# Optical Fiber Product Manual

FiberHome Telecommunication Technologies Co., Ltd.

# Company Profile

FiberHome Communications Technologies Ltd. is a leading equipment supplier and global solution provider in the field of information technology and telecommunications. This high-tech enterprise is under the State-owned Assets Supervision and Administration Commission of the State Council. It is also the largest enterprise located in Wuhan Optical Valley, China. FiberHome was founded in 1974, formerly known as Wuhan Post and Telecommunications Research Institute. After 50 years of continuous and in-depth development, its business has been extended to research and development, manufacturing, marketing and sales, and engineering services in four major fields, namely, fiber optic communications, data network communications, wireless communications and intelligent applications. In particular, the company has provided end-to-end solutions in opto-electronic devices, optical pre-fabricated preforms, fiber optic cables and optical communication systems to many countries around the world.

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# FiberHome® Low Water Peak Single-Mode Optical Fiber (G.652.D)

## Description

FiberHome® G.652.D single-mode optical fiber is designed for transmission systems covering the entire wavelength range of 1260 to 1625nm. This single-mode fiber effectively mitigates water peak losses associated with hydrogen and hydroxide ion absorption near 1383nm, extending the operational window into the E-band (1360 to 1460 nm) and thereby increasing the spectral bandwidth by approximately 100 nm. The G.652.D single-mode optical fiber comprehensively optimizes attenuation and dispersion performance across the entire wavelength range of 1260 to 1625nm, meeting the demands for high-speed, multi-channel transmission on a single fiber. Therefore, the G.652.D single-mode optical fiber stands out as one of the best choices for constructing networks.

## Application

The G.652.D single-mode optical fiber is not only widely used for voice transmission, data, video, and other services, providing customers with high-cost performance and quality products, but it also extensively serves major telecommunications carriers. It is suitable for building backbone networks, local networks, access networks, and large enterprise networks.

## Norms

FiberHome® G.652.D optical fiber complies with or exceeds the ITU-T G.652.D and IEC 60793-2-50 B1.3 optical fiber technical specifications and Chinese National Standard GB/T 9771.3.

## Characteristics

- Lower water peak value
- Exhibits lower PMD (Polarization Mode Dispersion) values
- Operates within an extended wavelength range to the E-band
- Suitable for low-cost coarse wavelength division multiplexing (CWDM) systems
- Supports upgrades from CWDM to dense wavelength division multiplexing (DWDM) systems
- Precise control of geometric dimensions, resulting in low fusion splice losses
- Excellent coating protection with superior stripping performance

# Low Water Peak Single-Mode Optical Fiber (G.652.D)

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Dispersion Coefficient | 1550 nm | ≤18 | ps/(nm·km) |
| | 1625 nm | ≤22 | ps/(nm·km) |
| Zero Dispersion Wavelength | - | 1300~1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/(nm$^2$·km) |
| PMD<br>Link Design Value (M=20, Q=0.01%) | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ($\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310 nm | 9.2±0.4 | μm |
| | 1550 nm | 10.4±0.5 | μm |
| Effective Group Index of Refraction (Neff) | 1310 nm | 1.4682 | - |
| | 1550 nm | 1.4688 | - |
| Point Discontinuities | 1310 nm | ≤0.05 | dB |
| | 1550 nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±0.7 | μm |
| Cladding Non-Circularity | - | ≤1.0 | % |
| Coating Diameter | - | 245±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤12.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.6 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60 °C～+85 °C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23 °C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85 °C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85 °C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend induced Attenuation<br>100 turns Φ 60 mm | 1550 nm | ≤0.1 | dB |
| | 1625 nm | ≤0.1 | 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 | 2.1~75.6 | | km/reel |

Note: For ease of measurement, using 1 turn Φ 32 mm replaces 100 turns Φ 60 mm.

# FiberHome® Bending Insensitive Single-Mode Optical Fiber (G.657)

## Description

FiberHome® G.657 single-mode optical fiber offers superior resistance to macro-bending, presenting as a bend-insensitive, low water peak fiber that can effectively utilize the O+S+C+L bands (1260 to 1625nm) for transmission. It features lower polarization mode dispersion (PMD), meeting the requirements for high-speed, long-distance transmission. At present, there are five types of G.657 single-mode optical fibers: G.657.A1+G.652.D, G.657.A1, H-G.657.A1, G.657.A2 and G.657.B3.

It offers good resistance to additional losses due to low macro-bending in the 1600nm wavelength region. This not only supports L-band applications but also allows for easy installation without excessive care when storing the fiber, for example, in splicing cassettes. For cable use inside buildings, the fiber supports installation with small cable bending radius and compact organizers. Excellent bending resistance within 5 to 15 mm bending radius.

## Application

Short pitch cables for special application

High performance optical network operating in O-E-S-C-L band

High speed optical routes in buildings (FTTX)

Cables with low bending requirements

## Norms

FiberHome® G.657 optical fiber complies with or exceeds the ITU-T G.657 and IEC 60793-2-50 G.657 optical fiber technical specifications and Chinese National Standard GB/T 9771.3.

## Characteristics

- Low attenuation satisfying the operation demand in O-E-S-C-L band
- Good bending loss resistance at short radius bends
- Low micro-bending loss for highly demanding cable designs including ribbons
- Low PMD satisfying high bit-rate and long-distance transmission requirements
- Accurate geometrical parameters that insure low slicing loss and high splicing efficiency
- Compatible with other G.652 single-mode optical fibers

# G.657.A1 +G.652.D Single-Mode Fiber

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm (After $H_2$-aging) | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/($nm^2$·km) |
| PMD<br>Link Design Value (M=20, Q=0.01%) | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ( $\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310nm | 9.2±0.4 | μm |
| | 1550nm | 10.4±0.5 | 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 | % |
| Coating Diameter | - | 245±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤12.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60°C～+85°C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85°C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation<br>10 turns Φ 30mm | 1550nm | ≤0.25 | dB |
| | 1625nm | ≤1.0 | dB |
| Macro-Bend Induced Attenuation<br>1 turn 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 |

## G.657.A1 Single-Mode Fiber

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm (After $H_2$-aging) | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/($nm^2$·km) |
| PMD<br>Link Design Value (M=20, Q=0.01%) | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ( $\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310nm | 8.6±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 | % |
| Coating Diameter | - | 245±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤12.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60°C～+85°C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85°C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation<br>10 turns Φ 30mm | 1550nm | ≤0.15 | dB |
| | 1625nm | ≤0.5 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ 20mm | 1550nm | ≤0.5 | 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 |

# H-G.657.A1 Single-Mode Fiber

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm (After $H_2$-aging) | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/($nm^2$·km) |
| PMD<br>Link Design Value (M=20, Q=0.01%) | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff wavelength ( $\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310 nm | 9.2±0.4 | μm |
| | 1550 nm | 10.4±0.5 | μm |
| Effective Group Index Of Refraction (Neff ) | 1310 nm | 1.4682 | - |
| | 1550 nm | 1.4688 | - |
| Point Discontinuities | 1310 nm | ≤0.05 | dB |
| | 1550 nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±0.7 | μm |
| Cladding Non-Circularity | - | ≤0.7 | % |
| Coating Diameter | - | 245±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤12.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550 nm & 1625nm) | | | |
| Temperature Dependence | -60 °C～+85 °C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23 °C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85 °C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85 °C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation<br>10 turns Φ 30mm | 1550 nm | ≤0.15 | dB |
| | 1625 nm | ≤0.5 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ 20mm | 1550 nm | ≤0.5 | dB |
| | 1625 nm | ≤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 |

## G.657.A2 Single-Mode Fiber

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm (After $H_2$-aging) | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/(nm$^2$·km) |
| PMD<br>Link Design Value (M=20, Q=0.01%) T | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ( $\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310 nm | 8.6±0.4 | μm |
| Effective Group Index Of Refraction (Neff ) | 1310 nm | 1.4682 | - |
| | 1550 nm | 1.4688 | - |
| Point Discontinuities | 1310 nm | ≤0.05 | dB |
| | 1550 nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±0.7 | μm |
| Cladding Non-Circularity | - | ≤0.7 | % |
| Coating Diameter | - | 245±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤12.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60 °C～+85 °C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23 °C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85 °C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85 °C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation<br>10 turns Φ 30mm | 1550 nm | ≤0.03 | dB |
| | 1625 nm | ≤0.1 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ 20mm | 1550 nm | ≤0.1 | dB |
| | 1625 nm | ≤0.2 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ15mm | 1550 nm | ≤0.5 | dB |
| | 1625 nm | ≤1.0 | 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 |

# G.657.B3 Single-Mode Fiber

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310nm | ≤0.35 | dB/km |
| | 1383nm (After $H_2$-aging) | ≤0.40 | dB/km |
| | 1550nm | ≤0.21 | dB/km |
| | 1625nm | ≤0.23 | dB/km |
| Zero Dispersion Wavelength | - | 1300-1324 | nm |
| Zero Dispersion Slope | - | ≤0.1 | ps/(nm$^2$·km) |
| Cable Cutoff Wavelength ( $\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310nm | 8.6±0.4 | μm |
| | 1550nm | 9.8±0.5 | μm |
| Effective Group Index of Refraction (Neff) | 1310nm | 1.4683 | - |
| | 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 | - | ≤1.0 | % |
| Coating Diameter | - | 245±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤12.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60°C to +85°C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85°C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation 1 Turn Φ 20mm | 1550nm | ≤0.03 | dB |
| | 1625nm | ≤0.1 | dB |
| Macro-Bend Induced Attenuation 1 Turn Φ 15mm | 1550nm | ≤0.08 | dB |
| | 1625nm | ≤0.25 | dB |
| Macro-Bend Induced Attenuation 1 Turn Φ 10mm | 1550nm | ≤0.15 | dB |
| | 1625nm | ≤0.45 | 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 |

# FiberHome® Ultra Low Loss Single-Mode Optical Fiber（ULL G.652/G.654.C)

## Description

FiberHome® Ultra-low loss single-mode optical fiber has the lowest attenuation loss of the series single-mode in the 1550nm wavelength window, with attenuation within 0.17dB/km. The optimized fiber refractive index profile also provides excellent macro-/micro-bending resistance to the fiber, which is suitable for the design and manufacture of lighter optical cables.

## Application

FiberHome® Ultra-low loss single-mode optical fiber is mainly used in ethernet, internet protocol (IP), asynchronous transfer mode (ATM), synchronous optical network (SONET) and wavelength division multiplexing system (WDM) and other transmission technologies.

## Norms

The attenuation performance of the Ultra-low loss single-mode fiber is significantly better than that of the G.652 fiber, and its performance fully meets and exceeds the IEC 60793-2-50 fiber technical specification and complies with the ITUT G.652 and G.654.C fiber standards.

## Characteristics

- Accurate geometric control and low welding loss
- Good protection and excellent strip force stability
- excellent macro-bend resistance and flexibly adjusted use range
- Significantly reduce the attenuation level, improve the redundancy of system design and fully meet the high-speed and large-capacity requirements
- Large capacity transmission of 40G/100G and ultra 100G long distance dense wavelength division multiplexing for C-band and L-band

# Ultra-Low Loss Single-Mode Optical Fiber (ULL G.652/G.654.C)

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310nm | ≤0.31 | dB/km |
| | 1550nm | ≤0.17 | dB/km |
| | 1625nm | ≤0.20 | dB/km |
| Attenuation Vs Wavelength @1310nm | 1285～1330nm | ≤0.03 | dB/km |
| Attenuation Vs Wavelength @1550nm | 1525～1575nm | ≤0.02 | dB/km |
| Dispersion Coefficient | 1550nm | ≤18 | ps/(nm·km) |
| | 1625nm | ≤22 | ps/(nm·km) |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/(nm$^2$·km) |
| PMD | - | ≤0.1 | ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ($\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310nm | 9.1±0.4 | μm |
| | 1550nm | 10.3±0.5 | 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±1.0 | μm |
| Cladding Non-Circularity | - | ≤1.0 | % |
| Coating Diameter | - | 245±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤12.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.6 | μm |
| Curl (Radius) | - | ≥4 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60°C～+85°C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85°C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation 100 turns Φ 60mm | 1550nm | ≤0.05 | dB |
| | 1625nm | ≤0.05 | 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 ~ 25.2 | | km/reel |

Note: For ease of measurement, using 1 turn Φ 32 mm replaces 100 turns Φ 60 mm.

# FiberHome® Ultra Low Loss and Large Effective Area Optical Fiber (G.654.E)

## Description

FiberHome® Ultra-Low loss and large effective area (G.654.E) optical fiber has a larger effective area, reduces the nonlinear effect in the process of fiber transmission, guarantees a good system transmission performance, has a lower loss, longer transmission distance. The optical fiber meets the future super 100G communication optical fiber application.

## Application

FiberHome® G.654.E single-mode optical fiber is mainly used for different transmission technologies such as ethernet, internet protocol (IP), asynchronous transmission mode (ATM), synchronous optical network (SONET) and wavelength division multiplexing (WDM). It is suitable for high entry power, and can effectively suppress the nonlinear effects such as Brillouin scattering, self-phase modulation and cross-phase modulation.

## Norms

FiberHome® G.654.E single-mode optical fiber complies with or exceeds the requirements of IEC 60793-2-50 G.654.E and ITU-T G.654.

## Characteristics

- Accurate geometric control and low welding loss
- Good protection and excellent strip force stability
- excellent macro-bend resistance and flexibly adjusted use range
- Significantly reduce the attenuation level, improve the redundancy of system design and fully meet the high-speed and large-capacity requirements
- Large capacity transmission of 40G/100G and ultra 100G long distance dense wavelength division multiplexing for C-band and L-band

## Ultra-Low Loss and Large Effective Area Optical Fiber (G.654.E)

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1550nm | ≤0.17 | dB/km |
| | 1625nm | ≤0.20 | dB/km |
| Dispersion Coefficient | 1550nm | ≤23 | ps/(nm·km) |
| | 1625nm | ≤27 | ps/(nm·km) |
| Dispersion Slope | 1550nm | 0.05~0.07 | ps/(nm²·km) |
| PMD | - | ≤0.1 | $ps/\sqrt{km}$ |
| Cable Cutoff Wavelength ($\lambda_{cc}$) | - | ≤1500 | nm |
| Mode Field Diameter (MFD) | 1550nm | 12.5±0.5 | μm |
| Effective Area | 1550nm (Typical Value) | 125 | $\mu m^2$ |
| Effective Group Index of Refraction (Neff) | 1550nm | 1.463 | - |
| Point Discontinuities | 1550nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±1.0 | μm |
| Cladding Non-Circularity | - | ≤1.0 | % |
| Coating Diameter | - | 245±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤12.0 | μm |
| Core-cladding Concentricity Error | - | ≤0.6 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1550nm & 1625nm) | | | |
| Temperature Dependence | -60°C～+85°C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85°C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation 100 turns Φ 60mm | 1550nm | ≤0.1 | dB |
| | 1625nm | ≤0.1 | 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 | 2.1~25.2 | | km/reel |

Note: For ease of measurement, using 1 turn Φ 32 mm replaces 100 turns Φ 60 mm.

# FiberHome® Non-Zero Dispersion-Shifted Single-Mode Optical Fiber (G.655)

## Description

FiberHome® non-zero dispersion shifted single-mode optical fiber (G.655) is comprehensively optimized for attenuation and dispersion performance at the 1550nm operating wavelength. The optical fiber has minimal attenuation and small and non-zero dispersion at 1550nm, which reduces the influence of four-wave mixing, and is suitable for high-rate multi-channel dense wavelength division multiplexing (DWDM) system.

## Application

FiberHome® non-zero dispersion shifted single-mode optical fiber has moderate dispersion and large, and effectively suppress the four-wave mixing, self-phase modulation, modulation instability and cross phase modulation, thus satisfy the demand of high output power erbium-doped fiber amplifier (EDFA) and multi-channel dense wavelength division multiplexing system (DWDM), and can be effectively applied in the high bit-rate both single-and multi-channel and long distance digital transmission systems.

## Norms

FiberHome® non-zero dispersion shifted single-mode optical fiber complies with or exceeds the ITU-T recommendation G.655.C/D, IEC 60793-2-50 type G.655.C/D optical fiber specification and national standard GB/T 9771.5.

## Characteristics

- Good protection and excellent strip force stability
- Accurate geometric control and low welding loss
- Large effective area, reducing the nonlinear effect in the fiber transmission process
- Low attenuation, dispersion, polarization mode dispersion and zero dispersion slope meet the transmission requirements of the system
- Suitable for high-speed transmission of C band (1525 to 1565nm) and L band (1565 to 1625nm)

## Non-Zero Dispersion-Shifted Single-Mode Optical Fiber (G.655)

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1550nm | ≤0.22 | dB/km |
| | 1625nm | ≤0.24 | dB/km |
| Attenuation Vs Wavelength @1550nm | 1525～1575nm | ≤0.02 | dB/km |
| Dispersion Coefficient | 1530~1565nm | 2.0~6.0 | ps/(nm·km) |
| | 1565~1625nm | 4.5~11.2 | ps/(nm·km) |
| Zero Dispersion Wavelength | - | ≤1520 | nm |
| Zero Dispersion Slope | - | ≤0.09 | ps/($nm^2$·km) |
| PMD | - | ≤0.2 | ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ($\lambda_{cc}$) | - | ≤1450 | nm |
| Mode Field Diameter (MFD) | 1550nm | 9.6±0.4 | μm |
| Effective Group Index of Refraction (Neff) | 1550nm | 1.469 | - |
| | 1625nm | 1.469 | - |
| Point Discontinuities | 1550nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±1.0 | μm |
| Cladding Non-Circularity | - | ≤1 | % |
| Coating Diameter | - | 245±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤12.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.6 | μm |
| Curl (Radius) | - | ≥4 | m |
| Environmental Requirements (1550nm & 1625nm) | | | |
| Temperature Dependence | -60°C～+85°C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85°C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation 100 turns Φ 60mm | 1550nm | ≤0.05 | dB |
| | 1625nm | ≤0.1 | 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 | 2.1~25.2 | | km/reel |

Note: For ease of measurement, using 1 turn Φ 32 mm replaces 100 turns Φ 60 mm.

# FiberHome® Wideband Non-Zero Dispersion-Shifted Single-Mode Optical Fiber (G.656)

## Description

FiberHome® G.656 wideband non-zero dispersion-shifted single-mode optical fiber optimized dispersion performance over the entire wavelength window from 1460nm to 1625nm. Through the profile structure design of optical fiber and the utilization of the precise control of PCVD technology, this type of optical fiber is fully optimized through all S+C+L wave band, and also possesses excellent macro-bend resistance and attenuation performance.

## Application

FiberHome® G.656 wideband non-zero dispersion-shifted single-mode optical fiber overcomes the defects in conventional G.652.D, G.653 and G.655 optical fiber. The dispersion coefficient over S+C+L wave band is larger than 2.0ps/(nm·km), and the largest dispersion is no more than 13.4ps/(nm·km). These performances can effectively restrain the non-liner effect in the optical signal transmission process and used in dense wave division multiplexing technology in S+C+L wave band. This type of optical fiber possesses excellent dispersion coefficient and dispersion slope, greatly reduced the cost of dispersion compensation in long-distance trunk. Besides, the attenuation value of G.656 optical fiber across the entire wavelength window from 1450nm to 1625nm is smaller than 0.3dB/km and the attenuation value at 1550nm is smaller than 0.22dB/km. Thanks to these outstanding characteristics, the G.656 optical fiber can be widely used in long-distance backbone network and metropolitan area network.

## Norms

FiberHome® G.656 wideband non-zero dispersion-shifted single-mode optical fiber exceeds the ITU-T G.656 type optical fiber technical specifications and the national standard GB/T9771.6.

## Characteristics

- Good protection and excellent strip force stability
- Accurate geometric control and low welding loss
- Can be used in long-distance trunk network and metropolitan area network
- Lower dispersion coefficient in S, C and L wave band, and wider available wavelength range

# Wideband Non-Zero Dispersion-Shifted Single-Mode Optical Fiber (G.656)

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1550nm | ≤0.22 | dB/km |
| | 1625nm | ≤0.24 | dB/km |
| Dispersion Coefficient | 1530nm~1565nm | 5.5~10 | ps/(nm·km) |
| | 1565nm~1625nm | 7.5~13.4 | ps/(nm·km) |
| | 1460nm~1625nm | 2.0~13.4 | ps/(nm·km) |
| Zero Dispersion Wavelength | - | ≤1420 | nm |
| Dispersion Slope | 1550nm | ≤0.06 | ps/($nm^2$·km) |
| PMD | - | ≤0.2 | ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ($\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1550nm | 9.0±0.6 | μm |
| Effective Group Index of Refraction (Neff) | 1550nm | 1.469 | - |
| Point Discontinuities | 1550nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±1.0 | μm |
| Cladding Non-Circularity | - | ≤1.0 | % |
| Coating Diameter | - | 245±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤12.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.6 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1550nm & 1625nm) | | | |
| Temperature Dependence | -60°C～+85°C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85°C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation 100 turns Φ 60mm | 1550nm | ≤0.1 | dB |
| | 1625nm | ≤0.1 | 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 | 2.1~25.2 | | km/reel |

Note: For ease of measurement, using 1 turn Φ 32 mm replaces 100 turns Φ 60 mm.

# FiberHome® 200μm Low Water Peak Single-Mode Optical Fiber (200μm G.652.D)

## Description

FiberHome® G.652.D reduced diameter single-mode optical fiber (coating outer diameter 200 μm) features a fiber glass core with a size of 125 μm, aligning with the dimensions of conventional 250 μm outer diameter fibers widely used today. It shares the same optical parameters, including mode field diameter and cutoff wavelength, as the standard G.652.D single-mode optical fiber. Additionally, the reduced diameter G.652.D single-mode optical fiber preserves the inherent advantages of the conventional 250 μm outer diameter G.652.D single-mode optical fiber.

## Application

The reduced diameter G.652.D single-mode optical fiber is extensively deployed by major telecommunications carriers and is suitable for small-sized optical cables and fiber devices.

## Norms

FiberHome® reduced diameter G.652.D single-mode optical fiber complies with or exceeds the ITU-T G.652.D and IEC 60793-2-50 B1.3 optical fiber technical specifications and Chinese National Standard GB/T 9771.3.

## Characteristics

- Exhibits a lower water peak value
- Demonstrates lower PMD (Polarization Mode Dispersion) values
- Compatible with other G.652 single-mode optical fibers
- Compatible with stripping and fusion splicing equipment for 250 μm outer diameter fibers
- Particularly suitable for applications in miniaturized fiber devices
- Features excellent coating protection and superior stripping performance

## 200μm Low Water Peak Single-Mode Optical Fiber (200μm G.652.D)

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Dispersion Coefficient | 1550 nm | ≤18 | ps/(nm·km) |
| | 1625 nm | ≤22 | ps/(nm·km) |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/($nm^2$·km) |
| PMD<br>Link Design Value (M=20, Q=0.01%) | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ( λ cc) | | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310 nm | 9.2±0.4 | μm |
| | 1550 nm | 10.4±0.5 | μm |
| Effective Group Index of Refraction (Neff ) | 1310 nm | 1.4682 | - |
| | 1550 nm | 1.4688 | - |
| Point Discontinuities | 1310 nm | ≤0.05 | dB |
| | 1550 nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±0.7 | μm |
| Cladding Non-Circularity | - | ≤0.7 | % |
| Coating Diameter | - | 200±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤10.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60 °C～+85 °C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23 °C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85 °C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85 °C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation<br>100 turns Φ 60mm | 1550 nm | ≤0.1 | dB |
| | 1625 nm | ≤0.1 | 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 | 2.1~75.6 | | km/reel |

Note: For ease of measurement, using 1 turn Φ 32 mm replaces 100 turns Φ 60 mm.

# FiberHome® Thin Diameter Bending Insensitive Single-Mode Optical Fiber (G.657)

## Description

FiberHome® reduced diameter G.657 single-mode optical fiber (with a coating outer diameter of 200 μm or 180 μm) seamlessly combines the characteristics of bend insensitivity. The fiber glass core size is 125 μm, aligning with the dimensions of widely used conventional 250 μm outer diameter fibers. It shares identical optical parameters, including mode field diameter and cutoff wavelength with G.657 fibers. Furthermore, the reduced diameter G.657 single-mode optical fiber inherits the inherent advantages of G.657 fibers.

## Application

The reduced diameter G.657 single-mode optical fiber is suitable for optical cables of various structures, small-sized optical cables, fiber devices, and high-speed FTTX optical pathways. It exhibits excellent performance in the O+S+C+L bands.

## Norms

The reduced diameter G.657 single-mode optical fiber complies with and surpasses the specifications outlined in ITU G.657 and IEC 60793-2-50 standards, particularly meeting the criteria set for ITU-T G.657.A1/G.657.A2.

## Characteristics

- Effectively reduces the size and weight of optical cables, making it more suitable for micro-cables and miniaturized optical cables
- Particularly well-suited for applications in miniaturized fiber devices
- Low attenuation suitable for the O+S+C+L operating bands
- Compatible with other G.657 single-mode optical fibers
- Compatible with stripping and fusion splicing equipment for 250 μm outer diameter fibers

## 200μm G.657.A1 + G.652.D Single-Mode Optical Fiber

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm (After H2-aging) | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/(nm$^2$·km) |
| PMD Link Design Value (M=20, Q=0.01%) | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ($\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310 nm | 9.2±0.4 | μm |
| | 1550 nm | 10.4±0.5 | μm |
| Effective Group Index of Refraction (Neff) | 1310 nm | 1.4682 | - |
| | 1550 nm | 1.4688 | - |
| Point Discontinuities | 1310 nm | ≤0.05 | dB |
| | 1550 nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±0.7 | μm |
| Cladding Non-Circularity | - | ≤0.7 | % |
| Coating Diameter | - | 200±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤10.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60 °C～+85 °C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23 °C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85 °C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85 °C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation<br>10 turns Φ 30mm | 1550 nm | ≤0.25 | dB |
| | 1625 nm | ≤1.0 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ 20mm | 1550 nm | ≤0.75 | dB |
| | 1625 nm | ≤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 |

## 200μm G.657.A1SingleMode Fiber

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm(After H2-aging) | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/(nm$^2$·km) |
| PMD<br>Link Design Value (M=20, Q=0.01%) | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ( $\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310 nm | 8.6±0.4 | μm |
| Effective Group Index of Refraction (Neff) | 1310 nm | 1.4682 | - |
| | 1550 nm | 1.4688 | - |
| Point Discontinuities | 1310 nm | ≤0.05 | dB |
| | 1550 nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±0.7 | μm |
| Cladding Non-Circularity | - | ≤0.7 | % |
| Coating Diameter | - | 200±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤10.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550 nm & 1625 nm) | | | |
| Temperature Dependence | -60 °C～+85 °C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23 °C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85 °C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85 °C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation<br>10 turns Φ 30mm | 1550 nm | ≤0.15 | dB |
| | 1625 nm | ≤0.5 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ 20mm | 1550 nm | ≤0.5 | dB |
| | 1625 nm | ≤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 |

# 200μm H-G.657.A1 Single-Mode Fiber

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm (After H2-aging) | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/(nm$^2$·km) |
| PMD<br>Link Design Value (M=20, Q=0.01%) | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff wavelength ($\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310 nm | 9.2±0.4 | μm |
| | 1550 nm | 10.4±0.5 | μm |
| Effective Group Index of Refraction (Neff) | 1310 nm | 1.4682 | - |
| | 1550 nm | 1.4688 | - |
| Point Discontinuities | 1310 nm | ≤0.05 | dB |
| | 1550 nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±0.7 | μm |
| Cladding Non-Circularity | - | ≤0.7 | % |
| Coating Diameter | - | 200±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤10.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60 °C～+85 °C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23 °C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85 °C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85 °C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation<br>10 turns Φ 30mm | 1550 nm | ≤0.15 | dB |
| | 1625 nm | ≤0.5 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ 20mm | 1550 nm | ≤0.5 | dB |
| | 1625 nm | ≤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 |

## 200μm G.657.A2 Single-Mode Fiber

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm (After H2-aging) | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/(nm$^2$·km) |
| PMD<br>Link Design Value (M=20, Q=0.01%) | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ($\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310 nm | 8.6±0.4 | μm |
| Effective Group Index of Refraction (Neff) | 1310 nm | 1.4682 | - |
| | 1550 nm | 1.4688 | - |
| Point Discontinuities | 1310 nm | ≤0.05 | dB |
| | 1550 nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±0.7 | μm |
| Cladding Non-Circularity | - | ≤0.7 | % |
| Coating Diameter | - | 200±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤10.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60 °C～+85 °C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23 °C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85 °C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85 °C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation<br>10 turns Φ 30mm | 1550 nm | ≤0.03 | dB |
| | 1625 nm | ≤0.1 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ 20mm | 1550 nm | ≤0.1 | dB |
| | 1625 nm | ≤0.2 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ15mm | 1550 nm | ≤0.5 | dB |
| | 1625 nm | ≤1.0 | 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 |

## 180μm G.657.A2 Single-Mode Fiber

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 1310 nm | ≤0.34 | dB/km |
| | 1383 nm (After H2-aging) | ≤0.32 | dB/km |
| | 1550 nm | ≤0.20 | dB/km |
| | 1625 nm | ≤0.22 | dB/km |
| Zero Dispersion Wavelength | - | 1300～1324 | nm |
| Zero Dispersion Slope | - | ≤0.092 | ps/(nm$^2$·km) |
| PMD<br>Link Design Value (M=20, Q=0.01%) | - | ≤0.1<br>≤0.06 | ps/$\sqrt{km}$<br>ps/$\sqrt{km}$ |
| Cable Cutoff Wavelength ($\lambda_{cc}$) | - | ≤1260 | nm |
| Mode Field Diameter (MFD) | 1310 nm | 8.6±0.4 | μm |
| Effective Group Index of Refraction (Neff) | 1310 nm | 1.4682 | - |
| | 1550 nm | 1.4688 | - |
| Point Discontinuities | 1310 nm | ≤0.05 | dB |
| | 1550 nm | ≤0.05 | dB |
| Geometrical Requirements | | | |
| Cladding Diameter | - | 125.0±0.7 | μm |
| Cladding Non-Circularity | - | ≤0.7 | % |
| Coating Diameter | - | 180±10 | μm |
| Coating-Cladding Concentricity Error | - | ≤10.0 | μm |
| Core-Cladding Concentricity Error | - | ≤0.5 | μm |
| Curl (Radius) | - | ≥4.0 | m |
| Environmental Requirements (1310nm & 1550nm & 1625nm) | | | |
| Temperature Dependence | -60 °C～+85 °C | ≤0.05 | dB/km |
| Water-Soaked Dependence | 23 °C, for 30 days | ≤0.05 | dB/km |
| Damp Heat Dependence | 85 °C and 85% RH, for 30 days | ≤0.05 | dB/km |
| Dry Heat | 85 °C, for 30 days | ≤0.05 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥9.0 | N |
| Macro-Bend Induced Attenuation<br>10 turns Φ 30mm | 1550 nm | ≤0.03 | dB |
| | 1625 nm | ≤0.1 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ 20mm | 1550 nm | ≤0.1 | dB |
| | 1625 nm | ≤0.2 | dB |
| Macro-Bend Induced Attenuation<br>1 turn Φ15mm | 1550 nm | ≤0.5 | dB |
| | 1625 nm | ≤1.0 | 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 |

# FiberHome® Multi-Mode Optical Fiber (OM1)

## Description

FiberHome® 62.5/125μm (A1-OM1) multimode optical fiber is a graded-index multimode optical fiber with a 62.5μm core diameter and a 125μm cladding diameter. The optical fiber is comprehensively optimized for performance at the 850nm and 1300nm operating wavelengths. The optical fiber has the high bandwidth and low attenuation, which is satisfying the sue at 850nm and 1300nm.

## Application

Due to the low attenuation and high bandwidth, FiberHome® 62.5/125μm multimode optical fiber can be widely applied in local area networks (LAN), video, voice and data services. It's suited to gigabit ethernet (IEEE802.3z) using laser or light emitting diode (LED) sources. Because of the advantages of the manufacturing process (PCVD), such as extremely refined refractive index (RI) profile control, stability, etc.

FiberHome® 62.5/125μm multimode optical fiber is applicable in all cable types including ribbon cable, loose tube stranded cable, slotted core cable, central tube cable and tight-buffer cable.

## Norms

FiberHome® 62.5/125μm (A1-OM1) multimode fiber complies with or exceeds IEC60793-2-10 A1-OM1optical fiber specification.

FiberHome® tightens many parameters so as to offer more conveniences to customers.

## Characteristics

- Designed for use at 850nm and 1300nm
- Low attenuation and high bandwidth, which overfills the transmission demand of IEEE802.3z gigabit ethernet
- Good protection by dual layer UV coating
- Excellent strip force stability

## Multimode Optical Fiber (OM1)

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 850nm | ≤2.9 | dB/km |
| | 1300nm | ≤0.7 | dB/km |
| Bandwidth | 850nm | ≥200 | MHz·km |
| | 1300nm | ≥500 | MHz·km |
| Numerical Aperture | - | 0.275±0.015 | - |
| Effective Group Index of Refraction (Neff) | 850nm | 1.498 | - |
| | 1300nm | 1.490 | - |
| Zero Dispersion Wavelength ($\lambda_0$) | - | 1320～1365 | nm |
| Zero Dispersion Slope | 1320～1348nm | ≤0.11 | ps/($nm^2$·km) |
| | 1348～1365nm | ≤0.001 (1458-$\lambda_0$) | ps/($nm^2$·km) |
| Geometrical Requirements | | | |
| Core Diameter | - | 62.5±2.5 | μm |
| Core Non-Circularity | - | ≤5.0 | % |
| Cladding Diameter | - | 125.0±2.0 | 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°C～+85°C | ≤0.1 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.1 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.1 | dB/km |
| Dry Heat | 85°C, for 30 days | ≤0.1 | dB/km |
| Mechanical Requirements | | | |
| Proof Test | - | ≥100 | kpsi |
| Macro-Bend Induced Attenuation 100 turns Φ 75mm | 850nm | ≤0.5 | 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 | 1.1~16.8 | | km/reel |

# FiberHome® Multimode Optical Fiber (OM2/OM3/OM4)

## Description

FiberHome® multimode optical fiber (OM2/OM3/OM4) is designed specifically for high-speed local area network (LAN) such as gigabit or higher speeds ethernet. With the extremely refined refractive index profile owing to the optimized PCVD process, FiberHome® multimode optical fiber eliminates the differential mode delay (CMD) phenomenon observed on the conventional fibers in gigabit applications. Thus, there is no need for expensive CMC compensation. FiberHome® multimode optical fiber satisfies the sue at 850nm and 1300nm.

## Application

The outstanding optical performance of FiberHome® multimode optical fiber makes it suitable for applications including not only high-speed LAN but also lower bit-rate systems such as FDDI, Ethernet, ATM, etc. FiberHome® multimode optical fiber supports up to 2000 meter of link distances for lower bit-rate systems. A wide variety of light sources can be sued in combination with FiberHome® multimode optical fiber, such as LEDs, 850nm VCSELs, 780nm CD lasers and 1300nm Fabry-Perot lasers.
FiberHome® multimode optical fiber is applicable in all cable types including ribbon cable, loose tube stranded cable, slotted core cable, central tube cable and tight-buffer cable.

## Norms

FiberHome® multimode optical fiber complies with or exceeds IEC793-2-10 A1-OM2/OM3/OM4 optical fiber specifications.

## Characteristics

- Designed for use at 850nm and 1300nm
- Suited to applications in gigabit ethernet and higher bit-rat systems
- No need to use expensive DMD compensation in gigabit ethernet
- Enabling the longest link distances compared with congener products
- Good protection by dual layer UV coating
- Excellent strip force stability
- Lower macro-bending loss

## Multimode Optical Fiber (OM2)

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 850nm | ≤2.5 | dB/km |
| | 1300nm | ≤0.8 | dB/km |
| Effective Group Index of Refraction (Neff) | 850nm | 1.483 | - |
| | 1300nm | 1.475 | - |
| Bandwidth | 850nm | ≥500 | MHz·km |
| | 1300nm | ≥500 | MHz·km |
| Numerical Aperture | - | 0.20±0.015 | - |
| Zero Dispersion Wavelength ($\lambda_0$) | - | 1295～1340 | nm |
| Zero Dispersion Slope | 1295～1310nm | ≤0.105 | ps/($nm^2$·km) |
| | 1310～1340nm | ≤0.000375 ($1590-\lambda_0$) | 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°C～+85°C | ≤0.1 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.1 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.1 | dB/km |
| Dry Heat | 85°C, 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 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 |

## Multimode Optical Fiber (OM3)

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 850nm | ≤2.5 | dB/km |
| | 1300nm | ≤0.8 | dB/km |
| Effective Group Index of Refraction (Neff) | 850nm | 1.483 | - |
| | 1300nm | 1.475 | - |
| Bandwidth | 850nm | ≥1500 | MHz·km |
| | 1300nm | ≥500 | MHz·km |
| Effective Bandwidth | 850nm | ≥2000 | MHz·km |
| Numerical Aperture | - | 0.20±0.015 | |
| DMD | - | Complies with or exceeds 60793-2-10 | - |
| Zero Dispersion Wavelength ($\lambda_0$) | - | 1295～1340 | nm |
| Zero Dispersion Slope | 1295～1310nm | ≤0.105 | ps/(nm²·km) |
| | 1310～1340nm | ≤0.000375 ($1590-\lambda_0$) | 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°C～+85°C | ≤0.10 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.10 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.10 | dB/km |
| Dry Heat | 85°C, 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 |

## Multimode Optical Fiber (OM4)

| Features | Conditions | Value | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation | 850nm | ≤2.5 | dB/km |
| | 1300nm | ≤0.8 | dB/km |
| Effective Group Index Of Refraction (Neff) | 850nm | 1.483 | - |
| | 1300nm | 1.475 | - |
| Bandwidth | 850nm | ≥3500 | MHz·km |
| | 1300nm | ≥500 | MHz·km |
| Effective Bandwidth | 850nm | ≥4700 | MHz·km |
| Numerical Aperture | - | 0.20±0.015 | - |
| DMD | - | Complies with or exceeds IEC 60793-2-10 | - |
| Zero Dispersion Wavelength ($\lambda_0$) | - | 1295～1340 | nm |
| Zero Dispersion Slope | 1295～1310nm | ≤0.105 | ps/($nm^2$·km) |
| | 1310～1340nm | ≤0.000375 (1590-$\lambda_0$) | 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°C～+85°C | ≤0.1 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.1 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.1 | dB/km |
| Dry Heat | 85°C, 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 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 |

# FiberHome® Multimode Optical Fiber (OM5)

## 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.

## Application

FiberHome® multimode optical fiber (OM5) can maximally support current and emerging high-speed Ethernet, fiber channel and fiber optic interconnection applications. In the data center design, it can fully support higher-speed (100Gb/s and 400Gb/s Ethernet, 16Gb/s and 32Gb/s Fiber Channel) data transmission requirements.

## Norms

FiberHome® multimode optical fiber (OM5) complies with or exceeds IEC 60793-2-10 A1-OM5 cabling standards.

## 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 ($\lambda_0$) | - | 1297～1328 | nm |
| Zero Dispersion Slope | - | $S_0 \leq 4(-103)/840(1-(\lambda_0/840)^4)$ | 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°C～+85°C | ≤0.1 | dB/km |
| Water-Soaked Dependence | 23°C, for 30 days | ≤0.1 | dB/km |
| Damp Heat Dependence | 85°C and 85% RH, for 30 days | ≤0.1 | dB/km |
| Dry Heat | 85°C, 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 ($N_d$) | - | ≥20 | - |
| Delivery Length | 1.1~8.8 | | km/reel |

# FiberHome® High Temperature Optical Fiber (HTF)

## Description

HTF is designed for use in high-temperature environments, including special polyester coatings and polyimide coatings, which can be applied to 150°C and 300°C environments respectively. FiberHome® high temperature optical fibers are widely used in industries such as oil, natural gas, mining and aerospace. The products cover single mode optical fiber (HTSM) and multimode optical fiber (HTMM). HTSM includes G.652.D, G.657.A1 and G.657.B3. HTMM includes OM1, OM2, OM3 and OM4. Other types of high temperature optical fibers can also be designed and produced according to customer needs.

## Application

Used in the mining industry, aerospace industry, oil and gas and other fields.

## Characteristics

- Excellent high-temperature working stability
- Excellent optical performance and geometric size
- Customizable optical fiber refractive index profile

## HTSM-150

| Type | HT 9/125-12/250-150 (G.652.D) | HT 9/125-12/250-150 (G.657.B3) | HT 9/125-12/250-150 (G.657.A1) | Unit |
|---|---|---|---|---|
| Optical Requirements | | | | |
| Attenuation@1310nm | ≤0.4 | ≤0.4 | ≤0.4 | dB/km |
| Attenuation@1550nm | ≤0.25 | ≤0.25 | ≤0.25 | dB/km |
| Mode Field Diameter (MFD)@1310nm | 9.2±0.4 | 8.6±0.4 | 8.8±0.4 | μm |
| Cable Cutoff Wavelength ($\lambda_{cc}$) | ≤1300 | ≤1300 | ≤1300 | nm |
| Geometrical Requirements | | | | |
| Cladding Diameter | 125±1.0 | 125±1.0 | 125±1.0 | μm |
| Cladding Non-Circularity | ≤1.0 | ≤1.0 | ≤1.0 | % |
| Core-Cladding Concentricity Error | ≤0.8 | ≤0.8 | ≤0.8 | μm |
| Coating Diameter | 245±10 | 245±10 | 245±10 | μm |
| Coating-Cladding Concentricity Error | ≤10.0 | ≤10.0 | ≤10.0 | μm |
| Mechanical Requirements | | | | |
| Proof Test | ≥100 | ≥100 | ≥100 | kpsi |
| Operating Temperature Range | -65～+150 | -65～+150 | -65～+150 | ℃ |
| Coating Materials | Special Polyester | Special Polyester | Special Polyester | - |

Note: According to customer needs, various core diameters and all kinds of refractive index profile optical fibers are processed with high-temperature coatings.

## HTSM-300

| Type | HT 9/125-12/155-300 (G.652.D) | HT 9/125-12/155-300 (G.657.B3) | HT 9/125-12/155-300 (G.657.A1) | Unit |
|---|---|---|---|---|
| Optical Requirements | | | | |
| Attenuation@1310nm | ≤1.0 | ≤1.0 | ≤1.0 | dB/km |
| Attenuation@1550nm | ≤0.8 | ≤0.8 | ≤0.8 | dB/km |
| Mode Field Diameter (MFD)@1310nm | 9.2±0.4 | 8.6±0.4 | 8.8±0.4 | μm |
| Cable Cutoff Wavelength( $\lambda_{cc}$) | ≤1300 | ≤1300 | ≤1300 | nm |
| Geometrical Requirements | | | | |
| Cladding Diameter | 125±2.0 | 125±2.0 | 125±2.0 | μm |
| Cladding Non-Circularity | ≤1.0 | ≤1.0 | ≤1.0 | % |
| Core-Cladding Concentricity Error | ≤0.8 | ≤0.8 | ≤0.8 | μm |
| Coating Diameter | 155±10 | 155±10 | 155±10 | μm |
| Mechanical Requirements | | | | |
| Proof Test | ≥75 | ≥75 | ≥75 | kpsi |
| Operating Temperature Range | -65～+300 | -65～+300 | -65～+300 | ℃ |
| Coating Materials | Polyimide | Polyimide | Polyimide | - |

Note:

1. The optical fiber needs to be wound on an optical fiber disk that diameter greater than 36cm with near-zero tension when performing attenuation tests.
2. According to customer needs, various core diameters and all kinds of refractive index profile optical fibers are processed with high-temperature coatings.

## HTMM-150

| Type | HTG 62.5/125-27/250 -150 (OM1) | HTG 50/125-20/250-150 (OM2) | HTG 50/125-20/250-150 (OM3) | HTG 50/125-20/250 -150 (OM4) |
|---|---|---|---|---|
| Optical Requirements | | | | |
| Attenuation@850nm (dB/km) | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 |
| Attenuation@1300nm (dB/km) | ≤1.0 | ≤1.0 | ≤1.0 | ≤1.0 |
| Bandwidth @850nm (MHz·km) | ≥200 | ≥500 | ≥1500 | ≥3500 |
| Bandwidth @1300nm (MHz·km) | ≥200 | ≥500 | ≥500 | ≥500 |
| Effective Bandwidth (MHz·km) | - | - | 2000 | 4700 |
| Numerical Aperture | 0.275±0.015 | 0.20±0.015 | 0.20±0.015 | 0.20±0.015 |
| Geometrical Requirements | | | | |
| Core Diameter (μm) | 62.5±2.5 | 50±2.5 | 50±2.5 | 50±2.5 |
| Core Non-Circularity (%) | ≤5.0 | ≤5.0 | ≤5.0 | ≤5.0 |
| Cladding Diameter (μm) | 125±1.0 | 125±1.0 | 125±1.0 | 125±1.0 |
| Cladding Non-Circularity (%) | ≤1.0 | ≤1.0 | ≤1.0 | ≤1.0 |
| Core-Cladding Concentricity Error(μm) | ≤1.5 | ≤1.0 | ≤1.0 | ≤1.0 |
| Coating Diameter (μm) | 245±10 | 245±10 | 245±10 | 245±10 |
| Coating-Cladding Concentricity Error (μm) | ≤10.0 | ≤10.0 | ≤10.0 | ≤10.0 |
| Mechanical Requirements | | | | |
| Proof Test (kpsi) | ≥100 | ≥100 | ≥100 | ≥100 |
| Operating Temperature Range (°C) | -65～+150 | -65～+150 | -65～+150 | -65～+150 |
| Coating Materials | Special Polyester | Special Polyester | Special Polyester | Special Polyester |

Note: According to customer needs, various core diameters and all kinds of refractive index profile optical fibers are processed with high-temperature coatings.

## HTMM-300

| Type | HTG 62.5/125-27/155-300 (OM1) | HTG 50/125-20/155-300 (OM2) | HTG 50/125-20/155-300 (OM3) | HTG 50/125-20/155-300 (OM4) |
|---|---|---|---|---|
| Optical Requirements | | | | |
| Attenuation@850nm (dB/km) | ≤4.0 | ≤4.0 | ≤4.0 | ≤4.0 |
| Attenuation@1300nm (dB/km) | ≤2.0 | ≤2.0 | ≤2.0 | ≤2.0 |
| Bandwidth @850nm (MHz·km) | ≥200 | ≥500 | ≥1500 | ≥3500 |
| Bandwidth @1300nm (MHz·km) | ≥200 | ≥500 | ≥500 | ≥500 |
| Effective Bandwidth (MHz·km) | - | - | 2000 | 4700 |
| Numerical Aperture | 0.275±0.015 | 0.20±0.015 | 0.20±0.015 | 0.20±0.015 |
| Geometrical Requirements | | | | |
| Core Diameter (μm) | 62.5±2.5 | 50±2.5 | 50±2.5 | 50±2.5 |
| Core Non-Circularity (%) | ≤5.0 | ≤5.0 | ≤5.0 | ≤5.0 |
| Cladding Diameter (μm) | 125±2.0 | 125±2.0 | 125±2.0 | 125±2.0 |
| Cladding Non-Circularity (%) | ≤1.0 | ≤1.0 | ≤1.0 | ≤1.0 |
| Core-Cladding Concentricity Error (μm) | ≤1.5 | ≤1.5 | ≤1.5 | ≤1.5 |
| Coating Diameter (μm) | 155±5.0 | 155±5.0 | 155±5.0 | 155±5.0 |
| Mechanical Requirements | | | | |
| Proof Test(kpsi) | ≥75 | ≥75 | ≥75 | ≥75 |
| Operating Temperature Range (°C) | -65～+300 | -65～+300 | -65～+300 | -65～+300 |
| Coating Materials | Polyimide | Polyimide | Polyimide | Polyimide |

Note:

1. The optical fiber needs to be wound on an optical fiber disk that diameter greater than 36cm with near-zero tension when performing attenuation tests.

2. According to customer needs, various core diameters and all kinds of refractive index profile optical fibers are processed with high-temperature coatings.

# FiberHome® Radiation Resistant Optical Fiber (RRF)

## Description

Radiation resistant optical fiber is a type of special optical fiber that has developed rapidly in recent years. It can effectively avoid the impact of harsh environments such as gamma rays and X-rays in radiation environments on the transmission of optical signals. FiberHome® radiation resistant fiber optic not only fully utilizes its advantages of electromagnetic interference resistance, light weight, small size and strong confidentiality, but also achieves mechanical and environmental adaptability in different irradiation environments (irradiation doses ranging from 10Gy to 250KGy). FiberHome® radiation resistant fiber optic includes single-mode fiber, 50/125 μm multimode fiber and 62.5/125 μm multimode fiber. Meet the usage needs in different conditions. FiberHome® radiation resistant optical fibers can be applied to nuclear submarines, nuclear power detection, ground nuclear facilities, and space vehicles, etc.

## Application

FiberHome® radiation resistant optical fibers can be applied to nuclear submarines, nuclear power detection, ground nuclear facilities, and space vehicles, etc.

## Characteristics

- Low irradiation additional attenuation
- Low attenuation, low dispersion, meeting the working requirements of communication windows
- Accurate control of geometric dimensions, low welding loss
- Good coating protection and excellent peeling performance

## Radiation Resistant Single-Mode Optical Fiber

| Features | Conditions | RD SM-10Gy | RD SM-10KGy | RD SM-250KGy |
|---|---|---|---|---|
| Optical Requirements | | | | |
| Attenuation (dB/km) | 1310nm | ≤0.40 | ≤0.45 | ≤0.45 |
| | 1550nm | ≤0.25 | ≤0.40 | ≤0.40 |
| Dispersion Coefficient (ps/(nm·km)) | 1550nm | ≤19 | ≤19 | ≤19 |
| Zero Dispersion Slope (ps/(nm$^2$·km)) | - | ≤0.092 | ≤0.092 | ≤0.092 |
| PMD Maximum Individual Fiber (ps/$\sqrt{km}$) | - | ≤0.125 | ≤0.125 | ≤0.125 |
| Cable Cutoff Wavelength λcc (nm) | - | ≤1330 | ≤1330 | ≤1330 |
| Mode Field Diameter MFD (μm) | 1310nm | 9.2±0.4 | 9.0±0.6 | 9.0±0.6 |
| | 1550nm | 10.1±0.5 | 10.0±0.7 | 10.0±0.7 |
| Effective Group Index of Refraction (Neff) | 1310nm | 1.463 | 1.462 | 1.462 |
| | 1550nm | 1.463 | 1.462 | 1.462 |
| Geometrical Requirements | | | | |
| Cladding Diameter (μm) | - | 125±1.0 | 125±1.0 | 125±1.0 |
| Cladding Non-Circularity (%) | - | ≤1.0 | ≤1.0 | ≤1.0 |
| Coating Diameter (μm) | - | 245±10 | 245±10 | 245±10 |
| Coating-Cladding Concentricity Error (μm) | - | ≤12.0 | ≤12.0 | ≤12.0 |
| Core-Cladding Concentricity Error (μm) | - | ≤0.6 | ≤0.6 | ≤0.6 |
| Environmental Requirements (1310nm & 1550nm) | | | | |
| Temperature Dependence (dB/km) | -60°C ～+85°C | ≤0.05 | ≤0.05 | ≤0.05 |
| Water-Soaked Dependence (dB/km) | 23°C, for 30 days | ≤0.05 | ≤0.05 | ≤0.05 |
| Damp Heat Dependence (dB/km) | 85°C and 85% RH, for 30 days | ≤0.05 | ≤0.05 | ≤0.05 |
| Dry Heat (dB/km) | 85°C, for 30 days | ≤0.05 | ≤0.05 | ≤0.05 |
| Mechanical Requirements | | | | |
| Proof Test (N) | - | ≥9.0 | ≥9.0 | ≥9.0 |
| Macro-Bend Induced Attenuation 10 turns Φ 30mm | 1550nm | ≤0.2 | ≤0.2 | ≤0.2 |
| | 1625nm | ≤0.5 | ≤0.5 | ≤0.5 |
| Macro-Bend Induced Attenuation 1 turn Φ 20mm | 1550nm | ≤0.2 | ≤0.2 | ≤0.2 |
| | 1625nm | ≤0.5 | ≤0.5 | ≤0.5 |
| Coating Strip Force (N) | Peak Force | 1.3～8.9 | 1.3～8.9 | 1.3～8.9 |
| Dynamic Stress Corrosion Susceptibility Parameter ($N_d$) | - | ≥20 | ≥20 | ≥20 |
| Delivery Length (km/reel) | - | 2.1～25.2 | 2.1～25.2 | 2.1～25.2 |
| Radiational Requirements | | | | |
| Radiation Induced Attenuation (dB/km), Dose: 1000 rad | 1310nm | ≤0.4 | ≤0.4 | ≤0.4 |
| | 1550nm | ≤0.3 | ≤0.3 | ≤0.3 |
| Radiation Induced Attenuation (dB/km), Dose: 10000 Gy | 1310nm | - | ≤10 | ≤10 |
| | 1550nm | - | ≤10 | ≤10 |
| Radiation Induced Attenuation (dB/km), Dose: 250000 Gy | 1310nm | - | - | ≤18 |
| | 1550nm | - | - | ≤20 |

## Radiation Resistant 50/125 μm Multimode Optical Fiber

| Features | Conditions | RDG 50/125-10Gy | RDG 50/125-10KGy | RDG 50/125-250KGy |
|---|---|---|---|---|
| Optical Requirements | | | | |
| Attenuation (dB/km) | 850nm | ≤3.0 | ≤3.0 | ≤3.0 |
| | 1300nm | ≤1.0 | ≤1.0 | ≤1.0 |
| Bandwidth (MHz·km) | 850nm | ≥1500 | ≥500 | ≥500 |
| | 1300nm | ≥500 | ≥500 | ≥500 |
| Numerical Aperture (NA) | - | 0.20±0.015 | 0.20±0.015 | 0.20±0.015 |
| Point Discontinuities (dB) | 1300nm | ≤0.10 | ≤0.10 | ≤0.10 |
| Geometrical Requirements | | | | |
| Core Diameter (μm) | - | 50±2.5 | 50±2.5 | 50±2.5 |
| Core Non-Circularity (%) | - | ≤6.0 | ≤6.0 | ≤6.0 |
| Cladding Diameter (μm) | - | 125±1.0 | 125±1.0 | 125±1.0 |
| Cladding Non-Circularity (%) | - | ≤1.0 | ≤1.0 | ≤1.0 |
| Coating-Cladding Concentricity Error (μm) | - | ≤12.0 | ≤12.0 | ≤12.0 |
| Coating Diameter (μm) | - | 245±10 | 245±10 | 245±10 |
| Core-Cladding Concentricity Error (μm) | - | ≤1.5 | ≤1.5 | ≤1.5 |
| Environmental Requirements (850nm & 1300nm) | | | | |
| Temperature Dependence (dB/km) | -60°C ～+85°C | ≤0.20 | ≤0.20 | ≤0.20 |
| Water-Soaked Dependence (dB/km) | 23°C, for 30 days | ≤0.20 | ≤0.20 | ≤0.20 |
| Damp Heat Dependence (dB/km) | 85°C and 85% RH, for 30 days | ≤0.20 | ≤0.20 | ≤0.20 |
| Dry Heat (dB/km) | 85°C, for 30 days | ≤0.20 | ≤0.20 | ≤0.20 |
| Mechanical Requirements | | | | |
| Proof Test (N) | - | ≥9.0 | ≥9.0 | ≥9.0 |
| Macro-Bend Induced Attenuation 2 turns Φ 30mm | 850nm | ≤0.2 | ≤0.2 | ≤0.2 |
| | 1300nm | ≤0.3 | ≤0.3 | ≤0.3 |
| Coating Strip Force (N) | Typical Average Force | 1.0~5.0 | 1.0~5.0 | 1.0~5.0 |
| | Peak Force | 1.3～8.9 | 1.3～8.9 | 1.3～8.9 |
| Dynamic Stress Corrosion Susceptibility Parameter ($N_d$) | - | ≥20 | ≥20 | ≥20 |
| Delivery Length (km/reel) | - | 2.2～8.8 | 2.2～8.8 | 2.2～8.8 |
| Radiational Requirements | | | | |
| Radiation Induced Attenuation (dB/km), Dose: 1000 rad | 1300nm | ≤1.0 | ≤1.0 | ≤1.0 |
| Radiation Induced Attenuation (dB/km), Dose: 10000 Gy | 1300nm | - | ≤14 | ≤14 |
| Radiation Induced Attenuation (dB/km), Dose: 250000 Gy | 1300nm | - | - | ≤20 |

## Radiation Resistant 62.5/125 μm Multimode Optical Fiber

| Features | Conditions | RDG 62.5/125-10Gy | RDG 62.5/125-10KGy |
|---|---|---|---|
| Optical Requirements | | | |
| Attenuation (dB/km) | 850nm | ≤2.7 | ≤2.7 |
| | 1300nm | ≤0.6 | ≤0.6 |
| Bandwidth (MHz·km) | 850nm | ≥300 | ≥300 |
| | 1300nm | ≥600 | ≥600 |
| Numerical Aperture (NA) | - | 0.275±0.015 | 0.275±0.015 |
| Point Discontinuities (dB) | 1300nm | ≤0.10 | ≤0.10 |
| Geometrical Requirements | | | |
| Core Diameter (μm) | - | 62.5±2.5 | 62.5±2.5 |
| Core Non-Circularity (%) | - | ≤6.0 | ≤6.0 |
| Cladding Diameter (μm) | - | 125±1.0 | 125±1.0 |
| Cladding Non-Circularity (%) | - | ≤1.0 | ≤1.0 |
| Coating-Cladding Concentricity Error (μm) | - | ≤12.0 | ≤12.0 |
| Coating Diameter (μm) | - | 245±10 | 245±10 |
| Core-Cladding Concentricity Error (μm) | - | ≤1.5 | ≤1.5 |
| Environmental Requirements (850nm & 1300nm) | | | |
| Temperature Dependence (dB/km) | -60°C ～+85°C | ≤0.20 | ≤0.20 |
| Water-Soaked Dependence (dB/km) | 23°C, for 30 days | ≤0.20 | ≤0.20 |
| Damp Heat Dependence (dB/km) | 85°C and 85% RH, for 30 days | ≤0.20 | ≤0.20 |
| Dry Heat (dB/km) | 85°C, for 30 days | ≤0.20 | ≤0.20 |
| Mechanical Requirements | | | |
| Proof Test (N) | - | ≥9.0 | ≥9.0 |
| Macro-Bend Induced Attenuation 2 turns Φ 30mm | 850nm | ≤0.2 | ≤0.2 |
| | 1300nm | ≤0.2 | ≤0.2 |
| Coating Strip Force (N) | Typical Average Force | 1.0~5.0 | 1.0~5.0 |
| | Peak Force | 1.3～8.9 | 1.3～8.9 |
| Dynamic Stress Corrosion Susceptibility Parameter ($N_d$) | - | ≥20 | ≥20 |
| Delivery Length (km/reel) | - | 2.2～8.8 | 2.2～8.8 |
| Radiational Requirements | | | |
| Radiation Induced Attenuation (dB/km), Dose: 1000 rad | 1300nm | ≤0.5 | ≤0.5 |
| Radiation Induced Attenuation (dB/km), Dose: 10000 Gy | 1300nm | - | ≤45 |

# FiberHome® Dispersion Compensating Fiber (DCF)

## Description

FiberHome® dispersion compensating fiber (DCF) is specially developed through proprietary PCVD-based technology. FiberHome® DCF optimizes the profile precisely to get products with the best compromise between insertion loss and residual dispersion over the compensated operating wavelength. Widely used in dense wavelength division multiplexing (DWDM) networks, cable television system (CATV), dispersion accommodation, and single mode fiber communication system for long distance and metropolitan area networks based on recommendation G.652 or G.655.

## Application

DWDM networks

CATV cable television system

Dispersion accommodation

Single mode fiber communication system for long distance and metropolitan area networks based on recommendation G.652.D

## Characteristics

- Precise geometry
- Accurate control of refractive index distribution and good optical performance
- Optimization of residual dispersion at compensated operating wavelength
- Can be customized to meet different center wavelength and dispersion requirements

| Type | DCF-G.652.C/175 | DCF-G.652.C/225 | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Operating Wavelength@1550nm | 1525~1565 | 1525~1565 | nm |
| Mode Field Diameter (MFD)@1550nm | 5.0±1.0 | 5.0±1.0 | μm |
| Attenuation@1550nm | ≤0.65 | ≤0.65 | dB/km |
| Dispersion Coefficient@1545nm | -90～-190 | -90～-190 | ps/(nm·km) |
| Relative Dispersion Slope @1545nm | 0.0036±20% | 0.0036±20% | $nm^{-1}$ |
| Geometrical Requirements | | | |
| Cladding Diameter | 80～95 | 80～95 | μm |
| Coating Diameter | 175±15 | 225±15 | μm |
| Cladding Non-Circularity | ≤1.0 | ≤1.0 | % |
| Core-Cladding Concentricity | ≤1.0 | ≤1.0 | μm |

# FiberHome® Step-Index Multi Mode Fiber (SIMMF)

## Description

FiberHome® silica-cladding step index multi-mode fibers have the optical properties with extremely low attenuation. This series of products can be customized with different core diameters (from 50 $\mu$m to 800 $\mu$m), cladding diameters (from 125 $\mu$m to 840 $\mu$m) and numerical aperture (up to 0.22) to maximize customer needs for different applications. Widely used in environments such as fiber optic sensing, laser energy transmission, data communication, local area networks and cable TV, medical equipment applications, etc.

## Application

Optical fiber sensing
Laser energy transmission
Data communication
LAN and cable TV
Medical device applications

## Characteristics

- Good stripping performance
- Good dimensional uniformity
- High coupling efficiency between LED and laser sources

## Step-Index Multi Mode Fiber

| Type | SI 50/125-22/250 | SI 100/140-22/250 | SI 105/125-15/250 | SI 105/125-22/250 | SI 110/125-20/250 |
|---|---|---|---|---|---|
| Optical Requirements | | | | | |
| Numerical Aperture | 0.22±0.02 | 0.22±0.02 | 0.15±0.02 | 0.22±0.02 | 0.20±0.02 |
| Attenuation@850nm (dB/km) | ≤3.0 | ≤3.0 | ≤8.0 | ≤4.0 | ≤15.0 |
| Attenuation@1300nm (dB/km) | ≤2.0 | ≤1.2 | ≤18.0 | ≤8.0 | ≤25.0 |
| Geometrical Requirements | | | | | |
| Core Diameter (μm) | 50.0±2.0 | 100.0±3.0 | 105.0±3.0 | 105.0±3.0 | 110.0±3.0 |
| Cladding Diameter (μm) | 125.0±2.0 | 140.0±3.0 | 125.0±2.0 | 125.0±2.0 | 125.0±2.0 |
| Coating Diameter (μm) | 250.0±10.0 | 250.0±10.0 | 250.0±10.0 | 250.0±10.0 | 250.0±10.0 |
| Core-Cladding Concentricity (μm) | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 |
| Core Non-Circularity (%) | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 |
| Cladding Non-Circularity (%) | ≤2.0 | ≤2.0 | ≤2.0 | ≤2.0 | ≤2.0 |
| Core | Pure Silica Glass | | | | |
| Cladding | F Doped Silica Glass | | | | |
| Coating | Dual-Layer UV-Acrylate | | | | |
| Mechanical Requirements | | | | | |
| Proof Test (kpsi) | 100 | 100 | 100 | 100 | 100 |

## Step-Index Multi Mode Fiber

| Type | SI 200/220-22/500 | SI 200/240-22/500 | SI 400/440-22/730 | SI 600/660-22/960 | SI 800/840-22/1400E |
|---|---|---|---|---|---|
| Optical Requirements | | | | | |
| Numerical Aperture | 0.22±0.02 | 0.22±0.02 | 0.15±0.02 | 0.22±0.02 | 0.20±0.02 |
| Geometrical Requirements | | | | | |
| Core Diameter (μm) | 200.0±5.0 | 200.0±5.0 | 400.0±8.0 | 600.0±10.0 | 800.0±10.0 |
| Cladding Diameter (μm) | 220.0±5.0 | 240.0±5.0 | 440.0±8.0 | 660.0±10.0 | 840.0±10.0 |
| Coating Diameter (μm) | 500.0±20.0 | 500.0±20.0 | 730.0±30.0 | 960.0±30.0 | 1400.0±50.0 |
| Core-Cladding Concentricity (μm) | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 |
| Core | Pure Silica Glass | | | | |
| Cladding | F Doped Silica Glass | | | | |
| Coating | Dual-Layer UV-Acrylate Or ETFE | | | | |
| Mechanical Requirements | | | | | |
| Proof Test (kpsi) | 100 | 100 | 100 | 100 | 100 |

# FiberHome® Graded-Index Multi Mode Fiber (GIMMF)

## Description

FiberHome® silica-cladding graded index multi-mode fibers have the optical properties with extremely low attenuation and extremely high bandwidth. This series of products can be customized with different core diameters (from 50 $\mu$m to 300 $\mu$m), cladding diameters (from 125 $\mu$m to 330 $\mu$m) and numerical aperture (up to 0.30) to maximize customer needs for different applications. Widely used in environments such as fiber optic sensing, laser energy transmission, data communication, local area networks and cable TV, medical equipment applications, etc.

## Application

Optical fiber sensing
Laser energy transmission
Data communication
LAN and cable TV
Medical device applications

## Characteristics

- Good stripping performance
- Good dimensional uniformity
- High coupling efficiency between LED and laser source

## Graded-Index Multi Mode Fiber

| Type | GI 50/125-20/250 | GI 80/125-30/250 | GI 100/125-29/250 | GI 100/140-29/250 | GI 105/125-30/250 | GI 100/125-14/250 |
|---|---|---|---|---|---|---|
| Optical Requirements | | | | | | |
| Numerical Aperture | 0.20±0.015 | 0.30±0.02 | 0.29±0.02 | 0.29±0.02 | 0.30±0.02 | 0.14±0.02 |
| Attenuation@850nm (dB/km) | ≤2.45 | ≤3.5 | ≤3.5 | ≤3.2 | ≤4.0 | ≤20.0 |
| Attenuation@1300nm (dB/km) | ≤0.6 | ≤0.7 | ≤0.7 | ≤0.8 | ≤1.2 | - |
| Bandwidth@850nm (MHz·km) | ≥100 | ≥100 | ≥100 | ≥100 | ≥100 | - |
| Bandwidth@1300nm (MHz·km) | ≥200 | ≥200 | ≥200 | ≥200 | ≥200 | - |
| Geometrical Requirements | | | | | | |
| Core Diameter (μm) | 50.0±2.0 | 80.0±3.0 | 100.0±3.0 | 100.0±3.0 | 105.0±3.0 | 100.0±3.0 |
| Cladding Diameter (μm) | 125.0±2.0 | 125.0±2.0 | 125.0±2.0 | 140.0±2.0 | 125.0±2.0 | 125.0±2.0 |
| Coating Diameter (μm) | 250.0±10.0 | 250.0±10.0 | 250.0±10.0 | 250.0±10.0 | 250.0±10.0 | 250.0±10.0 |
| Core-Cladding Concentricity (μm) | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 |
| Core Non-Circularity (%) | ≤2.0 | ≤5.0 | ≤2.0 | ≤3.0 | ≤2.0 | ≤3.0 |
| Cladding Non-Circularity (%) | ≤1.0 | ≤1.0 | ≤1.0 | ≤1.0 | ≤1.0 | ≤1.0 |
| Core | Ge/F Doped Silica Glass | | | | | |
| Cladding | Pure Silica Glass | | | | | |
| Coating | Dual-Layer UV-Acrylate | | | | | |
| Mechanical Requirements | | | | | | |
| Proof Test (kpsi) | 100 | 100 | 100 | 100 | 100 | 100 |

## Graded-Index Multi Mode Fiber

| Type | GI 105/125-24/250 | GI 50/80-29/165 | GI 300/330-25/500 | GI 200/220-22/500 | GI 230/250-22/500 |
|---|---|---|---|---|---|
| Optical Requirements | | | | | |
| Numerical Aperture | 0.24±0.02 | 0.29±0.02 | 0.25±0.02 | 0.22±0.02 | 0.22±0.02 |
| Attenuation@850nm (dB/km) | ≤3.5 | ≤4.0 | ≤3.5 | ≤3.2 | ≤4.0 |
| Attenuation@1300nm (dB/km) | ≤1.5 | ≤2.0 | ≤7.0 | ≤6.0 | ≤5.0 |
| Bandwidth@850nm (MHz·km) | ≥100 | ≥100 | - | - | - |
| Bandwidth@1300nm (MHz·km) | ≥200 | ≥200 | - | - | - |
| Geometrical Requirements | | | | | |
| Core Diameter (μm) | 105.0±3.0 | 50.0±3.0 | 300.0±10.0 | 200.0±4.0 | 230.0±5.0 |
| Cladding Diameter (μm) | 125.0±2.0 | 80.0±2.0 | 330.0±5.0 | 220.0±3.0 | 250.0±5.0 |
| Coating Diameter (μm) | 250.0±10.0 | 165.0±8.0 | 500.0±20.0 | 500.0±20.0 | 500.0±20.0 |
| Core-Cladding Concentricity (μm) | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 | ≤3.0 |
| Core Non-Circularity (%) | ≤2.0 | ≤2.0 | - | - | - |
| Cladding Non-Circularity (%) | ≤1.0 | ≤1.0 | - | - | - |
| Core | Ge/F Doped Silica Glass | | | | |
| Cladding | Pure Silica Glass | | | | |
| Coating | Dual-Layer UV-Acrylate | | | | |
| Mechanical Requirements | | | | | |
| Proof Test (kpsi) | 100 | 100 | 100 | 100 | 100 |

# FiberHome® Hard Polymer-Cladding Fiber (HPCF)

## Description

FiberHome® low-hydroxyl large-core hard polymer cladding optical fibers have extremely high tensile strength, strong moisture resistance, and high coupling efficiency brought by large core diameter. This series of products can be customized with different core diameters (from 200 μm to 1000 μm), plastic cladding diameters (from 230 μm to 1100 μm), tight cladding diameters (from 500 μm to 1400 μm) and numerical aperture (up to 0.46) to maximize customer needs for different applications. Widely used in high-energy laser transmission, medium and short distance communication, power signal transmission, medical sensing, fiber optic lighting and other environments.

## Application

High energy laser transmission
Medium and short distance communication
Electrical signal transmission
Medical sensing
Optical fiber lighting

## Characteristics

- High coupling efficiency of LED and laser light source
- Outstanding fatigue resistance
- Excellent radiation resistance
- Good compatibility with various light sources

## Hard Polymer-Cladding Fiber

| Type | HP 200 /230-37 /500E | HP 200 /230-40 /500 | HP 200 /230-46 /500 | HP 300 /330-37 /650E | HP 400 /430-37 /730E | HP 600 /630-37 /1040E | HP 600 /630-37 /750E | HP 1000 /1100-37 /1400E |
|---|---|---|---|---|---|---|---|---|
| Optical Requirements | | | | | | | | |
| Numerical Aperture | 0.37±0.2 | 0.40±0.2 | 0.46±0.2 | 0.37±0.2 | 0.37±0.2 | 0.37±0.2 | 0.37±0.2 | 0.37±0.2 |
| Attenuation @850nm (dB/km) | ≤8.0 | ≤5.0 | ≤8.0 | ≤8.0 | ≤8.0 | ≤8.0 | ≤8.0 | ≤8.0 |
| OH Content | Low OH | Low OH | Low OH | Low OH | Low OH | Low OH | Low OH | Low OH |
| Refractive Index Profile | Step Index | Step Index | Step Index | Step Index | Step Index | Step Index | Step Index | Step Index |
| Geometrical Requirements | | | | | | | | |
| Core Diameter (μm) | 200.0 ±3.0 | 200.0 ±3.0 | 200.0 ±3.0 | 300.0 ±6.0 | 400.0 ±8.0 | 600.0 ±10.0 | 600.0 ±10.0 | 1000.0 ±20.0 |
| Cladding Diameter (μm) | 230+0/-8 | 230+0/-8 | 230+5/-10 | 330+5/-10 | 430+5/-10 | 630+5/-10 | 630+5/-10 | 1100+10/-30 |
| Coating Diameter (μm) | 500.0 ±25.0 | 500.0 ±25.0 | 500.0 ±25.0 | 650.0 ±30.0 | 730.0 ±30.0 | 1040.0 ±30.0 | 750.0 ±30.0 | 1400.0 ±50.0 |
| Core-Cladding Concentricity (μm) | ≤5.0 | ≤5.0 | ≤5.0 | ≤6.0 | ≤8.0 | ≤8.0 | ≤8.0 | ≤8.0 |
| Core Material | Pure Silica Glass | Doped Silica Glass | Pure Silica Glass | Pure Silica Glass | Pure Silica Glass | Pure Silica Glass | Pure Silica Glass | Pure Silica Glass |
| Cladding Material | Fluor acrylate | | | | | | | |
| Coating Material | ETFE | Acrylate | Acrylate | ETFE | ETFE | ETFE | ETFE | ETFE |
| Mechanical Requirements | | | | | | | | |
| Short Term Bend Radius (mm) | ≥10 | ≥10 | ≥10 | ≥16 | ≥29 | ≥58 | ≥58 | ≥73 |
| Long Term Bend Radius (mm) | ≥16 | ≥16 | ≥16 | ≥24 | ≥47 | ≥94 | ≥94 | ≥118 |
| Operating Temperature (°C) | -60°C~+85°C | | | | | | | |
| Proof Test (kpsi) | 100 | 100 | 75 | 100 | 75 | 75 | 75 | 85 |

# FiberHome® Passive Fiber (PDF)

## Description

FiberHome® passive single-cladding/ double-cladding fibers owing excellent laser damage resistance, lower attenuation and high light transmittance (range from 800 nm to 1600 nm). Differing from the outer coating acrylate material, the inner coating material is made of low index acrylate. These types of fibers can deliver high laser power and are applicable in high-power laser transmission, laser welding, laser cutting, laser medical treatment, spectral detection, lighting, sensors, etc. Customized power delivery fibers are also available.

## Application

High power laser transmission, laser welding, laser cutting, laser medical treatment, spectral detection, lighting, sensors, etc.

## Characteristics

- Excellent optical properties
- Good geometric uniformity
- Lower attenuation
- High resistance to optical damage
- Product size can be customized

## Quartz Block Head

| Type | PDF-50/70/360 | PDF-100/120/360 | Unit |
|---|---|---|---|
| Optical Requirements | | | |
| Operating Wavelength (nm) | 800～2100 | 800～2100 | nm |
| Core NA | 0.22±0.02 | 0.22±0.02 | - |
| Attenuation@1200nm | ≤10.0 | ≤10.0 | dB/km |
| Geometrical Requirements | | | |
| Core Diameter | 50.0±2.0 | 102.0±3.0 | μm |
| Inner Clad Diameter | 70.0±3.0 | 120.0±3.0 | μm |
| Outer Clad Diameter | 365.0±8.0 | 365.0±8.0 | μm |
| Outer Coating Diameter | 560.0±20.0 | 560.0±20.0 | μm |
| Core-Clad Offset | ≤3.0 | ≤3.0 | μm |
| Core Non-Circularity | ≤3.0 | ≤3.0 | % |
| Material | | | |
| Outer Coating Material | Acrylate | Acrylate | - |
| Inner Coating Material | Low Index Acrylate | Low Index Acrylate | - |
| Mechanical Requirements | | | |
| Proof Test (kpsi) | ≥100 | ≥100 | kpsi |

## Pump Pigtail

| Type | PDF-D-200/220 | PDF-D-135/155 | PDF-D-220/242 |
|---|---|---|---|
| Optical Requirements | | | |
| Operating Wavelength (nm) | 800～1600 | 800～1600 | 800～1600 |
| Core NA | 0.22±0.02 | 0.22±0.02 | 0.22±0.02 |
| Attenuation@1200nm (dB/km) | ≤10.0 | ≤10.0 | ≤10.0 |
| Geometrical Requirements | | | |
| Core Diameter (μm) | 200.0±3.0 | 135.0±2.0 | 220.0±4.0 |
| Cladding diamete (μm) | 220.0±4.0 | 155.0±3.0 | 242.0±4.0 |
| Coating diameter (μm) | 320.0±15.0 | 320.0±20.0 | 360.0±20.0 |
| Core-Clad Offset (μm) | ≤3.0 | ≤3.0 | ≤3.0 |
| Core non-circularity (%) | ≤3.0 | ≤3.0 | ≤3.0 |
| Material | | | |
| Outer Coating Material | Acrylate | Acrylate | Acrylate |
| Inner Coating Material | Low Index Acrylate | Low Index Acrylate | Low Index Acrylate |
| Mechanical Requirements | | | |
| Proof Test (kpsi) | ≥100 | ≥100 | ≥100 |

# FiberHome® FOG-UsingPolarization-Maintaining Fiber(F-PMF)

## Description

FiberHome® PM fiber series are designed for FOG and other polarization devices, the structure of the series is panda geometry with patented stress applying part and precise geometry control. Good performance of extinction ratio can support your product well.

## Application

Fiber optic gyroscope

Fused biconical tapered coupler

Polarization sensitive device

Fiber polarization sensor

## FOG-Using PMF

| Type | PM1310A-80/135 | PM1310A-80/165 | PM1550B-80/135 | PM1550B-80/165 |
|---|---|---|---|---|
| Optical Requirements | | | | |
| Operating Wavelength (nm) | 1310 | 1310 | 1550 | 1550 |
| Cutoff Wavelength (nm) | 1100~1290 | 1100~1290 | 1290~1520 | 1290~1520 |
| Mode Field Diameter (μm) | 6.0±1.0 | 6.0±1.0 | 6.5±1.0 | 6.5±1.0 |
| Attenuation (dB/km) | ≤0.6 | ≤0.6 | ≤0.6 | ≤0.6 |
| Beat Length (mm) | ≤3.0 | ≤3.0 | ≤3.5 | ≤3.5 |
| Crosstalk (dB@1000m) | ≤−22 | ≤−22 | ≤−22 | ≤−22 |
| Geometrical Requirements | | | | |
| Cladding Diameter (μm) | 80.0±1.0 | 80.0±1.0 | 80.0±1.0 | 80.0±1.0 |
| Coating Diameter (μm) | 135.0±3.0 | 165.0±5.0 | 135.0±3.0 | 165.0±5.0 |
| Concentricity (μm) | ≤1.0 | ≤1.0 | ≤1.0 | ≤1.0 |
| Environmental Requirements (1310nm & 1550nm) | | | | |
| Operating Temperature (°C) | −50~85 | −50~85 | −50~85 | −50~85 |
| Mechanical Requirements | | | | |
| Proof Test (kpsi) | 100 | 100 | 100 | 100 |

# FiberHome® Ultra-Thin Diameter Polarization-Maintaining Fiber(U-PMF)

## Description

FiberHome® ultra-thin diameter polarization-maintaining fiber products use the unique thin coating control technology to reduce the diameter of the outer coating from 135 $\mu$m to 100 $\mu$m, effectively increasing the length of the fiber optic ring under the same volume, and solving the miniaturization of the fiber optic gyro device for high precision.

## Application

Fiber optic gyroscope

Fused biconical tapered coupler

Polarization sensitive device

Fiber polarization sensor

## U-PMF

| Type | PM850E-60/100 | PM1310A-60/100 | PM1550B-60/100 |
|---|---|---|---|
| Optical Requirements | | | |
| Operating Wavelength (nm) | 850 | 1310 | 1550 |
| Cutoff Wavelength (nm) | 650~830 | 1100~1290 | 1290~1520 |
| Mode Field Diameter (μm) | 3.8±1.0 | 6.0±1.0 | 6.5±1.0 |
| Attenuation (dB/km) | ≤3.0 | ≤0.6 | ≤0.8 |
| Beat Length (mm) | ≤2.5 | ≤3.0 | ≤3.5 |
| Crosstalk (dB@100m) | ≤－25 | ≤－25 | ≤－25 |
| Geometrical Requirements | | | |
| Cladding Diameter (μm) | 60.0±1.0 | 60.0±1.0 | 60.0±1.0 |
| Coating Diameter (μm) | 102.0±3.0 | 102.0±3.0 | 102.0±3.0 |
| Concentricity (μm) | ≤1.0 | ≤1.0 | ≤1.0 |
| Environmental Requirements (850nm & 1310nm &1550nm) | | | |
| Operating Temperature (°C) | －50～85 | －50～85 | －50～85 |
| Mechanical Requirements | | | |
| Proof Test (kpsi) | 100 | 100 | 100 |

# FiberHome® Multi-Core Fiber (MCF)

## Description

Multi-core fiber (MCF) is a Space-Division Multiplexing fiber, reasonable arrangement of multiple cores in an optical fiber, so that each core can independently and without interference to achieve the transmission of information. FiberHome® multi-core fiber adopts trench-assisted structure with both low crosstalk and low attenuation, which has widely application prospects in the field of fiber-optic sensors and ultra-large-capacity transmission systems, and can be customized according to the customer's requirements with different core counts (such as 4-core,7-core, 8-core and 19-core) and core pitch, as well as providing a complete set of solutions.

## Application

Fiber sensors

Ultra large capacity transmission system

## Characteristics

- Excellent geometrical consistency
- Low attenuation, low cross talk
- Ultra large transferring energy
- Customized to meet customer requirements

## Multi-Core Fiber

| Features | Conditions | MCF 4/125 | MCF 7/150 | MCF 7/200 | MCF 8/150 |
|---|---|---|---|---|---|
| Optical Requirements | | | | | |
| Adjacent Core Cross Talk(dB/km) | - | ≤-45 | ≤-45 | ≤-45 | ≤-40 |
| Attenuation(dB/km) | 1310nm | ≤0.45 | ≤0.45 | ≤0.45 | ≤0.45 |
| | 1550nm | ≤0.25 | ≤0.25 | ≤0.25 | ≤0.25 |
| Dispersion(ps/(nm·km)) | 1550nm | ≤22 | ≤22 | ≤22 | ≤22 |
| Zero Dispersion Wavelength(nm) | - | 1300±20 | 1300±20 | 1300±20 | 1300±20 |
| Cable Cutoff Wavelength ($\lambda_{cc}$)(nm) | - | ≤1330 | ≤1330 | ≤1330 | ≤1330 |
| Mode Field Diameter (MFD)(μm) | 1310nm | 8.5±0.5 | 8.5±0.5 | 8.5±0.5 | 8.5±0.5 |
| | 1550nm | 9.4±0.6 | 9.4±0.6 | 9.4±0.6 | 9.4±0.6 |
| Geometrical Requirements | | | | | |
| Cladding Diameter(μm) | - | 125±1 | 150±2 | 200±2 | 150±1 |
| Core-To-Core Distance(μm) | - | 41.5±1.5 | 41.5±1.5 | 61±1 | 32±1.5 |
| Coating Diameter(μm) | - | 245±10 | 245±10 | 390±10 | 245±10 |
| Mechanical Requirements | | | | | |
| Short Term Bend Radius(mm) | - | ≥7.5 | ≥7.5 | ≥7.5 | ≥7.5 |
| Long Term Bend Radius(mm) | - | ≥15 | ≥15 | ≥15 | ≥15 |
| Proof Test(N) | - | ≥8.8 | ≥8.8 | ≥8.8 | ≥8.8 |
| Dynamic Fatigue Parameter ($N_d$) | - | ≥20 | ≥20 | ≥20 | ≥20 |

# FiberHome® Few-Mode Fiber (FMF)

## Description

FiberHome® few-mode optical fiber (FMF) is a new type of optical fiber designed based on the concept of mode division multiplexing. FiberHome® FMF can overcome the capacity limit of single-mode fiber and greatly increase the transmission capacity. FiberHome® FMF can realize the customization requirements of various types of core structure such as step-index, graded-index and auxiliary channel design can get various types of core layer structure. According to different design, 3-mode, 4-mode, 6-mode, 7-mode FMFs can be realized. Widely used in fiber optic sensing and mode division multiplexing (MDM).

## Application

Fiber optic sensing

Mode division multiplexing (MDM)

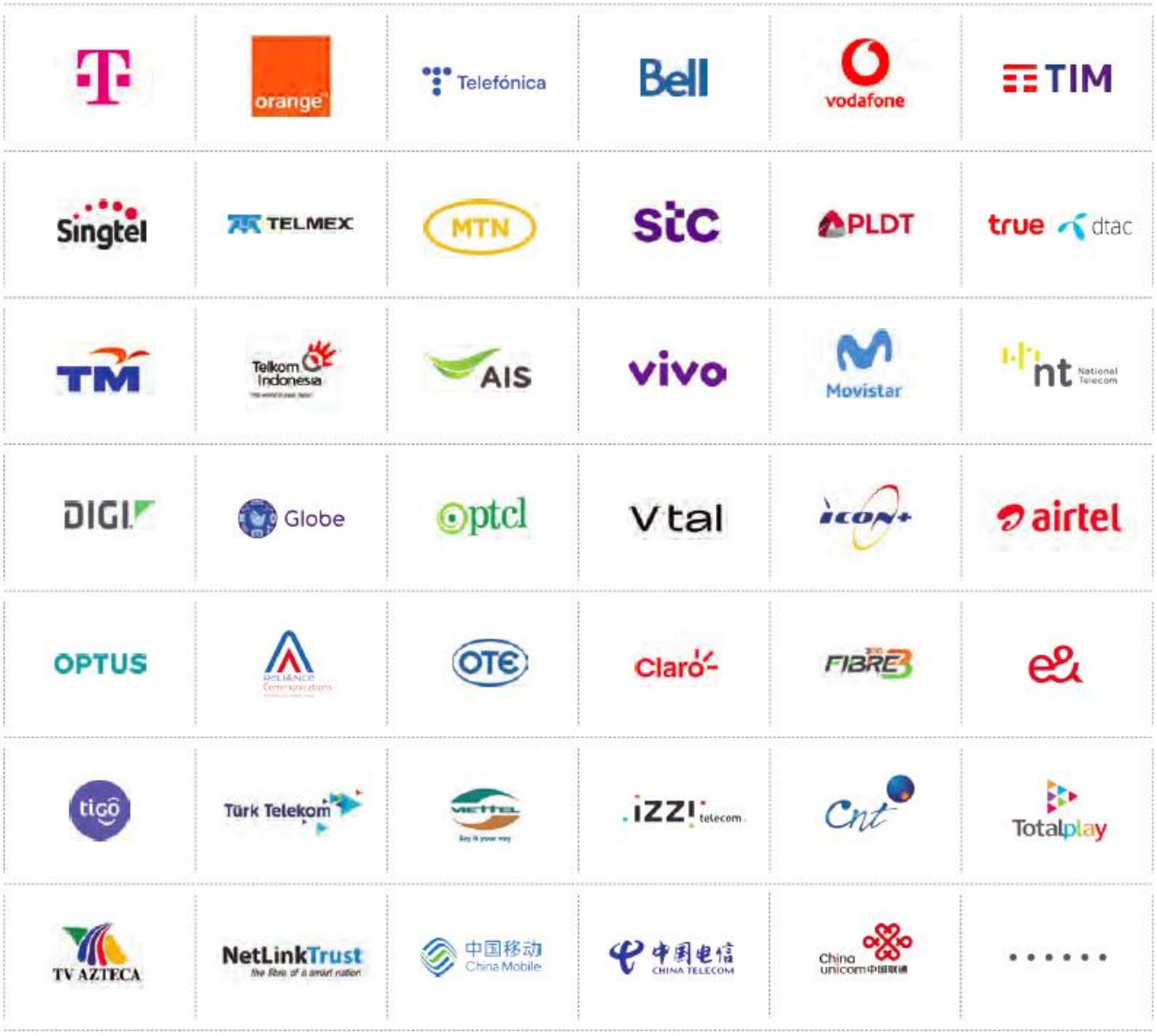
## Characteristics

- Strictly controlled optical and geometrical parameters
- Low attenuation
- Customized waveguide is available
- Low DMD for graded index fiber
- High DMD for step index fiber

## Four Mode Fiber

| Optical Requirements @ 1550nm | Conditions | FM SI-4 | FM GI-4 | Unit |
|---|---|---|---|---|
| Dispersion | LP01 | ≤24 | ≤23 | ps/(nm·km) |
| | LP11 | ≤27 | ≤23 | ps/(nm·km) |
| | LP21 | ≤23 | ≤23 | ps/(nm·km) |
| | LP02 | ≤5 | ≤23 | ps/(nm·km) |
| Dispersion Slope | LP01 | ≤0.11 | ≤0.11 | ps/(nm$^2$·km) |
| | LP11 | ≤0.11 | ≤0.11 | ps/(nm$^2$·km) |
| | LP21 | ≤0.11 | ≤0.11 | ps/(nm$^2$·km) |
| | LP02 | ≤0.10 | ≤0.10 | ps/(nm$^2$·km) |
| Effective Area | LP01 | ≥120 | ≥100 | $\mu$m$^2$ |
| | LP11 | ≥145 | ≥100 | $\mu$m$^2$ |
| | LP21 | ≥160 | ≥100 | $\mu$m$^2$ |
| | LP02 | ≥100 | ≥100 | $\mu$m$^2$ |
| Attenuation | LP01 | ≤0.23 | ≤0.24 | dB/km |
| | LP11 | ≤0.24 | ≤0.24 | dB/km |
| | LP21 | ≤0.24 | ≤0.24 | dB/km |
| | LP02 | ≤0.24 | ≤0.24 | dB/km |
| Differential Group Delay | LP11-LP01 | ≤7 | ≤0.7 | ps/m |
| | LP21-LP01 | ≤13 | ≤0.7 | ps/m |
| | LP02-LP01 | ≤5 | ≤0.7 | ps/m |
| Geometrical Requirements | | | | |
| Cladding Diameter | | 125±1.0 | 125±1.0 | $\mu$m |
| Core Diameter | | 15±0.3 | 12±0.3 | $\mu$m |
| Cladding Non-Circularity | | <0.7 | <0.7 | % |
| Operating Wavelength | | 1450 ～1700 | 1450 ～1700 | nm |
| Coating Diameter | | 245±10 | 245±10 | $\mu$m |

# Clients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