

## FutureGuide™-LWP plus-200

Compliant with ITU-T G.657.A1 / G.652.D

We offer the FutureGuide™-LWP plus-200 optical fiber with a coating diameter of 200 μm. This fiber has been designed to maintain a mode field diameter (MFD) of 9.2 μm at 1310 nm, with tolerable macrobend performance exceeding ITU-T G.657.A1. This is made possible by Fujikura's innovative optical fiber coating technology, and the fiber's ITU-T G.652.D compliant low (zero) water peak attenuation supports full-band transmission (O, E, S, C, and L-band).

FutureGuide™-LWP plus-200 helps not only designing high-density (e.g. higher fiber count and smaller diameter) optical fiber cables but also saving costs of manufacturing, transporting and installing cables. Furthermore, its compatible MFD with conventional ITU-T G.652 fibers would realize deployment of new cables into existing networks without any troubles.

### Features

- Reduced coating diameter down to 200 μm with maintaining equivalent performance as 250 μm fibers.
- Reduced attenuation characteristics compared MFD compatibility with conventional G.652 fibers.
- Improved macrobending performance exceeding ITU-T G.657.A1.

### Customer's advantages

- Realizes aggressive design for higher-density cable. (e.g. reduced-diameter and/or high fiber-count cables)
- Helps efficient deployment and replacement of cables into existing networks.
- Saves enclosing space at the point of connecting cables. Reduces momentary interruption during connecting work.

### Optical Characteristics

Attenuation	
Attenuation coefficient at 1310 nm	≤ 0.34 dB/km
Attenuation coefficient at 1383 nm	≤ 0.34 dB/km *1
Attenuation coefficient at 1550 nm	≤ 0.20 dB/km
Attenuation coefficient at 1625 nm	≤ 0.22 dB/km
Attenuation vs. wavelength *2	
1285 – 1330 nm ref. λ of 1310 nm	$\alpha \leq 0.03$ dB/km
1525 – 1575 nm ref. λ of 1550 nm	$\alpha \leq 0.02$ dB/km
Macro-bending loss	
∅ =50 mm, 100 turns at 1310, 1550, 1625 nm	≤ 0.01 dB
∅ =30 mm, 10 turns at 1550 nm	≤ 0.05 dB
∅ =30 mm, 10 turns at 1625 nm	≤ 0.30 dB
∅ =20 mm, 1 turn at 1550 nm	≤ 0.50 dB
∅ =20 mm, 1 turn at 1625 nm	≤ 1.5 dB
Point discontinuity at 1310 nm	≤ 0.05 dB
Point discontinuity at 1550 nm	≤ 0.05 dB

Cut off wavelength	
Cable cut-off wavelength	≤ 1260 nm
Chromatic dispersion	
Chromatic dispersion coefficient at 1285-1330 nm	≤ 3.5 ps/(nm·km)
Chromatic dispersion coefficient at 1550 nm	13.3 - 18 ps/(nm·km)
Chromatic dispersion coefficient at 1625 nm	17.2 - 22 ps/(nm·km)
Zero-dispersion wavelength	1300 - 1324 nm
Zero-dispersion slope	0.073 - 0.092 ps/(nm <sup>2</sup> ·km)
Polarization mode dispersion (PMD) *3	
Uncabled fiber PMD coefficient	≤ 0.1 ps/√km
Link design value PMD <sub>Q</sub>	≤ 0.06 ps/√km

\*1. The attenuation at 1383nm after hydrogen aging in accordance with IEC60793-2-50

\*2. The attenuation within the specified wavelength range is limited to a difference of  $\alpha$  or less compared to the reference wavelength (ref.  $\lambda$ ).

\*3. This characteristic is guaranteed only in a virtually tension-free condition.



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**Structural Characteristics**

Mode field diameter at 1310 nm	9.4 ± 0.4 μm
Mode field diameter at 1550 nm	10.4 ± 0.5 μm
Cladding diameter	125.0 ± 0.7 μm
Coating diameter (colored only)	190 - 210 μm
Core concentricity error	≤ 0.5 μm
Cladding non-circularity	≤ 0.7 %
Coating-Cladding concentricity	≤ 10 μm
Fiber curl radius	≥ 4.0 m

**Mechanical Characteristics**

Proof test *4	≥ 1 % (100 kpsi or 0.7 GPa)
Dynamic stress corrosion susceptibility parameter (n <sub>d</sub> )	≥ 20
Coating strippability F	0.4 N ≤ F ≤ 8.9 N
Length (colored only)	Up to 50.4 km

\*4. The product is subjected to tensile testing throughout its entire length.

**Environmental Characteristics**

	Attenuation Change at 1310, 1550, 1625 nm
Temperature dependence - 60 to 85 °C	≤ 0.05 dB/km Ref. temp. 23 °C
Temperature Humidity Cycling -10 °C to +85 °C up to 98 % R.H.	≤ 0.05 dB/km Ref. temp. 23 °C
Water immersion at 23 °C ± 2 °C	≤ 0.05 dB/km
Dry heat at 85 °C ± 2 °C	≤ 0.05 dB/km Ref. temp. 23 °C
Damp Heat 85 °C at 85 %R.H.	≤ 0.05 dB/km Ref. temp. 23 °C

**Performance Characteristics**

	Typical value
Attenuation coefficient at 1490 nm	0.205 dB/km
Zero dispersion wavelength	1311 nm
Zero dispersion slope	0.088 ps/(nm <sup>2</sup> ·km)
Effective group index of refraction N <sub>eff</sub> at 1310 nm	1.4675
Effective group index of refraction N <sub>eff</sub> at 1550 nm	1.4681
Effective group index of refraction N <sub>eff</sub> at 1625 nm	1.4685

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