

## FutureGuide™-Ace

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

FutureGuide™-Ace is one of the best solutions due to its significantly improved bending performance, matched mode field diameter (MFD) with standard single-mode fibers, and reduced attenuation compared to conventional fibers.

Improved bending performance allows for tighter fiber storage and reduces space requirements at splicing points. The matched MFD ensures full compatibility with conventional fibers and results in lower splice loss. Reduced attenuation characteristics gives more margin to optical loss budget of optical fiber networks.

FutureGuide™-Ace contributes significantly to high-speed and high-capacity transmission in various networks from long-haul to access networks of 40G / 100Gbps and beyond.

### Features

- Superior macro-bending performance exceeding ITU-T G.657.A1 standards, along with excellent micro-bending resistance.
- Full compatibility with single mode fibers installed in existing optical fiber networks.
- Lower attenuation compared to conventional fibers such as ITU-T G. 652 fibers.

### Customer's advantages

- Provides consistent and stable field performance.
- Maintains excellent bending performance while achieving low splice loss with existing G.652 fibers.
- Gives more margin for optical loss budget of optical fiber networks and is suitable for advanced modulation formats or extension of

### Optical Characteristics

Attenuation	
Attenuation coefficient at 1310 nm	≤ 0.32 dB/km
Attenuation coefficient at 1383 nm	≤ 0.32 dB/km *1
Attenuation coefficient at 1550 nm	≤ 0.18 dB/km
Attenuation coefficient at 1625 nm	≤ 0.20 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	1302 - 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>0</sub>	≤ 0.04 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 under virtually tension-free conditions.



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### Structural Characteristics

Mode field diameter at 1310 nm	9.2 ± 0.4 μm
Mode field diameter at 1550 nm	10.4 ± 0.5 μm
Cladding diameter	125.0 ± 0.7 μm
Coating diameter (uncolored)	240 ± 5 μm
Coating diameter (colored)	250 ± 10 μm
Core concentricity error	≤ 0.5 μm
Cladding non-circularity	≤ 0.7 %
Coating-Cladding concentricity	≤ 12 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	1.3 N ≤ F ≤ 8.9 N
Length (uncolored)	Up to 50.4 km
Length (colored)	Up to 63 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	0.20 dB/km
Zero dispersion wavelength	1313 nm
Zero dispersion slope	0.087 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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