



Member of LEONI Group

## OptiGrade 150 / OptiGrade 200

### Laser Optimized Graded Index Multimode Fiber

With OptiGrade 150 / OptiGrade 200 Multimode Fiber series for short distances j-fiber offers an enhanced 50/125 Multimode fiber for the high-speed network protocols and transmission rates. OptiGrade 150 / OptiGrade 200 Multimode fiber series for short distances support 10 Gb/s serial transmission up to 150 m and 200 m in the 850 nm wavelength range. The ideal solution to provide low cost, short-reach connectivity for Storage Area Networks (SAN) high speed interconnects for central offices and data centers as well as for various interconnections in IT networks for distances up to 200 m.

OptiGrade 150 / OptiGrade 200 fibers are fully compatible with the installed fiber base of conventional 50  $\mu$ m Multimode fiber (Legacy Local Area Networks) and j-fiber's entire line of high-performance 50  $\mu$ m Multimode fiber. While optimized for 10 Gb/s performance @ 850 nm (SX) serial applications, OptiGrade 150 / OptiGrade 200 fiber also exceeds industry standards at lower speed network protocols.

### Benefits

- High-Performance Multimode fibers for guaranteed 10 Gb/s Ethernet serial transmission over distances of 150 m and 200 m
- Effective Modal Bandwidth (EMB) from 1000 up to 1400 MHz-km @ 850 nm and 500 MHz-km @ 1300 nm
- Provides high performance at overfilled launch (OFL) bandwidth  $\geq$  750 MHz-km @ 850 nm and 500 MHz-km @ 1300 nm to support conventional applications
- Guarantees reliable system performance with most stringent DMD characterization
- Guarantees all j-fiber Multimode fiber standard features: easy to work with in cabling and installation and high-performance results; fully compatible with installed fiber base

### Standardization and Compliances for OptiGrade OM3

- IEC 60793-2-10
- ITU G651.1
- TIA/EIA 492AAAB-A

For further information about our Multimode Fibers and other j-fiber products and services, please contact us:

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## Performance Characteristics

OptiGrade Class		150	200	Unit
Bandwidth (Overfilled Launch)	850nm	≥ 750	≥ 1000	MHz·km
	1300nm	≥ 500	≥ 500	MHz·km
Effective Modal Bandwidth (EMB) <sup>1</sup>	850nm	≥ 1000	≥ 1500	MHz·km
Transmission Link Lengths for 1 Gb/s	850nm	750	750	m
	1300nm	600	600	m
Transmission Link Lengths for 10 Gb/s <sup>1</sup>	850nm	150	200	m
	1300nm	300	300	m

<sup>1</sup> 850 nm operating wavelength with transmitters meeting encircled flux of ≤ 30% @ radius 4.5 μm and ≥ 86 % @ radius 19.0 μm.

## Optical Characteristics

		Spec. Values	Unit
Attenuation Coefficient <sup>1</sup>	850nm	≤ 2.4	dB/km
	1300nm	≤ 0.7	
Attenuation @ 1383 nm (OH-Peak)		< 2.0	dB/km
Attenuation Discontinuities (OTDR 1300 nm)		< 0.05	dB
Chromatic dispersion			
Zero Dispersion Wavelength $\lambda_0$		1295 ≤ $\lambda_0$ ≤ 1340	nm
Zero Dispersion Slope, $S_0$	– from 1295 ≤ $\lambda_0$ ≤ 1310	≤ 0.105	ps/nm <sup>2</sup> ·km
	– from 1310 ≤ $\lambda_0$ ≤ 1340	≤ 0.000375·(1590- $\lambda_0$ )	ps/nm <sup>2</sup> ·km
Macrobend loss <sup>2</sup>	850nm	0.5	dB
	1300nm	0.5	dB
Numerical Aperture		0.200 ± 0.015	
Effective Group Index of Refraction	850nm	1.483	
	1300nm	1.478	

<sup>1</sup> Special attenuation values available upon request

<sup>2</sup> Mandrel radius 37,5mm, Number of turns 100.

## Geometrical Characteristics

	Spec. Values	Unit
Core Diameter	50 ± 2.5	μm
Core Non-Circularity	≤ 5.0	%
Core/Clad Concentricity Error	≤ 1.5	μm
Cladding Diameter	125 ± 1.0	μm
Cladding Non-Circularity	≤ 1.0	%
Coating Diameter	242 ± 7	μm
Coating /Clad Concentricity Error	≤ 10	μm
Available Lengths	1.1-8.8	km

## Mechanical Characteristics

	Spec. Values	Unit
Proof Test	≥ 0.69	GPa
	≥ 8.8	N
Dynamic Tensile Strength Unaged Fiber (0.5 m)		
	≥ 3.8	GPa
Median Tensile Strength 15th Percentile Tensile Strength Aged Fiber (0.5 m)	≥ 3.3	GPa
Median Tensile Strength 15th Percentile Tensile Strength	≥ 3.03	GPa
	≥ 2.76	GPa
Dynamic Fatigue Stress	≥ 23	
Corrosion Parameter $n_d$ (typical)		
Operating Temperature Range	-60 to +85	°C
Coating Strip Force (typical)	1.9	N

## Environmental Characteristics

	Spec. Values	Unit
	850/1300 nm	
Change of Temperature Attenuation increase, -60°C to +85°C	≤ 0.1	dB/km
Dry Heat Attenuation increase, 30 days @ 85°C	≤ 0.1	dB/km
Damp Heat Attenuation increase, 30 days @ 85°C/85% R.H.	≤ 0.1	dB/km
Water Immersion Attenuation increase, 30 days in 23°C water	≤ 0.1	dB/km

## Coating

j-fiber Multimode optical fiber is protected with our enhanced coating material that guarantees long-term performance and reliability. The dual-layer acrylate material is user-friendly and compatible in all cable constructions, such as tight buffer and loose tube designs with low bending loss. Optimized for multimode fiber, the coating shows lowest microbending sensitivity. The coating is mechanically strippable and leaves no residue. Coating options for special applications are available on request.

## Spool Size

	Size
Spool diameter	9.25"/23.5 cm
Spool width	4.21"/10.7 cm
Spindle	1"/2.54 cm
Traverse width	3.75"/9.5 cm

### 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.

All reels and transport boxes are designed to take advantage of our recycling program.

### Ordering Information

To order our OptiGrade optical fibers please call, fax or email us and specify the following parameters when ordering:

Fiber Type:	OptiGrade Multimode Fiber 50/125/242 $\mu\text{m}$
Desired Performance:	OptiGrade Class
Desired Attenuation:	at 850 nm/1300 nm
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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