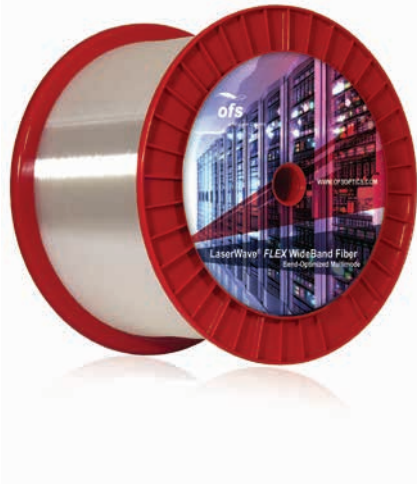




A Furukawa Company

LaserWave® *FLEX* Wideband Optical Fiber

OM5 multimode fiber optimized for short wavelength division multiplexing (SWDM) applications



Features

- Meets TIA-492-AAAE and draft IEC-60793-2-10 A1a.4 standards for wideband fiber
- Designed for SWDM applications (850 nm to 950 nm)
- Uses SWDM to increase transmission capacity by up to 400%
- Completely backward compatible with existing OM4 networks and applications
- Manufactured using the industry's tightest geometric control

Benefits

- Supports today's applications including 100 Gb/s Ethernet and 32 GFC
- Ready for next-generation wideband networks
- Duplex transmission of 100 Gb/s using SWDM technology
- Supports 400 Gb/s transmission over 8-fiber links

Applications

LaserWave *FLEX* WideBand Multimode Fiber provides outstanding performance for fiber management systems in:

- Data centers
- High-performance computing centers
- Enterprise local area networks
- Storage area networks
- Central offices

Overview

LaserWave *FLEX* WideBand Multimode Fiber is a 50 micron (μm) laser-optimized multimode fiber designed to help meet the demanding requirements of today's OM4 networks, as well as next-generation OM5 short wavelength division multiplexing (SWDM) applications.

This wideband fiber extends the ability of conventional OM4 multimode fiber to support multiple wavelengths using SWDM. Unlike traditional multimode fiber, OFS LaserWave *FLEX* WideBand Fiber is designed to support traffic over a range of wavelengths from 850 nm to 950 nm. This capability allows multiple lanes of traffic over the same strand of fiber, helping to significantly improve the bandwidth capacity of multimode fiber while also maintaining its cost advantages for short-distance applications, up to 300 meters or more.

Building on the history of LaserWave *FLEX* 550 (OM4) Fiber, LaserWave *FLEX* WideBand Fiber meets TIA-492AAAE and IEC 60793-2-10 A1a.4 requirements for OM5 wideband fiber while maintaining backward compatibility with OM4 specifications. This fiber supports four wavelength 100 Gb/s applications, while providing future proofing for tomorrow's 400 Gb/s and higher speeds.

LaserWave *FLEX* WideBand Fiber offers low bending loss throughout the entire operating window, while maintaining excellent long-term fiber strength and reliability.



A Furukawa Company

Product Specifications

Physical Characteristics

Core Diameter	50 ± 2.5 µm
Core Non-Circularity	≤ 5 %
Clad Diameter	125 ± 0.8 µm
Clad Non-Circularity	≤ 0.7 %
Core/Clad Concentricity Error (Offset)	≤ 1.0 µm
Coating Diameter	242 ± 5 µm
Coating Non-Circularity	≤ 5 %
Coating-Clad Concentricity Error (Offset)	≤ 8 µm
Tensile Proof Test	100 kpsi (0.69 GPa)
Coating Strip Force	Range: 0.22 - 1.0 lbf (1.0 - 4.4 N) Typical: 0.6 lbf (2.7 N)
Standard Reel Lengths	2.2 – 8.8 km

Optical Characteristics

Attenuation

at 850 nm	≤ 2.2 dB/km
at 1300 nm	≤ 0.6 dB/km

Laser Bandwidth/EMB See Transmission Characteristics Table

Transmission Distance (Link Length) Support See Applications Support Table

Attenuation at 1380 nm minus attenuation at 1300 nm ≤ 1.0 dB/km

Attenuation Uniformity / Point Discontinuities at 850 nm and 1300 nm ≤ 0.08 dB

Numerical Aperture 0.200 ± 0.010

Chromatic Dispersion

Zero Dispersion Wavelength (λ_0)	1297 ≤ λ_0 ≤ 1328 nm
Zero Dispersion Slope (S_0)	$S_0 \leq 4(-103)/(840(1-(\lambda_0/840)^4))$ ps/nm ² km

Group Refractive Index

at 850 nm	1.483
at 1300 nm	1.479

Backscatter Coefficient

at 850 nm	-68.4 dB
at 1300 nm	-75.8 dB

Macrobend Attenuation	850 nm	1300 nm
100 turns @ 37.5 mm radius	≤ 0.5 dB	≤ 0.5 dB
2 turns @ 15 mm radius	≤ 0.1 dB	≤ 0.3 dB
2 turns @ 7.5 mm radius	≤ 0.2 dB	≤ 0.5 dB

Environmental Characteristics

Operating Temperature Range -60 °C to +85 °C

Temperature Induced Attenuation at 850 nm and 1300 nm from -60° C to +85° C (5 24-hour cycles) ≤ 0.1 dB/km

Temperature and Humidity Induced Attenuation at 850 nm and 1300 nm from -10° C to +85° C, 94% RH (30 24-hour cycles) ≤ 0.1 dB/km

Accelerated Aging (Temperature) Induced Attenuation at 85° C for 30 days ≤ 0.1 dB/km

Water Immersion Induced Attenuation, 23° C for 30 days ≤ 0.1 dB/km

Dynamic Fatigue Stress Corrosion Parameter (n_f) ≥ 18

Transmission Characteristics

Minimum Bandwidth Specifications (MHz-km)

EMB @ 850 nm	4700
EMB @ 1310 nm	500
EMB @ 953 nm ¹	2470 MHz-km
Overfilled @ 850 nm	3500
Overfilled @ 1300 nm	500

¹ Meets and exceeds the requirements of TIA-492AAAE and draft IEC-60793-2-10 A1a.4 specifications for wideband fiber

Application Support

Application Support Examples Distance (Meters)¹

100 Gigabit Ethernet	
850 nm (100GBASE-SR10)	190 ²
40 Gigabit Ethernet	
850 nm (40GBASE-SR4)	190 ²
10 Gigabit Ethernet	
850 nm (10GBASE-S)	550 ³
1310 nm CWDM lasers (10GBASE-LX4)	300
1310 serial w/ EDC (10GBASE-LRM)	220
1 Gigabit Ethernet	
850 nm (1000BASE-SX)	1040
1310 nm (1000BASE-LX)	600

¹ Unless otherwise indicated, application support distances are based on standard total connection plus splice loss of 1.5 dB and cable attenuations of 3.5/1.5 dB/km at 850 nm and 1300 nm respectively. Lower-loss connectors and lower cable attenuations can lead to longer supportable distances. Contact OFS for specific cable attenuation and connection plus splice loss necessary to support a target distance.

² Distances assume maximum 1.0 dB total splice/connector loss, maximum 3.0 dB/km cable attenuation at 850 nm, and VCSEL spectral width of ≤ 0.45 nm. 150 meter reach over OM4 as defined by IEEE 802.3ba.

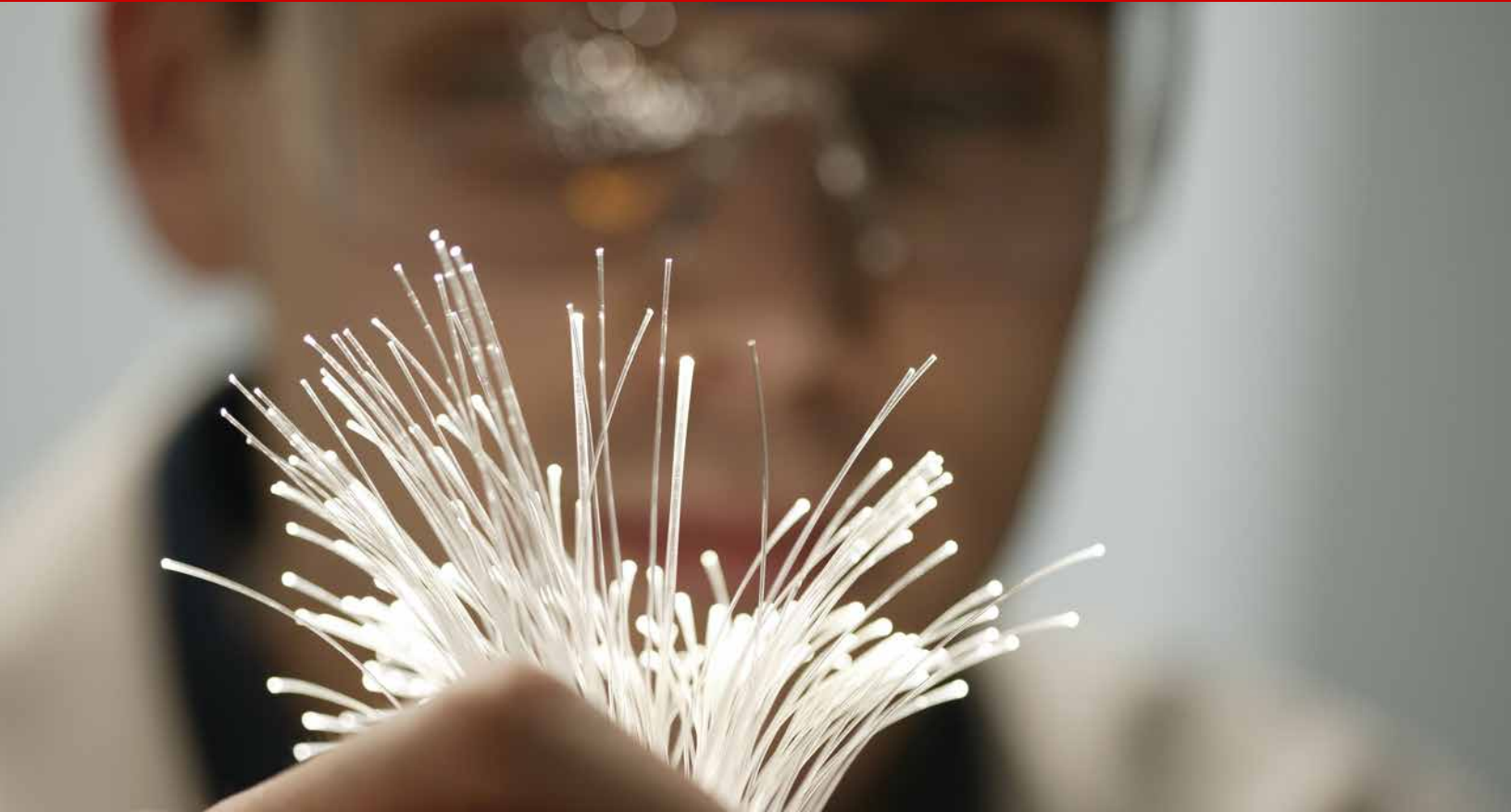
³ 550 meter reach assuming 3.5 dB/KM maximum cabled attenuation at 850 nm plus 1.0 dB of total connection and splice loss, or 3.0 dB maximum cabled attenuation at 850 nm and 1.3 dB total connection and splice loss. 400 meter reach as defined by IEEE 802.3ae.



A Furukawa Company

LaserWave® FLEX Wideband Optical Fiber

OM5 multimode fiber optimized for short wavelength division multiplexing (SWDM) applications



For additional information please contact your sales representative.
You can also visit our website at www.ofsoptics.com or call 1-888-fiberhelp (1-888-342-3743) USA or 1-770-798-5555 outside the USA.



Copyright © 2017 OFS Fitel, LLC.
All rights reserved, printed in USA.

OFS Marketing Communications
Doc ID: fiber-163 Date: 1217



LaserWave is a registered trademark of OFS FITEL, LLC.
OFS reserves the right to make changes to the prices and product(s) described in this document at any time without notice. This document is for informational purposes only and is not intended to modify or supplement any OFS warranties or specifications relating to any of its products or services.