ALL-Optical Interconnection Cabling Solutions

for Data Centers

OM4 PRO

Product Description

FiberHome® multimode optical fiber (OM4 PRO) utilizes proprietary PCVD equipment and process technology to precisely control the refractive index profile structure, reducing the fiber's differential mode delay. Designed for single-channel 100G/200G links, the new multimode fiber maintains high bandwidth performance at 850nm while optimizing bandwidth characteristics across the 850nm-870nm band. This effectively mitigates system degradation caused by center wavelength shifts in high-speed optical modules.

Characteristics

- Excellent environmental stability
- Excellent bend resistance, enabling use with small bending radius
- Precise control of refractive index profile
- Optimize the bandwidth characteristics in the 850 nm to 870 nm wavelength range.
- Supports various transmission methods at system rates of 10G/s, 40G/s, 100G/s, 400G/s, 800G/s, and 1.6T Gb/s.

Multimode Optical Fiber (OM4 PRO)			
Features	Conditions	Value	Unit
Optical Requirements			
Attenuation	850nm	≤2.5	dB/km
	860nm	≤2.5	dB/km
	870nm	≤2.5	dB/km
	1300nm	≤0.8	dB/km
OMB	850nm	≥3500	MHz · km
	1300nm	≥500	MHz · km
Effective Bandwidth	850nm	≥5000	MHz · km
	860nm	≥5500	MHz · km
	870nm	≥5000	MHz · km
Numerical Aperture	-	0.20±0.015	-
DMD	-	complies with or exceeds IEC 60793-2-10	-
Effective Group Index Of Refraction (Neff)	850nm	1.483	-
	1300nm	1.475	-
Zero Dispersion Wavelength (λ_0)	-	1295～1340	nm
Zero Dispersion Slope	1295～1310nm	≤0.105	ps/(nm^2 · km)
	1310～1340nm	≤0.000375 (1590-λ_0)	ps/(nm^2 · km)
Point Discontinuities	1300nm	≤0.10	dB
Geometrical Requirements			
Core Diameter	-	50±2.5	μm
Core Non-Circularity	-	≤5.0	%
Cladding Diameter	-	125.0 ±1.0	μm
Cladding Non-Circularity	-	≤1.0	%
Core-Cladding Concentricity Error	-	≤1.5	μm
Coating Diameter	-	245±10	μm
Coating-Cladding Concentricity Error	-	≤12.0	μm
Environmental Requirements (850nm & 1300nm)			
Temperature Dependence	-60℃ ~+85℃	≤0.10	dB/km
Water-Soaked Dependence	23℃, for 30 days	≤0.10	dB/km
Damp Heat Dependence	85℃ and 85% RH, for 30 days	≤0.10	dB/km
Dry Heat	85℃, for 30 days	≤0.10	dB/km
Mechanical Requirements			
Proof Test	-	≥9.0	N
Macro-Bend Induced Attenuation 2 turns Φ 30mm	850nm	≤0.1	dB
	1300nm	≤0.3	dB
Macro-Bend Induced Attenuation 2 turns Φ 15mm	850nm	≤0.2	dB
	1300nm	≤0.5	dB
Coating Strip Force	Typical Average Force	1.0~5.0	N
	Peak Force	1.3~8.9	N
Dynamic Stress Corrosion Susceptibility Parameter (N_d)	-	≥20	-
Delivery Length	1.1~8.8		km/reel

OM5

Product Description

FiberHome® multimode optical fiber reduces the differential mode delay (DMD) phenomenon observed on the conventional fibers in 10 gigabit applications. The bandwidth performance is extended to the 953 nm band, which can support multiple wavelength transmission applications. In addition, the OM5 / SWDM combination can better demonstrate the advantages of long-distance transmission in links with a transmission distance of 100G or higher speeds exceeding 100 m.

Characteristics

- Suited to applications in 10 gigabit ethernet and higher bit-rat systems
- Precise control of refractive index profile
- Designed for use at 850nm and 1300nm, while supporting 850-950nm short-wavelength transmission
- Good protection by dual layer UV coating
- Excellent strip force stability
- Lower macro-bending loss
- Good mechanical and environmental performance

Next Generation Multimode Optical Fiber (OM5)			
Features	Conditions	Value	Unit
Optical Requirements			
Attenuation	850nm	≤2.5	dB/km
	953nm	≤1.8	dB/km
	1300nm	≤0.8	dB/km
Bandwidth	850nm	≥3500	MHz · km
	953nm	≥1850	MHz · km
	1300nm	≥500	MHz · km
Effective Bandwidth	850nm	≥4700	MHz · km
	953nm	≥2470	MHz · km
Numerical Aperture	-	0.20±0.015	-
DMD	-	complies with or exceeds IEC 60793-2-10	-
Effective Group Index Of Refraction（Neff ）	850nm	1.483	-
	1300nm	1.475	-
Zero Dispersion Wavelength（λ0）	-	1297～1328	nm
Zero Dispersion Slope	-	S0≤ 4 (–103) / 840(1–(λ0/840)4)	ps/(nm2 · km)
Point Discontinuities	1300nm	≤0.10	dB
Geometrical Requirements			
Core Diameter	-	50±2.5	μm
Core Non-Circularity	-	≤5.0	%
Cladding Diameter	-	125.0 ± 1.0	μm
Cladding Non-Circularity	-	≤1.0	%
Core-Cladding Concentricity Error	-	≤1.5	μm
Coating Diameter	-	245±10	μm
Coating-Cladding Concentricity Error	-	≤12.0	μm
Environmental Requirements（850nm & 1300nm）			
Temperature Dependence	-60℃～+85℃	≤0.1	dB/km
Water-Soaked Dependence	23℃, for 30 days	≤0.1	dB/km
Damp Heat Dependence	85℃ and 85% RH, for 30 days	≤0.1	dB/km
Dry Heat	85℃, for 30 days	≤0.1	dB/km
Mechanical Requirements			
Proof Test	-	≥9.0	N
Macro-Bend Induced Attenuation 2 turns Φ 30mm	850nm	≤0.1	dB
	1300nm	≤0.3	dB
Macro-Bend Induced Attenuation 2 turns Φ15mm	850nm	≤0.2	dB
	1300nm	≤0.5	dB
Coating Strip Force	Typical Average Force	1.0~5.0	N
	Peak Force	1.3~8.9	N
Dynamic Stress Corrosion Susceptibility Parameter (Nd)	-	≥20	-
Delivery Length	1.1~8.8		km/reel

6912-Fiber Cable

Product Description

FiberHome relies on independently developed core technologies of partially bonded fiber ribbons and ultra-thin flexible loose tubes (with a wall thickness of 0.1-0.2mm), realizing independent and controllable key technologies and ranking among the world's advanced level. The ultra-large core count optical cable has achieved a breakthrough in the ultimate capacity of 6912 cores. Relying on ultra-high density optical cables and supporting products, FiberHome addresses the core interconnection issues in scenarios such as data centers, cloud computing and artificial intelligence, including insufficient core count capacity, low construction efficiency, complex maintenance and high costs.

Characteristics

- Ultra-large core count & ultra-high fiber core density.
- Ultra-small wire diameter & light weight.
- Easy construction & rapid deployment.
- The integrated solution features low construction difficulty and reduced construction costs.
- Realizes the independent and controllable of core technologies, with excellent mechanical and environmental performance, adapting to various application scenarios such as outdoor ducts and data center inter-building connections..

6912-Fiber Cable	
Features	Value
Fiber Performance	
Fiber Type	ITU-T G.657.A1
Mode Field Diameter	9.2±0.4μm
Cladding Diameter	125±0.7μm
Cladding Non-Circularity	≤0.7%
Core-Cladding Concentricity Error	≤0.5μm
Coating Diameter	245±10μm
Maximum Attenuation (Cabled)-1310nm	≤0.40dB/km
Maximum Attenuation (Cabled)-1550nm	≤0.30dB/km
Optical Cable Structural Parameters	
Fibers per Ribbon	12
Ribbons per Tube	48
Tube Number	12
Cable Diameter	36mm
Cable Weight	960Kg/km
Optical Cable Performance	
Tensile Performance-Short Term	2700N
Tensile Performance-Long Term	810N
Compressive Strength-Short Term	2200N/100mm
Compressive Strength-Long Term	1100N/100mm
Impact Resistance	4.4N ・m
Minimum Bend Radius, Storage Coils	360mm
Minimum Bend Radius, with Load	720mm
Temperature -Installation	-30°C to 60°C
Temperature -Operation	-40°C to 70°C
Temperature-Transportation/Storage	-40°C to 70°C
Performance Standard	Tested per Applicable Requirements of ANSI/ICEA S-87-640, Telcordia GR-20, and IEC 60793-2-50

165μm G.657A1 Single Mode Fiber

Product Description

FiberHome® 165μm G.657A1 single-mode fiber based on the G.657A1 standard, this single-mode fiber features a cladding diameter of 125μm and a coating diameter of 165μm. It offers an ultra-thin, bend-resistant design with a cross-sectional area 55% smaller than that of conventional 245μm fibers, enabling doubled data transmission capacity. It is suitable for applications such as optical backbone transmission, Fiber to the Home (FTTH), data centers, in-building cabling, access networks, and enterprise campus networks.

Characteristics

- Ultra-fine diameter optical fiber for significantly enhanced transmission capacity
- Cladding diameter 125μm, coating diameter 165μm, good compatibility
- Excellent environmental stability
- Excellent bend resistance, enabling use with small bending radius

165μm G.657A1 Single Mode Fiber			
Features	Conditions	Value	Unit
Optical Requirements			
Attenuation	1310nm	≤0.35	dB/km
	1383nm	≤0.35	dB/km
	1550nm	≤0.21	dB/km
	1625nm	≤0.23	dB/km
Zero Dispersion Wavelength (λ_0)	-	1300~1324	nm
Zero Dispersion Slope	-	≤0.092	ps/(nm^2 · km)
Polarization Mode Dispersion (PMD)	Max. individual Fiber	≤ 0.1	ps/√km
	PMD Link Design Value [2] (M=20,Q=0.01%)	≤ 0.06	ps/√km
Cable Cutoff Wavelength (λcc)	-	≤1260	nm
Mode Field Diameter(MFD)	1310nm	9.2 ±0.4	μm
Effective Group Index Of Refraction （Neff ）	1310nm	1.4682	-
	1550nm	1.4688	-
Point Discontinuities	1310nm	≤0.05	dB
	1550nm	≤0.05	dB
Geometrical Requirements			
Cladding Diameter	-	125.0 ±0.7	μm
Cladding Non-Circularity	-	≤0.7	%
Core-Cladding Concentricity Error	-	≤0.5	μm
Coating Diameter	-	165±5	μm
Coating-Cladding Concentricity Error	-	≤10.0	μm
Fiber Curl (radius)	-	≥4.0	m
Environmental Requirements（1310nm&1550nm&1625nm）			
Temperature Dependence	-60℃ ~+85℃	≤0.05	dB/km
Water-Soaked Dependence	23℃, for 30 days	≤0.05	dB/km
Damp Heat Dependence	85℃ and 85% RH, for 30 days	≤0.05	dB/km
Dry Heat	85℃, for 30 days	≤0.05	dB/km
Mechanical Requirements			
Proof Test	-	≥8.5	N
Macro-Bend Induced Attenuation 10 turns Φ 30mm	1550nm	≤0.25	dB
	1625nm	≤1.0	dB
Macro-Bend Induced Attenuation 1 turns Φ 20mm	1550nm	≤0.75	dB
	1625nm	≤1.5	dB
Coating Strip Force	Typical Average Force	1.0~5.0	N
	Peak Force	1.3~8.9	N
Dynamic Stress Corrosion Susceptibility Parameter (N_d)	-	≥20	-
Delivery Length	2.1-50.4		km/reel

Hollow Core Antiresonant Fiber

Product Description

Antiresonant fiber (ARF) is a kind of hollow optical fiber, and light can be transmitted along the fiber axis in the air where the refractive index is less than that of the optical fiber material. The ultra-low loss, low dispersion, low nonlinearity and near the speed of light propagation of hollow core can realize the development of hollow optical fiber communication transmission and communication devices, and lay the foundation for the construction and development of the next generation super-large capacity, low delay and high-speed optical communication system. At the same time, hollow guided light has ultra-low Rayleigh scattering, low nonlinear coefficient and adjustable dispersion, which can provide higher laser damage threshold. It has potential applications in high power laser transmission, ultraviolet / mid-infrared light transmission, laser manufacturing, ultrafast laser and so on.

Characteristics

- Wide transmission bandwidth
- Ultra-low loss
- Low latency
- Extremely low nonlinearity
- High damage threshold

Application

- High-speed optical communication
- High power laser energy transfer.
- Optical fiber sensor, hollow optical fiber probe
- Nonlinear optics
- Ultrafast laser pulse compression

Hollow Core Antiresonant Fiber		
Fiber type	ARF-1550-230/390	
Features	Metric	Unit
Optical characteristics		
Attenuation(@1550nm)	≤0 .2	dB/km
Bandwidth	1530-1625	nm
Mode field diameter@1550nm	22±3	nm
Dispersion coefficient @1550nm	≤5	ps/ (nm ·km)
PMD@1550 nm	≤0.5	ps / √km
Macro bending loss @1550nm*	≤0.2	dB
Geometrical features		
Cladding Diameter	230±5	μm
Coating Diameter	390±10	μm
Coating and cladding concentricity	≤12.0	μm