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OPTICAL FIBER

HENGTONG OPTIC-ELECTRIC
A Global Information and Energy Network Service Provider

Introduction

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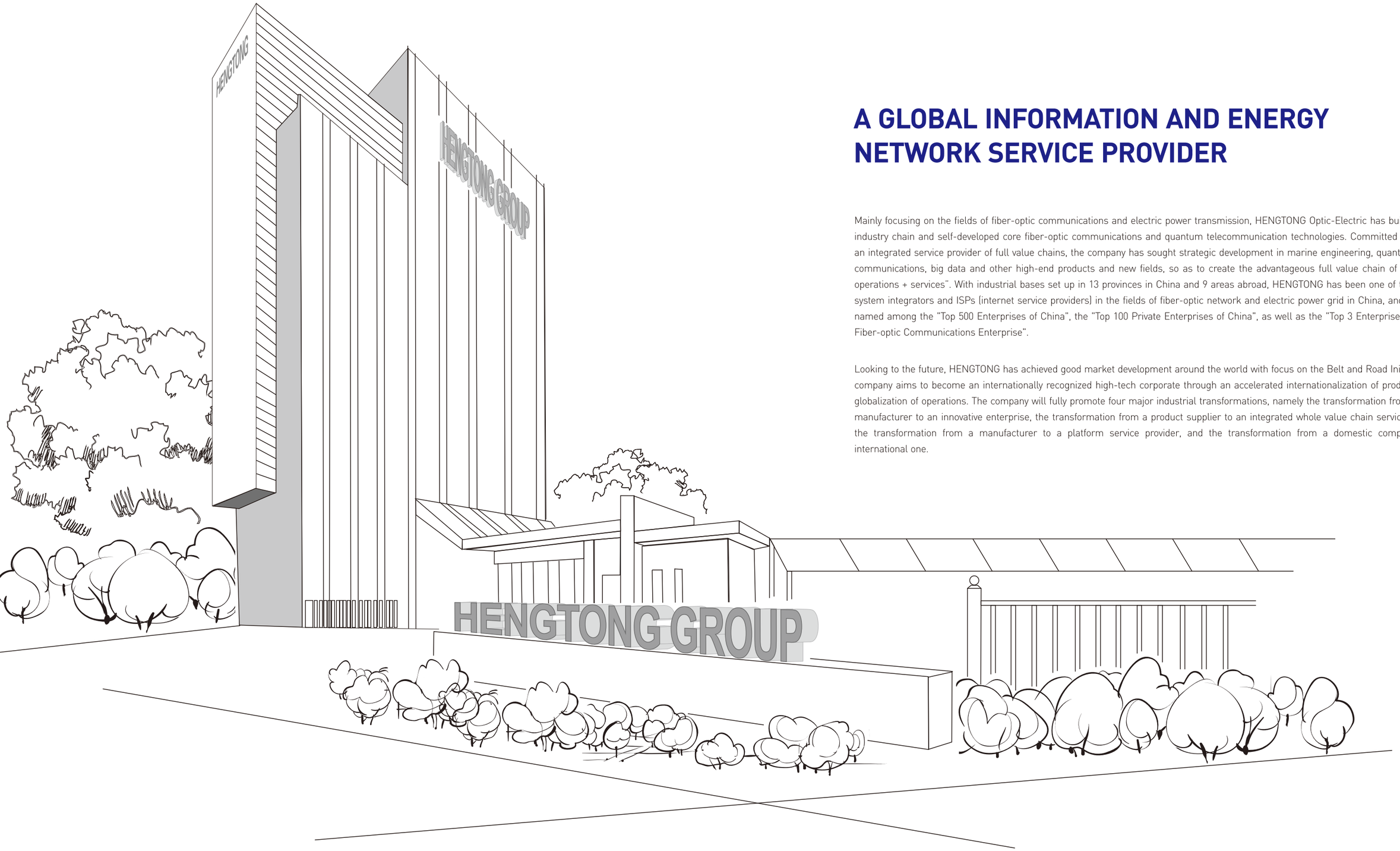

A GLOBAL INFORMATION AND ENERGY NETWORK SERVICE PROVIDER

Mainly focusing on the fields of fiber-optic communications and electric power transmission, HENGTONG Optic-Electric has built up a full industry chain and self-developed core fiber-optic communications and quantum telecommunication technologies. Committed to building an integrated service provider of full value chains, the company has sought strategic development in marine engineering, quantum secure communications, big data and other high-end products and new fields, so as to create the advantageous full value chain of "product + operations + services". With industrial bases set up in 13 provinces in China and 9 areas abroad, HENGTONG has been one of the leading system integrators and ISPs (internet service providers) in the fields of fiber-optic network and electric power grid in China, and has been named among the "Top 500 Enterprises of China", the "Top 100 Private Enterprises of China", as well as the "Top 3 Enterprises of Global Fiber-optic Communications Enterprise".

Looking to the future, HENGTONG has achieved good market development around the world with focus on the Belt and Road Initiative. The company aims to become an internationally recognized high-tech corporate through an accelerated internationalization of production and globalization of operations. The company will fully promote four major industrial transformations, namely the transformation from an R&D manufacturer to an innovative enterprise, the transformation from a product supplier to an integrated whole value chain service provider, the transformation from a manufacturer to a platform service provider, and the transformation from a domestic company to an international one.

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100G Communication Optical Fiber

BoneCom® LL-G.652.D
Low-loss & Zero Water Peak Single-mode Optical Fiber

Product Introduction

BoneCom® LL-G.652.D has excellent low-loss properties at wide band where the attenuation at 1310 nm, 1383 nm and 1550 nm are optimized. These attributes make it suitable for 100G high-speed optical communication system, which can extend the span distance and reduce the cost of amplifier inputs in long distance network construction.

Application Scenarios

- 100G & B100G high-speed and long-distance network
- Broadband metropolitan area network

Performance Features

- Attenuation coefficient @1550 nm≤0.185 dB/km, @1310 nm≤0.330 dB/km
- Precise MFD characteristics, low splice loss and excellent compatibility

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	1310 nm	dB/km	≤0.330(standard) ≤0.320(optional)
	1383 nm	dB/km	≤0.330(standard) ≤0.320(optional)
	1550 nm	dB/km	≤0.185(standard) ≤0.180(optional)
	1625 nm	dB/km	≤0.220
Attenuation vs. Wavelength	1310 nm VS. 1285-1330 nm	dB/km	≤0.04
	1550 nm VS. 1525-1575 nm	dB/km	≤0.03
	1550 nm VS. 1480-1580 nm	dB/km	≤0.04
Zero Dispersion Wavelength	—	nm	1300-1324
Zero Dispersion Slope	—	ps/(nm^2·km)	≤0.091
Dispersion	1288-1339 nm	ps/(nm·km)	-3.5-3.5
	1271-1360 nm	ps/(nm·km)	-5.3-5.3
	1480-1580 nm	ps/(nm·km)	≤20
	1550 nm	ps/(nm·km)	≤18
	1625 nm	ps/(nm·km)	≤22
Polarization Mode Dispersion (PMD)	—	—	—
Maximum Individual Fiber	—	ps/√km	0.1
Link design value (M=20, Q=0.01%)	—	ps/√km	0.06
Typical Value	—	ps/√km	0.04
Cut-off Wavelength λ_{cc}	—	nm	≤1260
Mode Field Diameter (MFD)	1310 nm	μm	9.2±0.4
	1550 nm	μm	10.4±0.5
Attenuation Discontinuity	1310 nm	dB	≤0.03
	1550 nm	dB	≤0.03
Bidirectional Attenuation	1310 nm	dB/km	≤0.03
	1550 nm	dB/km	≤0.03
Attenuation Nonuniformity	1310 nm	dB/km	≤0.02
	1550 nm	dB/km	≤0.02

Geometrical

Parameter	Conditions	Units	Value
Cladding Diameter	—	μm	125±0.7
Cladding Non-Circularity	—	%	≤1.0
Core/Cladding Concentricity Error	—	μm	≤0.54
Coating Diameter (Uncolored)	—	μm	242±7
Coating/Cladding Concentricity Error	—	μm	≤12
Curl	—	m	≥4

Environmental (1310 nm、1550 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	≤0.03
High Temperature & High Humidity	85°C at 85% RH	dB/km	≤0.03
Water Immersion	23°C	dB/km	≤0.03
High Temperature Aging	85°C	dB/km	≤0.03

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	%	1.0
	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.0-5.0
Tensile Strength	F_s=50%	GPa	≥4.00
	F_s=15%	GPa	≥3.20
Dynamic Fatigue (N_d)	—	—	≥20

Macrobending Loss

Parameter	Conditions	Units	Value
Ø32 mm×1 t	1550 nm	dB	≤0.05
	1625 nm	dB	≤0.05
Ø60 mm×100 t	1550 nm	dB	≤0.05
	1625 nm	dB	≤0.05

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	2.1-50.4

100G Communication Optical Fiber

BoneCom® Mini-G.652.D
Small Size Single-mode Optical Fiber

Product Introduction

BoneCom® Mini-G.652.D is a small size single-mode optical fiber, featuring a reduced-coating diameter of 200 μm that provides excellent bending performances and mechanical properties, which uses high performance acrylic resin composite for coating protection. BoneCom® Mini-G.652.D can save a lot of space occupancy of pipeline and increase the core capacity of cable, which is the best choice for pipeline network.

Application Scenarios

- High density metropolitan area network and narrow space access network
- Blowing tiny cables
- Pipe network cable laying

Performance Features

- Reduce the cable sectional area for more than 30%, saving pipeline resource
- Increase the cable laying density for more than 36% under the same cable size
- Specialized resin composite material and excellent bending resistance.
- Excellent compatibility with ordinary size G.652.D single-mode optical fiber

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	1310 nm	dB/km	⩽0.350
	1383 nm	dB/km	⩽0.330
	1550 nm	dB/km	⩽0.210
	1625 nm	dB/km	⩽0.240
Attenuation vs. Wavelength	1310 nm VS. 1285-1330 nm	dB/km	⩽0.04
	1550 nm VS. 1525-1575 nm	dB/km	⩽0.03
	1550 nm VS. 1480-1580 nm	dB/km	⩽0.04
Zero Dispersion Wavelength	—	nm	1300-1324
Zero Dispersion Slope	—	ps/(nm^2·km)	⩽0.091
Dispersion	1288-1339 nm	ps/(nm·km)	-3.5-3.5
	1271-1360 nm	ps/(nm·km)	-5.3-5.3
	1480-1580 nm	ps/(nm·km)	⩽20
	1550 nm	ps/(nm·km)	⩽18
	1625 nm	ps/(nm·km)	⩽22
Polarization Mode Dispersion (PMD)	—	—	—
Maximum Individual Fiber	—	ps/√km	0.2
Link design value (M=20, Q=0.01%)	—	ps/√km	0.1
Cut-off Wavelength λ_{cc}	—	nm	⩽1260
Mode Field Diameter (MFD)	1310 nm	μm	9.2±0.4
	1550 nm	μm	10.4±0.5
Attenuation Discontinuity	1310 nm	dB	⩽0.03
	1550 nm	dB	⩽0.03
Bidirectional Attenuation	1310 nm	dB/km	⩽0.03
	1550 nm	dB/km	⩽0.03
Attenuation Nonuniformity	1310 nm	dB/km	⩽0.03
	1550 nm	dB/km	⩽0.03

Geometrical

Parameter	Conditions	Units	Value
Cladding Diameter	—	μm	125±0.7
Cladding Non-Circularity	—	%	⩽1.0
Core/Cladding Concentricity Error	—	μm	⩽0.6
Coating Diameter (Uncolored)	—	μm	200±10
Coating/Cladding Concentricity Error	—	μm	⩽12
Curl	—	m	⩾4

Environmental (1310 nm、1550 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	⩽0.03
High Temperature & High Humidity	85°C at 85% RH	dB/km	⩽0.03
Water Immersion	23°C	dB/km	⩽0.03
High Temperature Aging	85°C	dB/km	⩽0.03

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	%	1.0
	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.0-5.0
Tensile Strength	F_s=50%	GPa	⩾4.00
	F_s=15%	GPa	⩾3.20
Dynamic Fatigue (N_d)	—	—	⩾20

Macrobending Loss

Parameter	Conditions	Units	Value
Ø32 mm×1 t	1550 nm	dB	⩽0.05
	1625 nm	dB	⩽0.05
Ø60 mm×100 t	1550 nm	dB	⩽0.05
	1625 nm	dB	⩽0.05

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	2.1-50.4

400G Communication Optical Fiber

BoneCom® ULL-G.652
Ultra Low-loss Single-mode Optical Fiber

Product Introduction

BoneCom® ULL-G.652 provides a very low-loss coefficient, which significantly increase the transmission span and contribute to the improvement of network capacity. It is especially suitable for B100G & 400G high-speed communication systems. Moreover, BoneCom® ULL-G.652 maintains full backward compatibility with traditional G.652.D.

Application Scenarios

- B100G & 400G high-speed communication system
- Long-span, high-speed and dense WDM network
- Land long haul trunk lines

Performance Features

- Ultra low transmission loss, @1550 nm≤0.165 dB/km
- Significantly extend the span, reduce the relay, and reduce the maintenance costs
- Fully compatible with conventional fibers

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	1310 nm	dB/km	≤0.320
	1383 nm	dB/km	≤0.320
	1550 nm	dB/km	≤0.165
	1625 nm	dB/km	≤0.204
Attenuation vs. Wavelength	1310 nm VS. 1285-1330 nm	dB/km	≤0.04
	1550 nm VS. 1525-1575 nm	dB/km	≤0.03
	1550 nm VS. 1480-1580 nm	dB/km	≤0.04
Zero Dispersion Wavelength	—	nm	1300-1324
Zero Dispersion Slope	—	ps/(nm^2·km)	≤0.091
Dispersion	1288-1339 nm	ps/(nm·km)	-3.5-3.5
	1271-1360 nm	ps/(nm·km)	-5.3-5.3
	1480-1580 nm	ps/(nm·km)	≤20
	1550 nm	ps/(nm·km)	≤18
	1625 nm	ps/(nm·km)	≤22
Polarization Mode Dispersion (PMD)	—	—	—
Maximum Individual Fiber	—	ps/√km	0.1
Link design value (M=20, Q=0.01%)	—	ps/√km	0.06
Typical Value	—	ps/√km	0.04
Cut-off Wavelength λ_{cc}	—	nm	≤1260
Mode Field Diameter (MFD)	1310 nm	μm	9.2±0.4
	1550 nm	μm	10.4±0.5
Attenuation Discontinuity	1310 nm	dB	≤0.03
	1550 nm	dB	≤0.03
Bidirectional Attenuation	1310 nm	dB/km	≤0.03
	1550 nm	dB/km	≤0.03
Attenuation Nonuniformity	1310 nm	dB/km	≤0.02
	1550 nm	dB/km	≤0.02

Geometrical

Parameter	Conditions	Units	Value
Cladding Diameter	—	μm	125±0.7
Cladding Non-Circularity	—	%	≤1.0
Core/Cladding Concentricity Error	—	μm	≤0.54
Coating Diameter (Uncolored)	—	μm	242±7
Coating/Cladding Concentricity Error	—	μm	≤12
Curl	—	m	≥4

Environmental (1310 nm、1550 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	≤0.03
High Temperature & High Humidity	85°C at 85% RH	dB/km	≤0.03
Water Immersion	23°C	dB/km	≤0.03
High Temperature Aging	85°C	dB/km	≤0.03

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	%	1.06
	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.0-5.0
Tensile Strength	F_s=50%	GPa	≥4.00
	F_s=15%	GPa	≥3.20
Dynamic Fatigue (N_d)	—	—	≥20

Macrobending Loss

Parameter	Conditions	Units	Value
Ø32 mm×1 t	1550 nm	dB	≤0.05
	1625 nm	dB	≤0.05
Ø60 mm×100 t	1550 nm	dB	≤0.05
	1625 nm	dB	≤0.05

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	2.1-50.4

400G Communication Optical Fiber

BoneCom® UUA-G.654.E Ultra Low-loss & Ultra Large Effective Area Single-mode Optical Fiber

Product Introduction

BoneCom® UUA-G.654.E, the large effective area single-mode optical fiber, is specially designed for B100G and 400G high-speed optical fiber communication system, divided into 110 μm^2 and 130 μm^2 transmission effective area specifications. BoneCom® UUA-G.654.E has excellent characteristics of large effective area and ultra low-loss, which reduces the nonlinear effects, significantly increasing the allowable fiber optic power and greatly expanding the transmission span.

Application Scenarios

- B100G and 400G high-speed communication system
- Long-span, high-speed and dense WDM network
- Land long haul trunk lines

Performance Features

- Ultra low transmission loss, @1550 nm≤ 0.165 dB/km
- Optimized macrobending loss, Ø60 mm×100 t @1550 nm≤0.1 dB
- Optional 110 μm^2 and 130 μm^2 effective area
- Reduce the repeaters and decrease operational costs

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	1550 nm	dB/km	≤0.165
	1625 nm	dB/km	≤0.204
Attenuation vs. Wavelength	1550 nm VS. 1525-1575 nm	dB/km	≤0.03
	1550 nm VS. 1550-1625 nm	dB/km	≤0.05
Zero Dispersion Wavelength	—	nm	≤1300
Zero Dispersion Slope	—	ps/(nm^2·km)	0.05-0.07
Dispersion	1550 nm	ps/(nm·km)	17-22
	1625 nm	ps/(nm·km)	≤26
Polarization Mode Dispersion (PMD)	—	—	—
Maximum Individual Fiber	—	ps/√km	0.1
Link design value (M=20, Q=0.01%)	—	ps/√km	0.06
Cut-off Wavelength λ_{cc}	—	nm	≤1530
1550 nm Mode Field Diameter (MFD)	110 μm^2	μm	11.5±0.5
	130 μm^2	μm	12.5±0.5
Attenuation Discontinuity	1550 nm	dB	≤0.05
Bidirectional Attenuation	1550 nm	dB/km	≤0.05
	1625 nm	dB/km	≤0.04
Attenuation Nonuniformity	1550 nm	dB/km	≤0.04

Geometrical

Parameter	Conditions	Units	Value
Cladding Diameter	—	μm	125±1.0
Cladding Non-Circularity	—	%	≤1.0
Core/Cladding Concentricity Error	—	μm	≤0.6
Coating Diameter (Uncolored)	—	μm	242±7
Coating/Cladding Concentricity Error	—	μm	≤12
Curl	—	m	≥4

Environmental (1310 nm、1550 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	≤0.05
High Temperature & High Humidity	85°C at 85% RH	dB/km	≤0.05
Water Immersion	23°C	dB/km	≤0.05
High Temperature Aging	85°C	dB/km	≤0.05

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.0-5.0
Tensile Strength	F_s=50%	GPa	≥4.00
	F_s=15%	GPa	≥3.20
Dynamic Fatigue (N_d)	—	—	≥20

Macrobending Loss

Parameter	Conditions	Units	Value
Ø60 mm×100 t	1550 nm	dB	≤0.10
	1625 nm	dB	≤0.10

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	2.1-50.4

5G Access Network Single-mode Optical Fiber

BendCom® G.657.A1
Bending Insensitive Single-mode Optical Fiber

Product Introduction

BendCom® G.657.A1 , the Bending Insensitive Single-mode Optical Fiber , not only has outstanding bending insensitive characteristics, but also has excellent loss characteristics at 1310 nm and 1550 nm dual wavelengths, which is conducive to extending access network coverage.

Application Scenarios

- FTTH or FTTP
- 5G pre-network construction
- Big data center & computer interconnection

Performance Features

- Low loss & Bending Insensitive
- Two optional diameters: 245 μm (standard) & 200 μm (optional)
- Optimized MFD and precise geometric properties
- Good compatibility with ordinary G.652.D

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	1310 nm	dB/km	⩽0.350
	1383 nm	dB/km	⩽0.330
	1550 nm	dB/km	⩽0.210
	1625 nm	dB/km	⩽0.230
Attenuation vs. Wavelength	1310 nm VS. 1285-1330 nm	dB/km	⩽0.04
	1550 nm VS. 1525-1575 nm	dB/km	⩽0.03
Zero Dispersion Wavelength	—	nm	1300-1324
Zero Dispersion Slope	—	ps/(nm^2·km)	⩽0.092
Polarization Mode Dispersion (PMD)	—	—	—
Maximum Individual Fiber	—	ps/√km	0.2
Link design value (M=20, Q=0.01%)	—	ps/√km	0.1
Cut-off Wavelength λ_{cc}	—	nm	⩽1260
1550 nm Mode Field Diameter (MFD)	1310 nm	μm	9.2±0.4
	1550 nm	μm	10.4±0.5
Attenuation Discontinuity	1310 nm	dB	⩽0.03
	1550 nm	dB	⩽0.03

Optical Fiber

Geometrical

Parameter	Conditions	Units	Value
Cladding Diameter	—	μm	125±0.7
Cladding Non-Circularity	—	%	⩽1.0
Core/Cladding Concentricity Error	—	μm	⩽0.5
Coating Diameter (Uncolored)	—	μm	242±7 (standard) 200±10 (optional)
Coating/Cladding Concentricity Error	—	μm	⩽12
Curl	—	m	⩾4

Environmental (1310 nm、1550 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	⩽0.05
High Temperature & High Humidity	85°C at 85% RH	dB/km	⩽0.05
Water Immersion	23°C	dB/km	⩽0.05
High Temperature Aging	85°C	dB/km	⩽0.05

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	%	1.0
	—	N	⩾9.1
	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.0-5.0
Tensile Strength	F_s=50%	GPa	⩾4.00
	F_s=15%	GPa	⩾3.20
Dynamic Fatigue (N_d)	—	—	⩾20

Macrobending Loss

Parameter	Conditions	Units	Value
Ø30 mm×10 t	1550 nm	dB	⩽0.25
	1625 nm	dB	⩽1.0
Ø20 mm×1 t	1550 nm	dB	⩽0.75
	1625 nm	dB	⩽1.5

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	2.1-50.4

5G Access Network Single-mode Optical Fiber

BendCom® G.657.A2
Bending Insensitive Single-mode Optical Fiber

Product Introduction

The Bending insensitive Single-mode Optical Fiber BendCom® G.657.A2, is avaliable in 200 μm & 242 μm diameters. Since dedicated high-performance acrylic composites are used for coating protection, the fiber still has outstanding bending loss characteristics while reducing the size. Small size optical fiber can save a lot of space occupancy of pipeline and increase the fiber capacity of cable, which is the best choice for pipeline network.

Application Scenarios

- High density metropolitan area network and narrow space access network
- Blowing tiny cables
- FTTx

Performance Features

- Specialized resin composite material and smaller bending loss properties
- The smaller size optical fiber is optional. Reduce the cable sectional area for more than 30% and the density of the cable is increased, which can effectively save pipeline resource

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	1310 nm	dB/km	⩽0.350
	1383 nm	dB/km	⩽0.330
	1550 nm	dB/km	⩽0.210
	1625 nm	dB/km	⩽0.230
Attenuation vs. Wavelength	1310 nm VS. 1285-1330 nm	dB/km	⩽0.05
	1550 nm VS. 1525-1575 nm	dB/km	⩽0.04
Zero Dispersion Wavelength	—	nm	1300-1324
Zero Dispersion Slope	—	ps/(nm^2·km)	⩽0.092
Polarization Mode Dispersion (PMD)	—	—	—
Maximum Individual Fiber	—	ps/√km	0.2
Link design value (M=20, Q=0.01%)	—	ps/√km	0.1
Cut-off Wavelength λ_{cc}	—	nm	⩽1260
Mode Field Diameter (MFD)	1310 nm	μm	8.6±0.4
	1550 nm	μm	9.6±0.5
Attenuation Discontinuity	1310 nm	dB	⩽0.05
	1550 nm	dB	⩽0.05

Geometrical

Parameter	Conditions	Units	Value
Cladding Diameter	—	μm	125±0.7
Cladding Non-Circularity	—	%	⩽0.8
Core/ Cladding Concentricity Error	—	μm	⩽0.5
Coating Diameter (Uncolored)	—	μm	242±7 (standard) 200±10 (optional)
Coating/ Cladding Concentricity Error	—	μm	⩽12
Curl	—	m	⩾4

Environmental (1310 nm、1550 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	⩽0.05
High Temperature & High Humidity	85°C at 85% RH	dB/km	⩽0.05
Water Immersion	23°C	dB/km	⩽0.05
High Temperature Aging	85°C	dB/km	⩽0.05

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	%	1.0
	—	N	⩾9.1
	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.0-5.0
Tensile Strength	F_s=50%	GPa	⩾4.00
	F_s=15%	GPa	⩾3.20
Dynamic Fatigue (N_d)	—	—	⩾20

Macrobending Loss

Parameter	Conditions	Units	Value
Ø30 mm×10 t	1550 nm	dB	⩽0.03
	1625 nm	dB	⩽0.1
Ø20 mm×1 t	1550 nm	dB	⩽0.1
	1625 nm	dB	⩽0.2
Ø15 mm×1 t	1550 nm	dB	⩽0.4
	1625 nm	dB	⩽0.8

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	2.1-50.4

5G Access Network Single-mode Optical Fiber

BendCom® G.657.B3
Ultra Bending Insensitive Single-mode Optical Fiber

Product Introduction

The Ultra bending insensitive Single-mode Optical Fiber BendCom® G.657.B3 has outstanding bending performance, especially at 5 mm bending radius. The refractive index profile distribution is optimized so that the fiber can be fully compatible with G.657.A2 fiber, making it the best product for fiber-to-the-home (FTTH).

Application Scenarios

- FTTH
- Home application scenarios such as invisible fiber optic cable
- For occasions with special requirements to bending radius

Performance Features

- Optimized bending loss on radius 5 mm, 1550 nm⩽0.15 dB/km, 1625 nm⩽0.45 dB/km
- Optimized MFD and zero dispersion wavelength to ensure low splice loss
- High strength provided by specialized composite material coating

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	1310 nm	dB/km	⩽0.350
	1383 nm	dB/km	⩽0.330
	1550 nm	dB/km	⩽0.210
	1625 nm	dB/km	⩽0.230
Attenuation vs. Wavelength	1310 nm VS. 1285-1330 nm	dB/km	⩽0.05
	1550 nm VS. 1525-1575 nm	dB/km	⩽0.04
Zero Dispersion Wavelength	—	nm	1300-1350
Zero Dispersion Slope	—	ps/(nm^2·km)	⩽0.092
Polarization Mode Dispersion (PMD)	—	—	—
Maximum Individual Fiber	—	ps/√km	0.2
Link design value (M=20, Q=0.01%)	—	ps/√km	0.1
Cut-off Wavelength λ_{cc}	—	nm	⩽1260
Mode Field Diameter (MFD)	1310 nm	μm	8.6±0.4
	1550 nm	μm	9.6±0.5
Attenuation Discontinuity	1310 nm	dB	⩽0.03
	1550 nm	dB	⩽0.03
Bidirectional Attenuation	1310 nm	dB/km	⩽0.05
	1550 nm	dB/km	⩽0.05
Attenuation Nonuniformity	1310 nm	dB/km	⩽0.05
	1550 nm	dB/km	⩽0.05

Geometrical

Parameter	Conditions	Units	Value
Cladding Diameter	—	μm	125±0.7
Cladding Non-Circularity	—	%	⩽0.8
Core/Cladding Concentricity Error	—	μm	⩽0.5
Coating Diameter (Uncolored)	—	μm	242±7
Coating/Cladding Concentricity Error	—	μm	⩽12
Curl	—	m	⩾4

Environmental (1310 nm、1550 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	⩽0.05
High Temperature & High Humidity	85°C at 85% RH	dB/km	⩽0.05
Water Immersion	23°C	dB/km	⩽0.05
High Temperature Aging	85°C	dB/km	⩽0.05

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	%	1.0
	—	N	⩾9.1
	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.0-5.0
Tensile Strength	F_k=50%	GPa	⩾4.00
	F_k=15%	GPa	⩾3.20
Dynamic Fatigue (N_d)	—	—	⩾20

Macrobending Loss

Parameter	Conditions	Units	Value
Ø20 mm×1 t	1550 nm	dB	⩽0.03
	1625 nm	dB	⩽0.1
Ø15 mm×1 t	1550 nm	dB	⩽0.08
	1625 nm	dB	⩽0.25
Ø10 mm×1 t	1550 nm	dB	⩽0.15
	1625 nm	dB	⩽0.45

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	2.1-50.4

Submarine Communication Single-mode Optical Fiber

SeaCom® SL-G.652.D
Ultra Low-loss & High-strength Single-mode Optical Fiber

Product Introduction

SeaCom® SL-G.652.D is significantly enhanced the strength and the mechanical operability by using advanced manufacturing technology. It has excellent low loss properties in wide band, especially at 1550 nm.The application of SeaCom® SL-G.652.D are widely diverse, especially submarine communication and monitoring network.

Application Scenarios

- 100G & B100G high speed long distance network
- Submarine large capacity communication and monitoring network
- Broadband metropolitan area network

Performance Features

- Attenuation coefficient @1550 nm⩽0.180 dB/km, @1310 nm⩽0.320 dB/km
- Higher proof stress meets the requirements of submarine cable
- Precise MFD characteristics, low splice loss and good compatibility

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	1310 nm	dB/km	⩽0.320
	1383 nm	dB/km	⩽0.320
	1550 nm	dB/km	⩽0.180
	1625 nm	dB/km	⩽0.220
Attenuation vs. Wavelength	1310 nm VS. 1285-1330 nm	dB/km	⩽0.04
	1550 nm VS. 1525-1575 nm	dB/km	⩽0.03
	1550 nm VS. 1480-1580 nm	dB/km	⩽0.04
Zero Dispersion Wavelength	—	nm	1300-1324
Zero Dispersion Slope	—	ps/(nm²·km)	⩽0.091
Dispersion	1288-1339 nm	ps/(nm·km)	-3.5-3.5
	1271-1360 nm	ps/(nm·km)	-5.3-5.3
	1480-1580 nm	ps/(nm·km)	⩽20
	1550 nm	ps/(nm·km)	⩽18
	1625 nm	ps/(nm·km)	⩽22
Polarization Mode Dispersion (PMD)	—	—	—
Maximum Individual Fiber	—	ps/√km	0.1
Link design value (M=20, Q=0.01%)	—	ps/√km	0.06
Typical Value	—	ps/√km	0.04
Cut-off Wavelength λ_{cc}	—	nm	⩽1260
Mode Field Diameter (MFD)	1310 nm	μm	9.2±0.4
	1550 nm	μm	10.4±0.5
Attenuation Discontinuity	1310 nm	dB	⩽0.03
	1550 nm	dB	⩽0.03
Bidirectional Attenuation	1310 nm	dB/km	⩽0.03
	1550 nm	dB/km	⩽0.03
Attenuation Nonuniformity	1310nm	dB/km	⩽0.02
	1550nm	dB/km	⩽0.02

Geometrical

Parameter	Conditions	Units	Value
Cladding Diameter	—	μm	125±0.7
Cladding Non-Circularity	—	%	⩽1.0
Core/Cladding Concentricity Error	—	μm	⩽0.54
Coating Diameter (Uncolored)	—	μm	242±7
Coating/Cladding Concentricity Error	—	μm	⩽12
Curl	—	m	⩾4

Environmental (1310 nm、1550 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	⩽0.03
High Temperature & High Humidity	85°C at 85% RH	dB/km	⩽0.03
Water Immersion	23°C	dB/km	⩽0.03
High Temperature Aging	85°C	dB/km	⩽0.03

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	kpsi	200
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.0-5.0
Tensile Strength	F_k=50%	GPa	⩾4.00
	F_k=15%	GPa	⩾3.20
Dynamic Fatigue (N_d)	—	—	⩾20

Macrobending Loss

Parameter	Conditions	Units	Value
Ø32 mm×1 t	1550 nm	dB	⩽0.05
	1625 nm	dB	⩽0.05
Ø60 mm×100 t	1550 nm	dB	⩽0.05
	1625 nm	dB	⩽0.05

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel	—	km	2.1-50.4

Submarine Communication Single-mode Optical Fiber

SeaCom® G.654.B & G.654.D
Large Effective Area Single-mode Optical Fiber

Product Introduction

SeaCom® G.654.B & G.654.D, the long-distance & high-capacity single-mode optical fibers, are divided into 110 μm² and 130 μm² effective area specifications, which not only has excellent low-loss characteristics, but also provide 150% and 170% effective area of conventional fibers. It apparently reduces the nonlinearity of optical fiber, significantly increases the threshold of optical power of optical fiber and expands the span of optical fiber.

Application Scenarios

- 100G & B100G high speed transmission network
- Long distance, large capacity, high speed WDM network
- Submarine communications and submarine observation network

Performance Features

- Optional 110 μm² and 130 μm² effective area
- Excellent low loss characteristics
- Improve the redundancy of system design for communication link

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	1550 nm	dB/km	⩽0.165
	1625 nm	dB/km	⩽0.204
Attenuation vs. Wavelength	1550 nm VS. 1525-1575 nm	dB/km	⩽0.03
	1550 nm VS. 1550-1625 nm	dB/km	⩽0.05
Zero Dispersion Wavelength	—	nm	⩽1300
Zero Dispersion Slope	—	ps/(nm²·km)	0.07
1550nm Dispersion	1550 nm	ps/(nm·km)	⩽22
1625nm Dispersion	1625 nm	ps/(nm·km)	⩽26
Polarization Mode Dispersion (PMD)	—	—	—
Maximum Individual Fiber	—	ps/√km	0.1
Link design value (M=20, Q=0.01%)	—	ps/√km	0.06
Cut-off Wavelength λ_{cc}	—	nm	⩽1530
1550 nm Mode Field Diameter (MFD)	110 μm²	μm	11.5±0.5
	130 μm²	μm	12.5±0.5
Attenuation Discontinuity	1550 nm	dB	⩽0.05
Attenuation Nonuniformity	1550 nm	dB/km	⩽0.05
Bidirectional Attenuation	1550 nm	dB/km	⩽0.04
	1625 nm	dB/km	⩽0.04

Geometrical

Parameter	Conditions	Units	Value
Cladding Diameter	—	μm	125±1.0
Cladding Non-Circularity	—	%	⩽1.0
Core/Cladding Concentricity Error	—	μm	⩽0.6
Coating Diameter (Uncolored)	—	μm	242±7
Coating/Cladding Concentricity Error	—	μm	⩽12
Curl	—	m	⩾4

Environmental (1310 nm、1550 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	⩽0.05
High Temperature & High Humidity	85°C at 85% RH	dB/km	⩽0.05
Water Immersion	23°C	dB/km	⩽0.05
High Temperature Aging	85°C	dB/km	⩽0.05

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	kpsi	100(standard)
	—	kpsi	200(optional)
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.0-5.0
Tensile Strength	F_k=50%	GPa	⩾4.00
	F_k=15%	GPa	⩾3.20
Dynamic Fatigue (N_d)	—	—	⩾20

Macrobending Loss

Parameter	Conditions	Units	Value
Ø60 mm×100 t	1550 nm	dB	⩽0.2
	1625 nm	dB	⩽0.3

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel	—	km	2.1-50.4

High-bandwidth Optical Fiber For Data Center

MultiCom® Bending Insensitive 50/125 Multimode Optical Fiber

Product Introduction

MultiCom® bending insensitive 50/125 multimode optical fiber is a graded index multimode fiber. This optical fiber comprehensively optimizes the characteristics of 850 nm and 1300 nm operating window, providing higher bandwidth, lower attenuation, and outstanding bending insensitive performance, which meet the use requirements in 850 nm and 1300 nm window.
The bending insensitive multimode optical fibers meet the ISO/IEC 11801 OM2 technical specifications and A1a.1 type of optical fibers in IEC 60793-2-10.

Application Scenarios

- LAN network
- Video, audio and data service center
- Especially suitable for gigabit Ethernet (IEEE802.3z)

Performance Features

- Precise refractive index distribution
- Outstanding bending resistance
- Low attenuation and high bandwidth

Product Specification

Optical(A/B+/B Grade)

Parameter	Conditions	Units	Value
Attenuation	850 nm	dB/km	⩽2.4/⩽2.5/⩽2.5
	1300 nm	dB/km	⩽0.6/⩽0.7/⩽0.7
Bandwidth (Overfilled Launch)	850 nm	MHz.km	⩾500/⩾400/⩾200
	1300 nm	MHz.km	⩾500/⩾400/⩾200
Numerical Aperture	—	—	0.200±0.015
Zero Dispersion Wavelength	—	nm	1295-1320
Effective Group Refractive Index	850 nm	—	1.482
	1300 nm	—	1.477
Attenuation Nonuniformity	—	dB/km	⩽0.10
Partial Discontinuity	—	dB	⩽0.10

Optical Fiber

Geometrical

Parameter	Conditions	Units	Value
Core Diameter	—	μm	50.0±2.5
Cored Non-Circularity	—	%	≤6.0
Cladding Diameter	—	μm	125±1.0
Cladding Non-Circularity	—	%	≤1.0
Core/Cladding Concentricity Error	—	μm	≤1.0
Coating Diameter (Uncolored)	—	μm	245±7
Coating/Cladding Concentricity Error	—	μm	≤10.0

Environmental (850 nm、1300 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	⩽0.10
Temperature Humidity Cycling	-10°C to +85°C up to 98% RH	dB/km	⩽0.10
High Temperature & High Humidity	85°C at 85% RH	dB/km	⩽0.10
Water Immersion	23°C	dB/km	⩽0.10
High Temperature Aging	85°C	dB/km	⩽0.10

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	%	1.0
	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.4
Dynamic Fatigue (N_d)	—	—	⩾20

Macrobending Loss

Parameter	Conditions	Units	Value
R15 mm×2 t	850 nm	dB	⩽0.1
	1300 nm	dB	⩽0.3
R7.5 mm×2 t	850 nm	dB	⩽0.2
	1300 nm	dB	⩽0.5

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	1.1-17.6

High-bandwidth Optical Fiber For Data Center

MultiCom® Bending Insensitive OM3-150 Multimode Optical Fiber

Product Introduction

MultiCom® bending insensitive OM3-150 (OM2+) is a type of 50/125 graded index multimode optical fiber. This optical fiber is specifically designed for 10 Gb/s Ethernet with low-cost 850 nm VCSEL as the light source and has lower DMD and attenuation. Bending insensitive OM3-150 (OM2+) multimode optical fibers comply with the ISO/IEC 11801 OM2 technical specifications and A1a.1 type of optical fibers in IEC 60793-2-10.

Application Scenarios

- LAN, DC, SAN, COD and other areas
- Designed for low-cost 850 nm VCSEL 10 Gb/s Ethernet
- 10 Gb/s network transmission distance up to 150 m

Performance Features

- High bandwidth and low attenuation properties
- Outstanding bending resistance

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	850 nm	dB/km	⩽2.4
	1300 nm	dB/km	⩽0.6
Bandwidth (Overfilled Launch)	850 nm	MHz.km	⩾700
	1300 nm	MHz.km	⩾500
Effective Modal Bandwidth	850 nm	MHz.km	⩾950
10G Ethernet SX	850 nm	m	150
1G Ethernet SX	850 nm	m	750
1G Ethernet LX	1300 nm	m	500
Numerical Aperture	—	—	0.200±0.015
Zero Dispersion Wavelength	—	nm	1295-1320
Effective Group Refractive Index	850 nm	—	1.482
	1300 nm	—	1.477
Attenuation Nonuniformity	—	dB/km	⩽0.10
Partial Discontinuity	—	dB	⩽0.10

Geometrical

Parameter	Conditions	Units	Value
Core Diameter	—	μm	50.0±2.5
Cored Non-Circularity	—	%	⩽5.0
Cladding Diameter	—	μm	125±1.0
Cladding Non-Circularity	—	%	⩽1.0
Core/Cladding Concentricity Error	—	μm	⩽1.0
Coating Diameter (Uncolored)	—	μm	245±7
Coating/Cladding Concentricity Error	—	μm	⩽10.0

Environmental (850 nm、1300 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	⩽0.10
Temperature Humidity Cycling	-10°C to +85°C up to 98% RH	dB/km	⩽0.10
High Temperature & High Humidity	85°C at 85% RH	dB/km	⩽0.10
Water Immersion	23°C	dB/km	⩽0.10
High Temperature Aging	85°C	dB/km	⩽0.10

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	%	1.0
	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.4
Dynamic Fatigue (N_d)	—	—	⩾20

Macrobending Loss

Parameter	Conditions	Units	Value
R15 mm×2 t	850 nm	dB	⩽0.1
	1300 nm	dB	⩽0.3
R7.5 mm×2 t	850 nm	dB	⩽0.2
	1300 nm	dB	⩽0.5

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	1.1-17.6

High-bandwidth Optical Fiber For Data Center

MultiCom® Bending Insensitive OM3-300 Multimode Optical Fiber

Product Introduction

MultiCom® Bending insensitive OM3-300 is a type of 50/125 graded index multimode optical fiber. This optical fiber, providing lower DMD and attenuation, is specifically designed for 10 Gb/s Ethernet with a low-cost 850 nm VCSEL as the light source.
Bending insensitive OM3-300 multimode optical fibers meet or exceed the ISO/IEC 11801 OM3 technical specifications and A1a.2 type of optical fibers in IEC 60793-2-10.

Application Scenarios

- LAN, DC, SAN, COD and other areas
- 1G/10G/40G/100G network
- 10 Gb/s network with transmission distance up to 300 m

Performance Features

- High bandwidth and low attenuation
- Excellent bending resistanceDesigned for low cost 850 nm VCSEL 10 Gb/s Ethernet

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	850 nm	dB/km	⩽2.4
	1300 nm	dB/km	⩽0.6
Bandwidth(Overfilled Launch)	850 nm	MHz.km	⩾1500
	1300 nm	MHz.km	⩾500
Effective Mode Bandwidth	850 nm	MHz.km	⩾2000
10G Ethernet SX	850 nm	m	300
40/100G Ethernet	850 nm	m	100
Numerical Aperture	—	—	0.200±0.015
Zero Dispersion Wavelength	—	nm	1295-1320
Effective Group Refractive Index	850 nm	—	1.482
	1300 nm	—	1.477
Attenuation Nonuniformity	—	dB/km	⩽0.10
Partial Discontinuity	—	dB	⩽0.10

Geometrical

Parameter	Conditions	Units	Value
Core Diameter	—	μm	50.0±2.5
Cored Non-Circularity	—	%	⩽5.0
Cladding Diameter	—	μm	125±1.0
Cladding Non-Circularity	—	%	⩽1.0
Core/Cladding Concentricity Error	—	μm	⩽1.0
Coating Diameter (Uncolored)	—	μm	245±7
Coating/Cladding Concentricity Error	—	μm	⩽10.0

Environmental (850 nm、1300 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	⩽0.10
Temperature Humidity Cycling	-10°C to +85°C up to 98% RH	dB/km	⩽0.10
High Temperature & High Humidity	85°C at 85% RH	dB/km	⩽0.10
Water Immersion	23°C	dB/km	⩽0.10
High Temperature Aging	85°C	dB/km	⩽0.10

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	%	1.0
	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.4
Dynamic Fatigue (N_d)	—	—	⩾20

Macrobending Loss

Parameter	Conditions	Units	Value
R15 mm×2 t	850 nm	dB	⩽0.1
	1300 nm	dB	⩽0.3
R7.5 mm×2 t	850 nm	dB	⩽0.2
	1300 nm	dB	⩽0.5

Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	1.1-17.6

High-bandwidth Optical Fiber For Data Center

MultiCom® Bending Insensitive OM4 Multimode Optical Fiber

Product Introduction

MultiCom® bending insensitive OM4 is a type of 50/125 graded index multimode optical fiber. This optical fiber is specifically designed for 10 Gb/s Ethernet with a low-cost 850 nm VCSEL as the light source and has higher bandwidth and lower attenuation.
The bending insensitive OM4 multimode optical fibers meet or exceed the ISO/IEC 11801 OM4 technical specifications and A1a.3 type of optical fibers in IEC 60793-2-10.

Application Scenarios

- LAN, DC, SAN, COD and other areas
- 1G/10G/40G/100G network
- Suitable for 10 Gb/s network with transmission distance up to 550 m

Performance Features

- High bandwidth and low attenuation
- Excellent bending resistance
- Outstanding geometric properties

Product Specification

Optical

Parameter	Conditions	Units	Value
Attenuation	850 nm	dB/km	⩽2.4
	1300 nm	dB/km	⩽0.6
Bandwidth (Overfilled Launch)	850 nm	MHz.km	⩾3500
	1300 nm	MHz.km	⩾500
Effective Mode Bandwidth	850 nm	MHz.km	⩾4700
10G Ethernet SX	850 nm	m	550
40/100G Ethernet	850 nm	m	150
Numerical Aperture	—	—	0.200±0.015
Zero Dispersion Wavelength	—	nm	1295-1320
Effective Group Refractive Index	850 nm	—	1.482
	1300 nm	—	1.477
Attenuation Nonuniformity	—	dB/km	⩽0.10
Partial Discontinuity	—	dB	⩽0.10

Geometrical

Parameter	Conditions	Units	Value
Core Diameter	—	μm	50.0±2.5
Cored Non-Circularity	—	%	⩽5.0
Cladding Diameter	—	μm	125±1.0
Cladding Non-Circularity	—	%	⩽1.0
Core/Cladding Concentricity Error	—	μm	⩽1.0
Coating Diameter (Uncolored)	—	μm	245±7
Coating/Cladding Concentricity Error	—	μm	⩽10.0

Environmental (850 nm、1300 nm)

Parameter	Conditions	Units	Value
Temperature Cycling	-60°C to +85°C	dB/km	⩽0.10
Temperature Humidity Cycling	-10°C to +85°C up to 98% RH	dB/km	⩽0.10
High Temperature & High Humidity	85°C at 85% RH	dB/km	⩽0.10
Water Immersion	23°C	dB/km	⩽0.10
High Temperature Aging	85°C	dB/km	⩽0.10

Mechanical

Parameter	Conditions	Units	Value
Proof Stress	—	%	1.0
	—	kpsi	100
Coating Strip Force	Peak	N	1.3-8.9
	Average	N	1.4
Dynamic Fatigue (N_d)	—	—	⩾20

Macrobending Loss

Parameter	Conditions	Units	Value
R15 mm×2 t	850 nm	dB	⩽0.1
	1300 nm	dB	⩽0.3
R7.5 mm×2 t	850 nm	dB	⩽0.2
	1300 nm	dB	⩽0.5

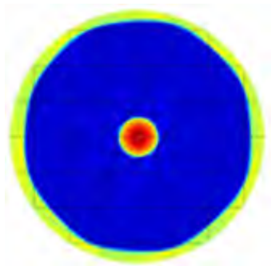
Delivery Length

Parameter	Conditions	Units	Value
Standard Reel Length	—	km	1.1-17.6

Ytterbium Doped Double-layer Optical Fiber (YDF)

Product Introduction

Ytterbium doped double-layer optical fibers offer low numerical apertures, large mode field areas, low nonlinear effects and other characteristics, which meet the high conversion efficiency requirements of fiber lasers. Ytterbium doped optical fibers are ideal for manufacturing high power optical fiber lasers/amplifiers in the 1μm band.



Application Scenarios

- Continuous/pulsed fiber lasers/amplifiers
- Material processing and marking
- Lidar and laser ranging
  Defense military and aviation

Performance Features

- Low core NA—A small number of modes which makes it easy to maintain LP01 fundamental mode output.
- High cladding NA—Meets the need for high power pumping and high efficiency coupling.
- High concentration doping, large mode field and high absorption—Short fiber length for high peak power output
- Special preform deposition formula—Long periods of high power and stable output without photodarkening.
- High temperature resistant, fluorine-containing and low refractive index coating technology—Better durability and reliability in extreme environments such as high temperature and high humidity

Product Specification

Optical

Parameter	Units	Index					
Model	—	**YDF-10/125**	**YDF-20/125**	**YDF-14/250**	**YDF-30/250**	**YDF-20/400**	**YDF-80/400**
Wavelength	nm	1015-1115	1015-1115	1015-1115	1015-1115	1015-1115	1015-1115
Core Numerical Aperture	NA	0.075±0.005	0.075±0.005	0.07±0.005	0.06±0.005	0.06±0.005	0.10 ± 0.01
Inner Cladding Numerical Aperture	NA	⩾0.46	⩾0.46	⩾0.46	⩾0.46	⩾0.46	⩾0.46
Cladding Pumping Absorption @915 nm	dB/m	1.3 ± 0.2	3.6 ± 0.3	0.7±0.5	2.0 ± 0.3	0.4 ± 0.03	6.3 ± 0.5
Cladding Pumping Absorption @976 nm	dB/m	3.7± 0.4	9.8 ± 0.6	2±0.5	6.0 ± 0.5	1.2 ± 0.05	15.8 ± 1.0
Cladding Attenuation @1200 nm	dB/km	⩽15.00	⩽15.00	⩽20	⩽15.00	⩽15.00	⩽20.00

Geometrical

Parameter	Units	Index					
Model	—	**YDF-10/125**	**YDF-20/125**	**YDF-14/250**	**YDF-30/250**	**YDF-20/400**	**YDF-80/400**
Core Diameter	μm	10±1.5	20±1.5	14±1.5	30±2	20±1.5	80±3
Cladding Diameter (flat-to-flat)	μm	125±2	125±2	250±2	250±5	400±10	400±10
Coating Diameter	μm	245±15	245±15	395±15	395±15	550±15	630±20
Core/Cladding Concentricity Error	μm	⩽2	⩽2	⩽1	⩽2	<3	<3
Coating/Cladding Concentricity Error	μm	⩽5	⩽5	⩽5	⩽5	<10	<10
Inner Coating Material	—	High Temperature Resistant and Low Refractive Index Polyester					

Mechanical & Environmental

Parameter	Units	Index					
Model	—	**YDF-10/125**	**YDF-20/125**	**YDF-14/250**	**YDF-30/250**	**YDF-20/400**	**YDF-80/400**
Proof Stress	kpsi	⩾100	⩾100	⩾100	⩾100	⩾100	⩾100
Operating Temperature	°C	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85

Note: Special specifications can be provided for customized services.

Passive Double-cladding Fiber (GDF)

Product Introduction

Passive series of large mode optical field and double-cladding optical fiber (germanium doped optical fiber, GDF), utilizing the same MCVD preform process and drawing process as the active optical fiber, are used to match ytterbium-doped double-layer optical fibers. In consequence, ultra low splice loss can be achieved splicing with the active optical fiber, meeting the application requirements of industrial optical fiber lasers.

Application Scenarios

- High-power optical fiber lasers and amplifiers
- Large mode field optical fiber couplers, fiber combiners and fiber Bragg grating

Product Specification

Optical

Parameter	Units	Index				
Model	**—**	**GDF-10/125**	**GDF-20/125**	**GDF-14/250**	**GDF-30/250**	**GDF-20/400**
Wavelength	nm	1015-1115	1015-1115	1015-1115	1015-1115	1015-1115
Core Numerical Aperture	NA	0.075±0.005	0.075±0.005	0.07±0.005	0.06±0.005	0.06±0.005
Inner Cladding Numerical Aperture	NA	⩾0.46	⩾0.46	⩾0.46	⩾0.46	⩾0.46
Cladding Attenuation @1200 nm	dB/km	⩽15.00	⩽15.00	⩽15.00	⩽15.00	⩽15.00

Geometrical

Parameter	Units	Index				
Model	**—**	**GDF-10/125**	**GDF-20/125**	**GDF-14/250**	**GDF-30/250**	**GDF-20/400**
Core Diameter	μm	10±1	20±1.5	14±1.5	30±2	20±1.5
Cladding Diameter	μm	125±1	125±1	250±2	250 ± 5	400 ± 5
Coating Diameter	μm	245±15	245±15	395±15	395±15	550±15
Core/Cladding Concentricity Error	μm	⩽2	⩽2	⩽2	⩽2	⩽2
Coating/Cladding Concentricity Error	μm	⩽5	⩽5	⩽5	⩽5	⩽5
Inner Coating Material	—	High Temperature Resistant and Low Refractive Index Polyester				

Mechanical & Environmental

Parameter	Units	Index				
Model	**—**	**GDF-10/125**	**GDF-20/125**	**GDF-14/250**	**GDF-30/250**	**GDF-20/400**
Proof Stress	kpsi	⩾100	⩾100	⩾100	⩾100	⩾100
Operating Temperature	°C	-40 to +85	-40 to +85	-40 to +85	-40 to +85	-40 to +85

Note: Special specifications can be provided for customized services.

Power Delivery Optical Fiber (PDF)

Product Introduction

Due to the doping of fluorine, the refractive index of cladding decreases, where the core of power delivery optical fibers (PDF) is composed of pure silicon. Power delivery optical fibers, which are compatible with most of the fibers used in the market for laser power transmission , are applied in fiber-coupled semiconductor lasers, single-tube lasers fiber coupling, and diode-to-fiber laser transmission.

Application Scenarios

- Fiber coupled diode laser
- Fiber coupler, pumping combiner , etc.
- Spectroscopy instrumentation, etc.

Product Specification

Optical

Parameter	Units	Index			
Model	**—**	**PDF-105/125**	**PDF-135/155**	**PDF-200/220**	**PDF-400/440**
Wavelength	nm	800-2100	800-2100	800-2100	800-2100
Core Numerical Aperture	NA	0.22±0.02	0.22±0.02	0.22±0.02	0.22±0.02
Core Type	—	Pure Silicon Core	Pure Silicon Core	Pure Silicon Core	Pure Silicon Core
Inner Cladding Numerical Aperture	NA	—	⩾0.46	—	—
Attenuation @850 nm	dB/km	⩽4	⩽4	⩽6	⩽10

Geometrical

Parameter	Units	Index			
Model	**—**	**PDF-105/125**	**PDF-135/155**	**PDF-200/220**	**PDF-400/440**
Core Diameter	μm	105.0 ± 1.0	135.0 ± 1.0	202.0 ± 2.0	402.0 ± 2.0
Cladding Diameter	μm	125.0 ± 2.0	155.0 ± 2.0	220.0 ± 2.0	440.0 ± 2.0
Coating Diameter	μm	245.0±10.0	320.0±10.0	—	—
Transparent Nylon Buffer Layer Diameter	μm	—	—	650 ± 30	1100 ± 50
Core/Cladding Concentricity Error	μm	⩽2	⩽2	⩽2	⩽2
Coating/ Cladding Concentricity Error	μm	⩽5	⩽5	⩽5	⩽5

Mechanical & Environmental

Parameter	Units	Index			
Model	—	**PDF-105/125**	**PDF-135/155**	**PDF-200/220**	**PDF-400/440**
Proof Stress	kpsi	⩾100	⩾100	⩾100	⩾100
Bending Diameter	mm	⩾25	⩾30	⩾55	⩾200
Operating Temperature	°C	-40 to +85	-40 to +85	-40 to +85	-40 to +85

Note: Special specifications can be provided for customized services.

High Temperature Resistance Optical Fiber

Product Introduction

When the ordinary optical fibers are operated in a high temperature environment, heat aging and thermal oxygen aging are prone to occur, which reduces the protection effects of the coating on the optical fibers. The high temperature series of optical fibers can be operated in high temperature environments. The temperature tolerance grades are 150°C, 200°C and 300°C, and the corresponding models are HTF-150, HTF-200 and HTF-300. This series of optical fibers is designed with different core/cladding materials and corresponding temperature-resistant coatings to meet the specific requirements of specific fields.

Application Scenarios

- Aerospace military, electric heat pipes, oil fields and oil wells, etc.

Performance Features

- HTF can not only be used for a long time in three high temperature environments (150°C, 200°C, 300°C), but also has high strength, corrosion resistance, fatigue resistance and other characteristics, which are compatible with ordinary single-mode fiber to maintain consistent operational convenience.

Product Specification

Optical

Parameter	Units	Index		
Model	—	**HTF-150**	**HTF-200**	**HTF-300**
1310 nm Attenuation	dB/km	⩽0.40	⩽0.80	⩽1.0
1550 nm Attenuation	dB/km	⩽0.25	⩽0.60	⩽0.80
1310 nm Mode Field Diameter	μm	9.2±0.4	9.3±0.4	9.3±0.8
1550 nm Mode Field Diameter	μm	10.4±0.5	10.5±0.8	10.5±1.0
Cut-off Wavelength λ_c	nm	1180-1330	1180-1330	1180-1330

Geometrical

Parameter	Units	Index		
Model	—	**HTF-150**	**HTF-200**	**HTF-300**
Cladding Diameter	um	125±1.0	125±1.0	125±1.0
Core/Cladding Concentricity Error	um	⩽0.6	⩽0.8	⩽1.0
Cladding Non-circularity	%	⩽1.0	⩽1.0	⩽2.0
Coating Diameter	um	200±10	240±15	155±5
Coating/Cladding Concentricity Error	um	⩽12	⩽12	⩽12

Mechanical

Parameter	Units	Index		
Model	—	**HTF-150**	**HTF-200**	**HTF-300**
Proof Stress	kpsi	100	100	100
Dynamic Fatigue (N_d)	—	⩾20	⩾20	⩾20

Environmental

Parameter	Units	Index		
Model	—	**HTF-150**	**HTF-200**	**HTF-300**
Temperature of Short-term Operating	°C	200	250	350
Temperature of Long-term Operating	°C	0 to 150	0 to 150	0 to 150

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Argentina

Bolivia

Chile

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Ecuador

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Peru

Asia Pacific Region

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Cambodia

India

Indonesia

Malaysia

Myanmar

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Pakistan

Philippines

Singapore

Sri Lanka

Taiwan, China

Thailand

Vietnam

Brazil Hengtong

Brazil

Middle East and North Africa Region

Algeria

Dubai (Bay sea area)

Egypt

Jordan

Lebanon

Morocco (West Africa&North Africa Region)

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Serbia

Turkey

Ukraine

Russia Region

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