HFCL

Technical Specifications

Product Highlights

- ✓ **Fiber Type:** Low water peak, bend-insensitive single-mode optical fiber
- ✓ **Range:** Suitable for full spectrum optical networks
- ✓ **Performance:** Low bend loss, splice loss, and low PMD
- ✓ **Applications:** FTTX, Metro, Mobile Backhaul, Drop Cables, Micro Cables, and long-haul transmission
- ✓ **Compatibility:** Compatible with legacy network built with ITU-T G.652.D and G.657.A1 fibers

HFCL A1 Optical Fiber

G.657.A1 - 250µm

ISO 9001 | TL9000 Certified

Geometrical Characteristics

Attribute	Unit	Value
Cable Cutoff Wavelength	nm	≤ 1260
Cladding Diameter	µm	125 ± 0.7
Mode Field Diameter	µm	1310 nm: 9.1 ± 0.3 1550 nm: 10.3 ± 0.5
Core clad concentricity error	µm	≤ 0.5
Cladding Non Circularity (Ovality)	%	≤ 0.8
Secondary Coating Diameter	µm	242 ± 5
Coating-cladding concentricity error	µm	≤ 12
Coating Non Circularity (Ovality)	%	≤ 4

Optical Characteristics

Attribute	Unit	Value
Attenuation @ 1310 nm	dB/km	≤ 0.34
Attenuation @ 1383 nm*	dB/km	≤ Value at 1310 nm
Attenuation @ 1550 nm	dB/km	≤ 0.20
Attenuation @ 1625 nm	dB/km	≤ 0.23
Point Discontinuities at 1310 nm and 1550 nm	dB	≤ 0.05
Zero Dispersion Wavelength	nm	1300 to 1324
Zero Dispersion Slope	ps/nm².km	≤ 0.092
Max Dispersion 1285 nm -1330 nm	ps/nm.km	≤ 3.5
Dispersion @ 1550 nm	ps/nm.km	≤ 18
Dispersion @ 1625 nm	ps/nm.km	≤ 22
PMD coefficient Individual fiber	ps/√km	≤ 0.15
PMD LDV	ps/√km	≤ 0.06
Macrobending loss Change in attenuation when fiber is wound with: 1 turn around 20 mm diameter mandrel 10 turns around 30 mm diameter mandrel		 ≤ 0.75 dB at 1550 nm ≤ 1.50 dB at 1625 nm ≤ 0.25 dB at 1550 nm ≤ 1.00 dB at 1625 nm

* After Hydrogen aging according to IEC 60793-2-50. for B 1.3 fiber category.

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Mechanical Characteristics

Attribute	Unit	Value
Proof stress level	kpsi	≥ 100 (0.69 GPa) or 1% strain
Dynamic Tensile strength (un-aged)	GPa	≥ 3.8
Coating strip force (peak)	N	1.3 ≤ F ≤ 8.9
Fiber Curl	m	≥ 4
Stress corrosion susceptibility parameter (Dynamic Fatigue), Nd		≥ 20

Environmental Characteristics

Attribute	Value
Temperature Cycling Induced Attenuation at 1310 nm, 1550 nm, 1625 nm at -60°C to +85°C	≤ 0.05 dB/km
Temperature-Humidity Cycling Induced attenuation at 1310 nm, 1550 nm, 1625 nm at -10°C to +85°C and upto 98% relative humidity	≤ 0.05 dB/km
Water Immersion Induced attenuation at 1310 nm, 1550 nm, 1625 nm due to water immersion at 23 ± 2°C	≤ 0.05 dB/km
Accelerated Aging (Temperature) Induced attenuation at 1310 nm, 1550 nm, 1625 nm due to Temperature aging at 85 ± 2°C	≤ 0.05 dB/km
Damp Heat Induced attenuation at 1310 nm, 1550 nm, 1625 nm due to Temperature & Humidity aging at +85°C and 85% relative humidity	≤ 0.05 dB/km

Coating Finish

All HFCL Optical Fibers can be supplied as natural, coloured and coloured & ring-marked.

Inspection Certificate

HFCL shall provide in-house test certificate which include optical, geometrical and mechanical parameters as per customer requirements.

Material Properties

Group refractive index of fiber:
1.466 @ 1310 nm
1.467 @ 1550 nm
1.470 @ 1625 nm

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