup>(3)</sup>	≤ 18	
between 1565 and 1625 nm (L Band)	≤ 22	4.5 – 11.2 <sup>(3)</sup>	≤ 22	
Zero Dispersion Wavelength	1312±12	< 1520	1312±12	nm
Mode Field Diameter @ 1310 nm	9.2±0.4	NA	8.9±0.4	μm
@ 1550 nm	10.4±0.6	9.6±0.6	9.9±0.5	
Cable Cut-Off Wavelength	≤1260	≤1480	≤1260	nm
PMD (Individual fiber)	≤ 0.2	≤ 0.1	≤ 0.2	ps/km <sup>1/2</sup>
Cladding Diameter	125±0.7	125±0.7	125±0.7	μm
Core/Cladding Concentricity Error	≤ 0.5	≤ 0.5	≤ 0.5	μm
Cladding Non-Circularity	≤1.0	≤1.0	≤1.0	%
Coating Diameter (un-dyed)	245±5	245±5	245±5	μm
Proof-Test Level	0.7	0.7	0.7	GN/m <sup>2</sup>
Induced Macrobend @ 1550nm – 1 turn around a 7.5 mm mandrel			0.5	dB

1. For other fiber types

2. Non-standard range. Dispersion is typically negative.

3. Tighter dispersion tolerances may be available

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# MM Optical Fiber Specifications

## Multi Mode Fibers - Standard Specifications <sup>(1)</sup>

Parameter	50/125 $\mu\text{m}$			62.5/125 $\mu\text{m}$	Units
	5	4	3	6	
<b>Fiber Code</b>	5	4	3	6	
ISO/IEC 11801 Performance Category	OM2 <sup>(2)</sup>	OM3 <sup>(3)</sup>	OM4 <sup>(4)</sup>	OM1	
Attenuation, Loose Tube Cables:					
@ 850 nm	$\leq 2.8$			$\leq 3.2$	dB/km
@ 1300 nm	$\leq 0.9$			$\leq 1.0$	
Attenuation, Tight Buffer and Semi-Tight Cables:					
@ 850 nm	$\leq 3.0$			$\leq 3.5$	dB/km
@ 1300 nm	$\leq 1.0$			$\leq 1.0$	
OFL Bandwidth <sup>(5)</sup> @ 850 nm	$\geq 500$ <sup>(6)</sup>	$\geq 1500$	$\geq 3500$	$\geq 200$	MHz•km
@ 1300 nm	$\geq 800$ <sup>(6)</sup>	$\geq 500$	$\geq 500$	$\geq 600$	
Effective Modal Bandwidth@ 850nm		$\geq 2000$	$\geq 4700$ <sup>(7)</sup>		
Numerical Aperture	0.20 $\pm$ 0.015			0.275 $\pm$ 0.015	
Core Diameter	50 $\pm$ 2.5			62.5 $\pm$ 3	$\mu\text{m}$
Cladding Diameter	125 $\pm$ 2			125 $\pm$ 1	$\mu\text{m}$
Core Non Circularity	$\leq 4$			$\leq 5$	%
Cladding Non-Circularity	$\leq 0.7$			$\leq 1$	%
Core/Cladding Offset	$\leq 1.5$			$\leq 1.5$	$\mu\text{m}$
Coating Diameter (Un-dyed)	245 $\pm$ 10			245 $\pm$ 10	$\mu\text{m}$
Proof-Test Level	0.7			0.7	GN/m <sup>2</sup>

1. For other fiber specification, consult the Sales Department
2. As per IEC 60793-2-10 type A1a.1 and TIA 492AAAB
3. As per IEC 60793-2-10 type A1a.2 and TIA 492AAAC
4. As per IEC 60793-2-10 type A1a.3 and TIA 492AAAD
5. As per IEC 60794-1-41 and TIA/EIA 455-204
6. A 600/1200 MHz.km fiber is also available as a standard.
7. As per TIA 492AAAD