

GigaGrade Multimode Fiber 50/125

j-fiber's 50µm Multimode fiber solution with an extensive performance value range to allow for most flexible high data volume transmission at short to medium distances in Local Area Network applications.

GigaGrade 50/125 fiber is specified for use in high-speed laser-based network protocols as well as networks using LED as light source. They support fiber-optic network protocols such as Gigabit Ethernet, ATM, Fast Ethernet and lower bit rate networks used in Local Area Networks (LAN), Storage Area Networks (SAN), high-speed parallel interconnects for central offices and local access networks. Based on the desired wiring application the fiber value range also includes short reach 10Gb/s capability for distances up to 150 meters.

The fiber fits perfectly for transmission in backbone, riser and horizontal wiring applications.

Benefits

- Customized bandwidth and link length combinations available for specific applications
- Highest performance meeting/exceeding current industry standards for Gigabit Ethernet, Fiber Channel, FDDI (Fiber Distributed Data Interface), ATM (Asynchronous Transfer Mode)
- Optimized for use in 850nm and 1300nm applications with lowest attenuation and highest bandwidth range available today
- High link lengths for 1Gb/s data rate transmission up to 2000m and 10Gb/s data rate transmission up to 150m available
- High flexible low cost solution to migrate from LEDs to lasers as light source, such as Vertical Cavity Surface Emitting Lasers (VCSELs)
- Excellent splicing performance and compatibility with installed fiber base and photonics components
- Maximum product consistency and reliability through patented j-fiber manufacturing process resulting in low fiber costs

Standardization and Compliances for GigaGrade

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

Ordering Example

Data Rate	lower data rates	higher data rates	Unit
Light Source	LED	laser	
Requirement	OM2 fiber type	OM2 or A1a fiber type + 1Gb/s transmission	
Bandwidth @ 850/1300nm	500/500	500/1000	MHz·km
Link Length for 1GbE @ 850/1300nm	not required	550/1000	m

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

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Performance Characteristics

		Spec. Value Range	Unit
Bandwidth ¹ (Overfilled launch)	850nm	≥ 400 – ≥ 750	MHz·km
	1300nm	≥ 500 – ≥ 1200	MHz·km
Transmission Link Lengths at 1Gb/s (Restricted mode launch) ¹	850nm	≥ 500 – ≥ 750	m
	1300nm	≥ 550 – ≥ 2000	m

¹ For both, bandwidth and link lengths special combinations and values are available.

Optical Characteristics

		Spec. Value Range	Unit
Attenuation Coefficient ¹	850nm	≤ 2.2 – ≤ 2.4	dB/km
	1300nm	≤ 0.6 – ≤ 0.7	dB/km
Attenuation at 1383nm (OH-Peak)		< 2.0	dB/km
Attenuation Discontinuities (OTDR 1300nm)		< 0.05	dB
Chromatic Dispersion Zero Dispersion Wavelength λ_0		1295 < λ_0 < 1340	nm
Zero Dispersion Slope, S_0	– from 1295 < λ_0 < 1310	≤ 0.105	ps/nm ² ·km
	– from 1310 < λ_0 < 1340	≤ 0.000375·(1590- λ_0)	ps/nm ² ·km
Macrobend loss ²	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	

¹ Special attenuation values available upon request.

² 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	μm
Cladding Diameter	125 ± 1.0	μm
Cladding Non-Circularity	≤ 1.0	%
Coating Diameter ¹	242 ± 7	μm
Coating /Clad Concentricity Error	≤ 10	μm
Standard Lengths	2.2 - 17.6	km

¹ Other coating diameters are available upon request

Mechanical Characteristics

	Spec. Values	Unit	
Proof Test	≥ 0.69	GPa	
	≥ 8.8	N	
Dynamic Tensile Strength Unaged Fiber (0.5m)			
	Median Tensile Strength	≥ 3.8	GPa
	15th Percentile Tensile Strength	≥ 3.3	GPa
	Aged Fiber (0.5m)		
Median Tensile Strength	≥ 3.03	GPa	
	15th Percentile Tensile Strength	≥ 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
	850/1300nm	
Change of Temperature Attenuation increase, -60°C to +85°C	≤ 0.1	dB/km
Dry Heat Attenuation increase, 30 days at 85°C	≤ 0.1	dB/km
Damp Heat Attenuation increase, 30 days at 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"/23.5cm
Spool width	4.21"/10.7cm
Spindle	1"/2.54cm
Traverse width	3.75"/9.5cm

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 GigaGrade optical fiber please call, fax or email us and specify the following parameters when ordering:

Fiber Type:	GigaGrade Multimode Fiber 50/125/242 μ m
Desired Attenuation, Bandwidth, Link Length at 1Gb/s:	at 850nm/1300nm
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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