



YONGTE OPTICAL FIBER PRODUCT MANUAL
永特光纤产品手册




富春江光电
FCJ OPTO TECH

FORWARD FUTURE

向前未来



目录 CONTENTS

03 简介
Company Profile

05 光纤预制棒
Optical Fiber Preform

07 波长段扩展的非色散位移单模光纤 (G.652.D)
Optical-Technology Waveband Expanded Non-Dispersion Shifted Single-Mode Optical Fiber (G.652.D)

09 低损耗单模光纤 (LL.G.652.D)
Low Loss Single-Mode Optical Fiber (LL.G.652.D)

11 弯曲不敏感单模光纤 (G.657.A1)
Bend Insensitive Single-Mode Optical Fiber (G.657.A1)

13 弯曲不敏感单模光纤 (G.657.A2)
Bend Insensitive Single-Mode Optical Fiber (G.657.A2)





公司介绍 Company Profile

富春江集团是一家民营制造型企业，创始于1985年。经过33年的创业发展，富春江集团已成为拥有两家A股上市公司的控股集团。旗下富春环保于2010年9月在深交所成功上市(股票代码002479)；杭电股份于2015年2月在上交所成功上市(股票代码603618)。

Fuchunjiang Group is a private manufacturing enterprise, founded in 1985. After more than 33 years' development, the Group has grown into one of the few domestic holding groups with two A-share listed subsidiaries from a semiwork nearby the Fuchunjiang. Subordinate Fuchun Huanbao has been successfully listed in Shenzhen Stock Exchange, stock code 002479, which was the first listed company in Fuyang; while subordinate Hangdian Gufen has been successfully listed in Shanghai Stock Exchange, stock code 603618.

富春江集团是全国文明单位，中国电线电缆行业协会副理事长单位，综合实力跻身中国民营企业500强、中国制造业500强、中国大企业集团竞争力100强，是浙江省百强企业、浙江省信息经济“龙头骨干企业”，曾连续七年获得杭州市“工业兴市”功勋企业称号。

The Group is a national civilized entity, the vice chairman of China's wire and cable industry association, ranked among top 500 private enterprises in the overall strength in China, top 500 manufacturing enterprises in China, top 100 China's largest enterprise group competitiveness, top 100 enterprises in Zhejiang, and titled as a meritorious enterprise in prospering Hangzhou city for seven consecutive years.

杭州永特信息技术有限公司，成立于2017年初，坐落于浙江省杭州市富阳区；是浙江富春江集团旗下专业从事棒纤一体化和配套产业研发生产销售全资子公司。

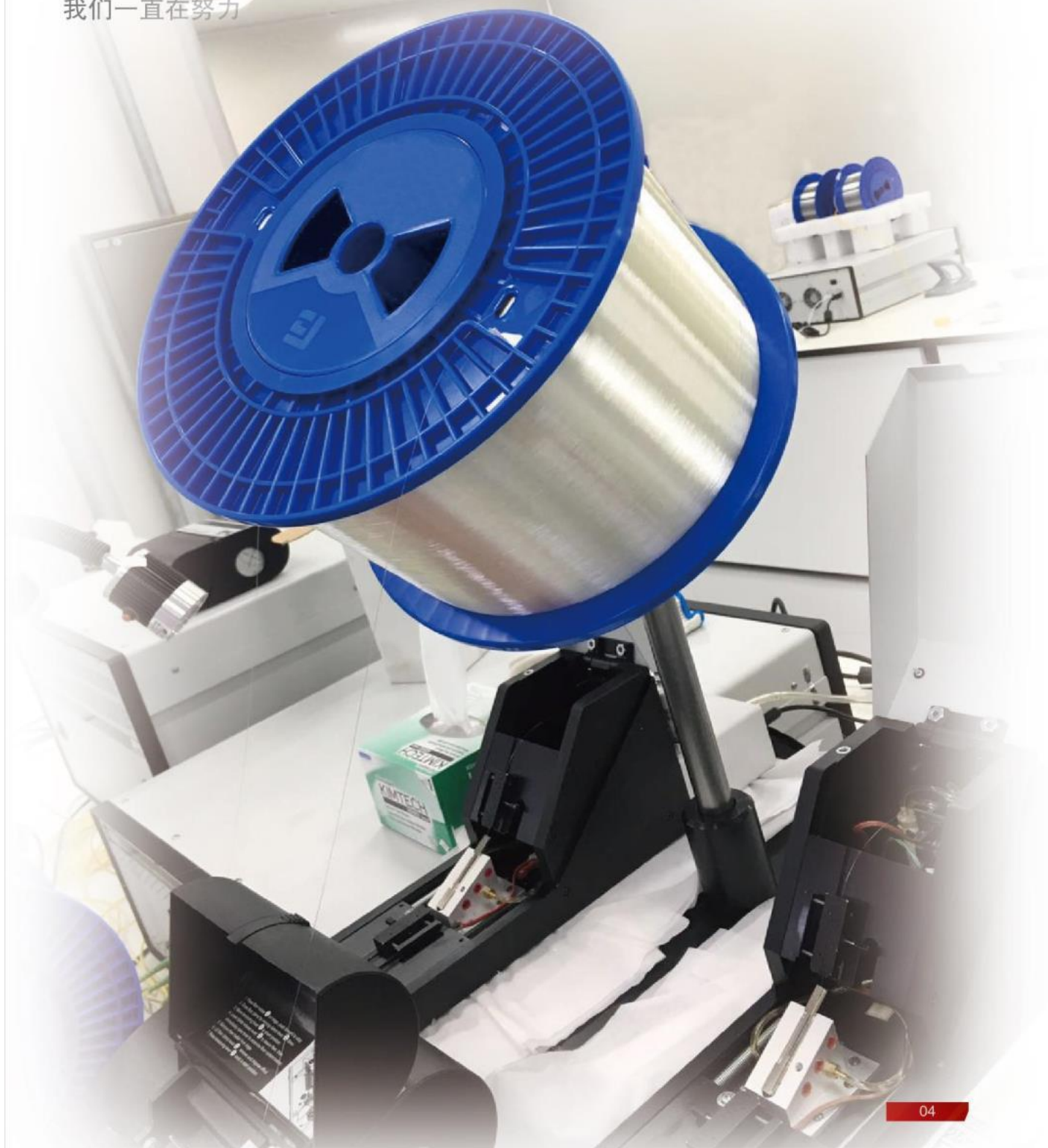
Hangzhou Yongte Information Technology Co.,Ltd, Founded in the beginning of 2017; located in Hangzhou City. It's a wholly-owned subsidiary of FCJ group and specializing in telecom optical fiber preform and fiber R&D and production.

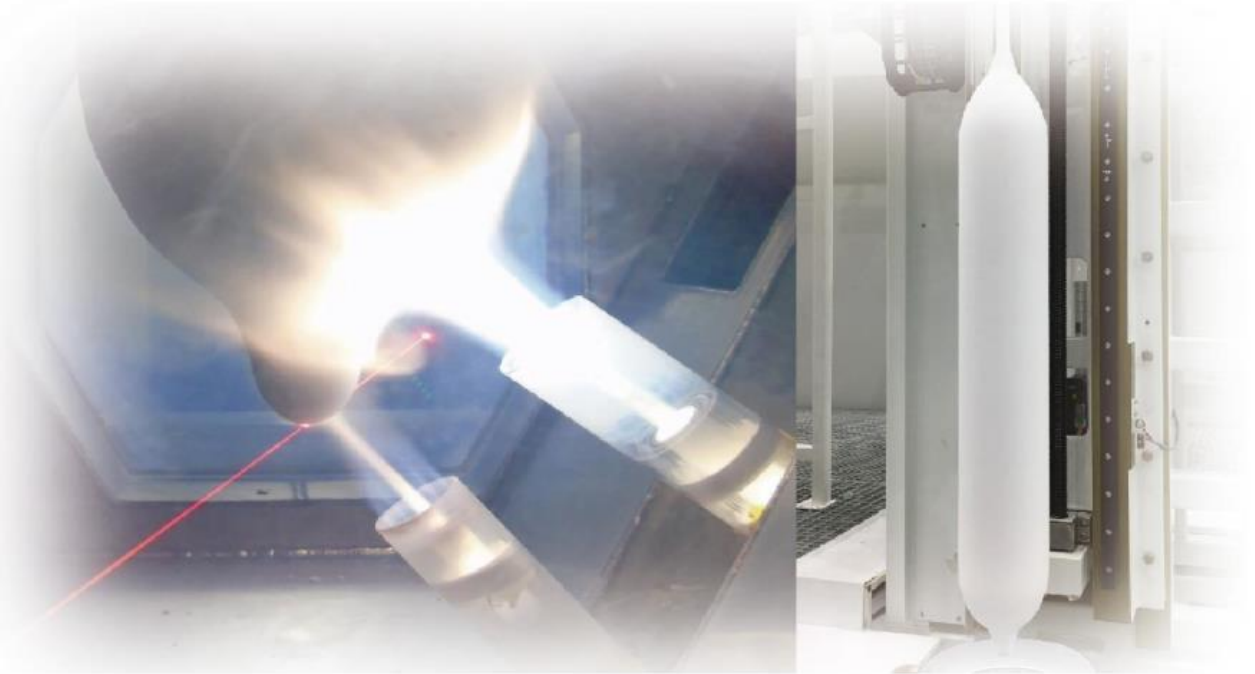
Dedicated to establishing our company as the most respectable and excellent internationalized enterprise

WE ARE ON THE WAY.....

致力于创建倍受社会尊敬的国际化优秀企业

我们一直在努力





光纤预制棒 Optical fiber preform

产品特点

Specification

产品种类 Products

具有满足G. 652D, G. 657, G. 654 以及G. 655拉丝生产的光纤预制棒系列。

Preforms suitable for produce G.652D, G.657, G.654 and G.655 fibers.

关键技术指标 key parameter

具有不同平均外径和有效长度的光纤预制棒,平均外径从90~200mm,有效长度从1000mm到3000mm;

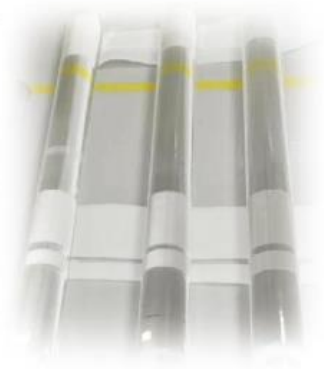
Flexible preform outer diameter and effective length to meet different drawing facilities. Supplied preform diameter: 90~200mm; effective length: 1000mm~3000mm;

光纤产品指标达到并优于ITU-T标准;

Fiber parameters meet the requirement of ITU-T standard;

VAD芯棒技术使光纤在1383nm基本无附加吸收,达到零水峰光纤制作要求。

VAD core process to achieve zero-water peak.



技术特点

Technology Competence

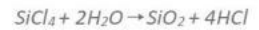
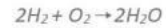
火焰水解法制备高纯度合成石英

Flame Hydrolysis to produce high purity synthetic fused silica

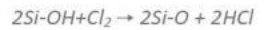
在洁净厂房内，将高规格四氯化硅 (SiCl_4) 在氢氧焰中水解生成亚微米二氧化硅 (SiO_2) 颗粒，一个或者多个用于反应地喷灯将亚微米颗粒堆积成柱状粉末体 (soot)，精确的火焰温度控制和掺杂工艺实现柱体径向和轴向均匀的密度分布和预订的折射率分布。

In our clean room facility, fused silica nano-droplets, of the highest purity, are formed by hydrolysis of silicon tetrachloride (SiCl_4) inside a hydrogen-oxygen torch. These nanoparticles are deposited using multiple torches and results in a chalk-like, nanoporous silica body (known as a soot body). High precise temperature and doping control to achieve suitable geometry and refractive index profile.

Deposition



Dehydration



粉末体在氯气 (Cl_2) 和氦气 (He) 的加热炉内被充分脱水除杂，然后烧结成高纯度透明玻璃预制棒。

The soot body was dehydrated and consolidated in a sintering furnace with purged Cl_2 and He .



气相轴向沉积工艺制备芯棒

VAD (Vapor-phase Axial Deposition) Core rod

轴向生长粉末体，烧结时无中心缩合孔，具备四大工艺中最低的羟基含量，可制备零水峰光纤。

Without center hole in soot body and has the lowest water peak comparing with OVD, PCVD and MCVD process.

氟掺杂工艺，降低芯层二氧化锗含量，具备更低的本征损耗。

Lower the GeO_2 concentration through F doping process to produce low loss fiber.

自主知识产权多喷灯技术，丰富折射率剖面设计，可制备G.652，G.657以及G.655系列光纤。

Multiple burner process with independent intellectual property rights; suitable for produce G.652, G.657 and G.655 fibers.



外部气相沉积工艺制备包层

OVD (Outside Vapor Deposition) over-cladding

高沉积速率，大尺寸，单根预制棒可拉长度大于2000km。

High deposition rate and big preform size, fiber capacity higher.



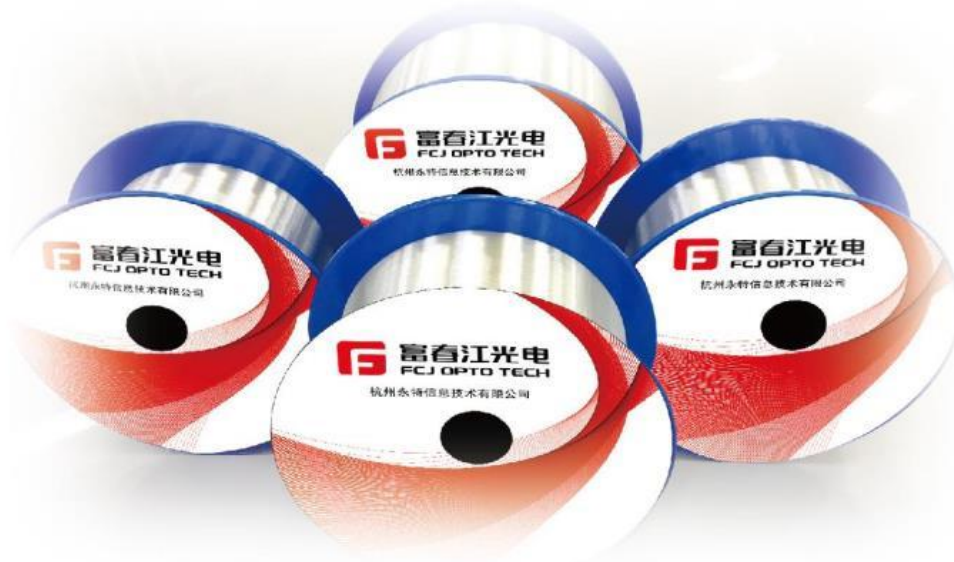
延伸技术

Precise stretching process

实现光纤预制棒芯棒、外包直径的精准控制。

High precise core and clad diameter control to guarantee uniform fiber geometry and optical performance.





波长段扩展的非色散位移单模光纤 (G.652.D) Optical-Technology Waveband Expanded Non-Dispersion Shifted Single-Mode Optical Fiber (G.652.D)

规格型号
波长段扩展的非色散位移单模光纤 (G.652.D)

Type
Waveband Expanded Non-Dispersion Shifted
Single-mode Optical Fiber (G.652.D)

执行标准
满足并优于ITU-T G.652.D & IEC B1.3光纤技术规范要求。

Standard
The fiber comply with or exceed ITU-T G.652.D &
IEC B1.3 specifications.

产品特点
1260 ~ 1625nm全波段传输，优异的光学性能使其满足
DWDM和CWDM系统传输的要求。

Feature
1260 ~ 1625nm full band transmission, superior optical
property satisfies the transmission requirements of
DWDM and CWDM syste.

应用说明
适用于各类光缆结构，包括光纤带光缆、松套管式光缆、
骨架式光缆、中心束管式光纤和紧套光缆等。

Application
Suitable for all optical cable constructions, including
ribbon, loose tube stranded, slotted core, central
tube, tight buffered designs.

几何特性 Dimensional Specifications

技术参数 Specification

包层直径 Cladding Diameter	125.0 ± 0.7 μm
包层不圆度 Cladding Non-Circularity	≤ 0.7 %
涂层直径 Coating Diameter	243 ± 7 μm
涂层/包层同心度误差 Coating-Cladding Concentricity	≤ 10 μm
涂层不圆度 Coating Non-Circularity	≤ 6 %
芯层/包层同心度误差 Core-Clad Concentricity	≤ 0.5 μm
翘曲度 (曲率半径) Fiber Curl (radius)	≥ 4 m
交货长度 Delivery Length	2.1-50.4km/盘(km/reel)

光学特性 Optical Specifications

模场直径 (MFD)	@ 1310nm	9.2 ± 0.4 um
Mode-Field Diameter (MFD)	@ 1550nm	10.4 ± 0.6 um
衰减 Attenuation	@ 1310nm	≤ 0.34 dB / km
	@ 1383nm	≤ 0.34 dB / km
	@ 1550nm	≤ 0.20 dB / km
	@ 1625nm	≤ 0.24 dB / km
相对于波长的衰减变化 Attenuation VS. Wavelength	@ 1285-1330nm, 相对于1310nm @ 1285-1330nm, Ref. λ @ 1310nm	≤ 0.04 dB / km
	@ 1525-1575nm, 相对于1550nm @ 1525-1575nm, Ref. λ @ 1550nm	≤ 0.03 dB / km
衰减点不连续性 Point Discontinuity	@ 1310nm	≤ 0.04 dB
	@ 1550nm	≤ 0.04 dB
偏振模色散系数 (PMD) Polarization Mode Dispersion (PMD)	单根光纤最大值 Maximum Individual Fiber PMD	≤ 0.2 ps/ (km ^{1/2})
	光纤链路值 (M=20, Q=0.01%) PMD Link Design Value (M=20, Q=0.01%)	≤ 0.1 ps/ (km ^{1/2})
	典型值 Typical Value	0.04 ps/ (km ^{1/2})
零色散波长(λ ₀) Zero Dispersion Wavelength(λ ₀)		1312 ± 12 nm
零色散斜率(S ₀) Zero Dispersion Slope(S ₀)		≤ 0.092 ps/(nm ² .km)
波长范围内的色散 Dispersion in the range of wavelength	1285 ~ 1339nm	≥ -3.4, ≤ 3.4 ps/(nm.km)
	1271 ~ 1360nm	≥ -5.3, ≤ 5.3 ps/(nm.km)
光缆截止波长λ _{cc} Cable Cutoff Wavelength λ _{cc}		≤ 1260nm

机械性能 Mechanical Specifications

筛选张力 Proof Test		≥ 9.0N, ≥ 1.0%, ≥ 100Kpsi
动态疲劳参数Nd Dynamic stress corrosion susceptibility parameters Nd		≥ 20
涂层剥离力 Coating Strip Force	平均值 Average	1.5 N
	峰值 Peak	1.3-8.9 N
宏弯附加损耗 Macrobend Loss	1圈, 直径32mm@1550nm 1turn, Φ32mm@1550nm	≤ 0.05 dB
	100圈, 直径 50mm@1310nm&1550nm 100 turns, Φ50mm@1310nm&1550nm	≤ 0.05 dB
	100圈, 直径 60mm@1625nm 100 turns, Φ60mm@1625nm	≤ 0.1 dB

环境性能 Environmental Specifications

温度附加衰减 (-60°C到±85°C, @1550nm) Temperature Dependence (-60°C to ±85°C, @1550nm)		≤ 0.05 dB / km
温度-湿度循环附加衰减 (-10°C到±85°C, 相对湿度98%, @1550nm) Temperature Humidity Cycling (-10°C to ±85°C, at 98%RH, @1550nm)		≤ 0.05 dB / km
浸水附加衰减 (23±2°C, 30天@1550nm) Water Immersion (23±2°C, 30 days@1550nm)		≤ 0.05 dB / km
干热老化 (85±2°C, 30天@1550nm) Dry Heat Soak (85±2°C, 30 days@1550nm)		≤ 0.05 dB / km
湿热老化 (85±2°C, 相对湿度85%, 30天@1550nm) Damp Heat (85±2°C, at 85%RH, 30 days @1550nm)		≤ 0.05 dB / km

保证

杭州永特信息技术有限公司自主生产和检测光纤, 所有合格光纤参数均满足技术规范要求。

包装及储存

保证盘具和光纤外观无异物及损伤, 用薄膜和光纤盘罩包装, 光纤盘和光纤罩上分别有编码标识。包装好的光纤置于恒温25°C避光仓库存放。产品出库时装入纸箱固定, 箱体上附有箱号以及光纤编码信息, 每批货物附电子检测报告。

Warranty

The company produces and tests optical fiber independently, all qualified fibers meet the requirements of technical specifications.

Packing & Storage

Ensure no foreign matter on the reel and fiber surface, wrap it with film and cover, and label fiber coding on the reel and cover respectively.

The packaged optical fiber is stored at a constant temperature of 25°C in a light-proof warehouse. The products are fixed in the carton when they are shipped out of the warehouse. The carton number and fiber coding information are attached to the carton, and the electronic test report is attached to each shipment.



低损耗单模光纤 (LL.G.652.D) Low Loss Single-Mode Optical Fiber (LL.G.652.D)

规格型号 低损耗单模光纤 (LL.G.652.D)	Type Low loss single-mode optical fiber (LL.G.652.D)
执行标准 满足并优于ITU-T G.652.D & IEC B1.3型光纤技术规范要求。	Standard The fiber comply with or exceed ITU-T G.652D & IEC B1.3. specification.
产品特点 1260 ~ 1625nm全波段传输； 抑制了普通单模光纤在1383nm附近由于氢氧根离子吸收造成的水峰损耗； 将工作窗口扩大到E波段 (1360 ~ 1460nm) ，从而增加了约100nm的光谱带宽； 低损耗单模光纤使1260 ~ 1625nm全波段的衰减进一步显著降低； 充分满足了在单根光纤上实现多信道、高速率、超长距离传输的需求。	Feature 1260 ~ 1625nm full band transmission; Restraining water loss of the ordinary single-mode fiber at the vicinity of 1383nm absorption peak which caused by hydroxyl ions; Expanding the working window to E wave band(1360 ~ 1460nm) and increasing the spectral bandwidth of about 100nm; Reducing significantly the attenuation of the 1260 ~ 1625nm full band; Fully meeting the single fiber to realize multi channel,high speed, long distance transmission requirements.
应用说明 适用于各类光缆结构，包括光纤带光缆、松套管绞式光缆、骨架式光缆、中心束管式光纤和紧套光缆等。	Application Suitable for all optical cable constructions, including ribbon, loose tube stranded, slotted core, central tube, tight buffered designs.

几何特性 Dimensional Specifications	技术参数 Specification
包层直径 Cladding Diameter	125.0 ± 0.7 μm
包层不圆度 Cladding Non-Circularity	≤ 0.7 %
涂层直径 Coating Diameter	243 ± 7 μm
涂层/包层同心度误差 Coating-Cladding Concentricity	≤ 10 μm
涂层不圆度 Coating Non-Circularity	≤ 6 %
芯层/包层同心度误差 Core-Clad Concentricity	≤ 0.5 μm
翘曲度 (曲率半径) Fiber Curl (radius)	≥ 4 m
交货长度 Delivery Length	2.1-50.4km/盘(km/reel)

光学特性 Optical Specifications

模场直径 (MFD)	@ 1310nm	9.2 ± 0.4 μm
Mode-Field Diameter (MFD)	@ 1550nm	10.4 ± 0.6 μm
衰减	@ 1310nm	≤ 0.32 dB / km
Attenuation	@ 1383nm	≤ 0.32 dB / km
	@ 1550nm	≤ 0.18 dB / km
	@ 1625nm	≤ 0.20 dB / km
相对于波长的衰减变化	@ 1285–1330nm, 相对于1310nm	≤ 0.03 dB / km
Attenuation VS. Wavelength	@ 1285–1330nm, Ref. λ @ 1310nm	
	@ 1525–1575nm, 相对于1550nm	≤ 0.02 dB / km
	@ 1525–1575nm, Ref. λ @ 1550nm	
衰减点不连续性	@ 1310nm	≤ 0.04 dB
Point Discontinuity	@ 1550nm	≤ 0.04 dB
偏振模色散系数 (PMD)	单根光纤最大值 Maximum Individual Fiber PMD	≤ 0.1 ps/ (km ^{1/2})
Polarization Mode Dispersion (PMD)	光纤链路值 (M=20, Q=0.01%)	≤ 0.06 ps/(km ^{1/2})
	PMD Link Design Value (M=20, Q=0.01%)	
	典型值 Typical Value	0.04 ps/ (km ^{1/2})
零色散波长(λ ₀) Zero Dispersion Wavelength(λ ₀)		1312 ± 12 nm
零色散斜率(S ₀) Zero Dispersion Slope(S ₀)		≤ 0.092 ps/(nm ² .km)
波长范围内的色散	1285 ~ 1339nm	≥ -3.4, ≤ 3.4 ps/(nm.km)
Dispersion in the range of wavelength	1550nm	≤ 18 ps/(nm.km)
	1625nm	≤ 22 ps/(nm.km)
光缆截止波长λ _{cc} Cable Cutoff Wavelength λ _{cc}		≤ 1260nm

机械性能 Mechanical Specifications

筛选张力 Proof Test		≥ 9.0N, ≥ 1.0%, ≥ 100Kpsi
动态疲劳参数Nd Dynamic stress corrosion susceptibility parameters Nd		≥ 20
涂层剥离力	平均值 Average	1.5 N
Coating Strip Force	峰值 Peak	1.3–8.9 N
宏弯附加损耗	1圈, 直径 32mm@1550nm	≤ 0.04 dB
Macro bend Loss	1turn, Φ 32mm@1550nm	
	100圈, 直径 50mm@1310nm&1550nm	≤ 0.04 dB
	100 turns, Φ 50mm@1310nm&1550nm	
	100圈, 直径 60mm@1625nm	≤ 0.08 dB
	100 turns, Φ 60mm@1625nm	

环境性能 Environmental Specifications

温度附加衰减 (-60℃到 ±85℃, @1550nm)		≤ 0.05 dB / km
Temperature Dependence (-60°C to ±85°C, @1550nm)		
温度-湿度循环附加衰减 (-10℃到 ±85℃, 相对湿度98%, @1550nm)		≤ 0.05 dB / km
Temperature Humidity Cycling (-10°C to ±85°C, at 98%RH, @1550nm)		
浸水附加衰减 (23 ± 2℃, 30天@1550nm)		≤ 0.05 dB / km
Water Immersion (23 ± 2°C, 30 days@1550nm)		
干热老化 (85 ± 2℃, 30天@1550nm)		≤ 0.05 dB / km
Dry Heat Soak (85 ± 2°C, 30 days@1550nm)		
湿热老化 (85 ± 2℃, 相对湿度85%, 30天@1550nm)		≤ 0.05 dB / km
Damp Heat (85 ± 2°C, at 85%RH, 30 days @1550nm)		

保证

杭州永特信息技术有限公司自主生产和检测光纤, 所有合格光纤参数均满足技术规范要求。

包装及储存

保证盘具和光纤外观无异物及损伤, 用薄膜和光纤盘罩包装, 光纤盘和光纤罩上分别有编码标识。

包装好的光纤置于恒温25℃避光仓库存放。产品出库时装入纸箱固定, 箱体上附有箱号以及光纤编码信息。每批货物附电子检测报告。

Warranty

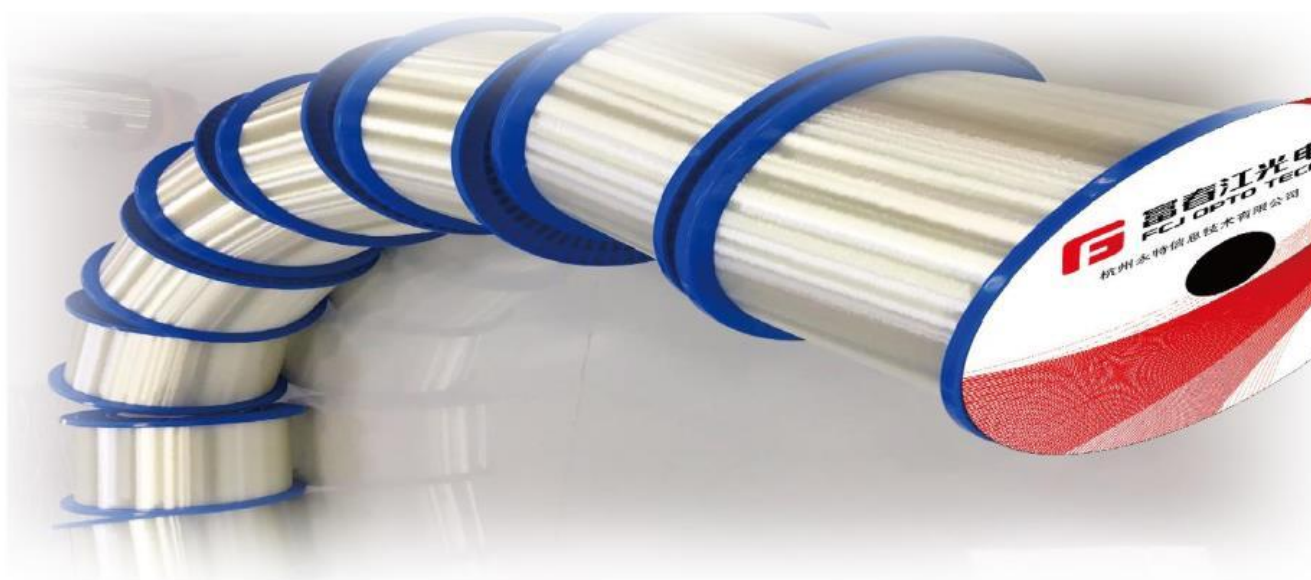
The company produces and tests optical fiber independently, all qualified fibers meet the requirements of technical specifications.

Packing & Storage

Ensure no foreign matter on the reel and fiber surface, wrap it with film and cover, and label fiber coding on the reel and cover respectively.

The packaged optical fiber is stored at a constant temperature of 25℃ in a light-proof warehouse. The products are fixed in the carton when they are shipped out of the warehouse. The carton number and fiber coding information are attached to the carton, and the electronic test report is attached to each shipment.





弯曲不敏感单模光纤 (G.657.A1)

Bend Insensitive Single-Mode Optical Fiber (G.657.A1)

规格型号 弯曲不敏感单模光纤 (G.657.A1)	Type Bend Insensitive Single-mode Optical Fiber (G.657.A1)
执行标准 满足并优于ITU-T G.652.D/ G.657.A1光纤技术规范要求。	Standard The fiber comply with or exceed the technical specifications in ITU-T G.652.D/ G.657.A1.
产品特点 优异的抗弯曲性能； 完全兼容G.652单模光纤，1260 ~ 1626nm全波段传输； 低的偏振模色散满足高速率、长距离传输需要在包括带状光缆在内的各种光缆中使用，极低的微弯附加衰减； 拥有高的抗疲劳参数，确保在小弯曲半径下的使用寿命。	Feature Superior anti-bending property; Fully compatible with G.652 single-mode fiber. Full band (1260 ~ 1626 nm) transmission; Low PMD for high bit-rate and long distance transmission. Extremely low micro-bending attenuation, applicable for all optical cable types including ribbons; High anti-fatigue parameter ensures service life under small bending radius.
应用说明 应用于各种结构的光缆、在1260 ~ 1626nm全波段传输、FTTH高速光路由、有小弯曲半径要求的光缆、小尺寸光缆和光纤器件、使用L波段的要求。	Application All cable constructions, 1260 ~ 1626nm full band transmission, FTTH high speed optical routing, optical cable in small bend radius, small-size optical fiber cable and device, L-band.

几何特性 Dimensional Specifications

技术参数 Specification

包层直径 Cladding Diameter	125.0 ± 0.7 μm
包层不圆度 Cladding Non-Circularity	≤ 0.7 %
涂层直径 Coating Diameter	243 ± 7 μm
涂层/包层同心度误差 Coating-Cladding Concentricity	≤ 10 μm
涂层不圆度 Coating Non-Circularity	≤ 6 %
芯层/包层同心度误差 Core-Clad Concentricity	≤ 0.5 μm
翘曲度 (曲率半径) Fiber Curl (radius)	≥ 4 m
交货长度 Delivery Length	2.1-50.4km/盘(km/reel)

光学特性 Optical Specifications

模场直径 (MFD)	@ 1310nm	8.6 ± 0.4 μm
Mode-Field Diameter (MFD)	@ 1550nm	9.8 ± 0.6 μm
衰减 Attenuation	@ 1310nm	≤ 0.35 dB / km
	@ 1383nm	≤ 0.35 dB / km
	@ 1550nm	≤ 0.21 dB / km
	@ 1625nm	≤ 0.23 dB / km
相对于波长的衰减变化 Attenuation VS. Wavelength	@ 1285–1330nm, 相对于1310nm @ 1285–1330nm, Ref. λ @ 1310nm	≤ 0.03 dB / km
	@ 1525–1575nm, 相对于1550nm @ 1525–1575nm, Ref. λ @ 1550nm	≤ 0.02 dB / km
衰减点不连续性 Point Discontinuity	@ 1310nm	≤ 0.04 dB
	@ 1550nm	≤ 0.04 dB
偏振模色散系数 (PMD) Polarization Mode Dispersion (PMD)	单根光纤最大值 Maximum Individual Fiber PMD	≤ 0.1 ps/(km ^{1/2})
	光纤链路值 (M=20, Q=0.01%) PMD Link Design Value (M=20, Q=0.01%)	≤ 0.06 ps/(km ^{1/2})
	典型值 Typical Value	0.04 ps/(km ^{1/2})
零色散波长(λ ₀) Zero Dispersion Wavelength(λ ₀)		1312 ± 12 nm
零色散斜率(S ₀) Zero Dispersion Slope(S ₀)		≤ 0.092 ps/(nm ² .km)
波长范围内的色散 Dispersion in the range of wavelength	1550nm	≤ 18 ps/(nm.km)
	1625nm	≤ 22 ps/(nm.km)
光缆截止波长λ _{cc} Cable Cutoff Wavelength λ _{cc}		≤ 1260nm

机械性能 Mechanical Specifications

筛选张力 Proof Test		≥ 9.0N, ≥ 1.0%, ≥ 100Kpsi
动态疲劳参数Nd Dynamic stress corrosion susceptibility parameters Nd		≥ 20
涂层剥离力 Coating Strip Force	平均值 Average	1.7 N
	峰值 Peak	1.3–8.9 N
宏弯附加损耗 Macroband Loss	1圈 直径15mm @ 1550nm&1625nm 1 turn, Φ 15mm @ 1550nm&1625nm	≤ 0.5dB, ≤ 1.0dB
	1圈 直径20mm @ 1550nm&1625nm 1 turn, Φ 20mm @ 1550nm&1625nm	≤ 0.1dB, ≤ 0.2dB
	10圈 直径30mm @ 1550nm&1625nm 10turns, Φ 30mm @ 1550nm&1625nm	≤ 0.03 dB, ≤ 0.1dB

环境性能 Environmental Specifications

温度附加衰减 (-60°C到 ± 85°C, @ 1550nm) Temperature Dependence (-60°C to ± 85°C, @ 1550nm)		≤ 0.05 dB / km
温度-湿度循环附加衰减 (-10°C到 ± 85°C, 相对湿度98%, @ 1550nm) Temperature Humidity Cycling (-10°C to ± 85°C, at 98%RH, @ 1550nm)		≤ 0.05 dB / km
浸水附加衰减 (23 ± 2°C, 30天 @ 1550nm) Water Immersion (23 ± 2°C, 30 days @ 1550nm)		≤ 0.05 dB / km
干热老化 (85 ± 2°C, 30天 @ 1550nm) Dry Heat Soak (85 ± 2°C, 30 days @ 1550nm)		≤ 0.05 dB / km
湿热老化 (85 ± 2°C, 相对湿度85%, 30天 @ 1550nm) Damp Heat (85 ± 2°C, at 85%RH, 30 days @ 1550nm)		≤ 0.05 dB / km

保证 包装及储存

杭州永特信息技术有限公司自主生产和检测光纤，所有合格光纤参数均满足技术规范要求。保证盘具和光纤外观无异物及损伤，用薄膜和光纤盘罩包装，光纤盘和光纤罩上分别有编码标识。包装好的光纤置于恒温25°C避光仓库存放。产品出库时装入纸箱固定，箱体上附有箱号以及光纤编码信息，每批货物附电子检测报告。

Warranty

The company produces and tests optical fiber independently, all qualified fibers meet the requirements of technical specifications.

Packing & Storage

Ensure no foreign matter on the reel and fiber surface, wrap it with film and cover, and label fiber coding on the reel and cover respectively.

The packaged optical fiber is stored at a constant temperature of 25°C in a light-proof warehouse. The products are fixed in the carton when they are shipped out of the warehouse. The carton number and fiber coding information are attached to the carton, and the electronic test report is attached to each shipment.





弯曲不敏感单模光纤 (G.657.A2)

Bend Insensitive Single-Mode Optical Fiber (G.657.A2)

规格型号

弯曲不敏感单模光纤 (G.657.A2)

Type

Bend Insensitive Single-mode Optical Fiber (G.657.A2)

执行标准

满足并优于ITU-T G.657.A1/A2光纤技术规范要求。

Standard

The fiber complies with or exceeds the technical specifications in ITU-T G.657.A1/A2.

产品特点

最小弯曲半径可达7.5mm，具有优异的抗弯曲性能；完全兼容G.652单模光纤；1260~1626nm全波段传输；低的偏振模色散满足高速率、长距离传输需要在包括带状光缆在内的各种光缆中使用，极低的微弯附加衰减；高的抗疲劳参数，确保在小弯曲半径下的使用寿命。

Feature

Minimum bend radius 7.5mm, superior anti-bending property; Fully compatible with G.652 single-mode fiber. Full band (1260~1626nm) transmission; Low PMD for high bit-rate and long distance transmission. Extremely low micro-bending attenuation, applicable for all optical cable types including ribbons; High anti-fatigue parameter ensures service life under small bending radius.

应用说明

应用于各种结构的光缆，在1260~1626nm全波段传输、FTTH高速光路由、有小弯曲半径要求的光缆、小尺寸光缆和光纤器件、使用L波段的要求。

Application

All cable constructions, 1260~1626nm full band transmission, FTTH high speed optical routing, optical cable in small bend radius, small-size optical fiber cable and device, L-band.

几何特性 Dimensional Specifications

技术参数 Specification

包层直径 Cladding Diameter	125.0 ± 0.7 μm
包层不圆度 Cladding Non-Circularity	≤ 0.7 %
涂层直径 Coating Diameter	243 ± 7 μm
涂层/包层同心度误差 Coating-Cladding Concentricity	≤ 10 μm
涂层不圆度 Coating Non-Circularity	≤ 6 %
芯层/包层同心度误差 Core-Clad Concentricity	≤ 0.5 μm
翘曲度 (曲率半径) Fiber Curl (radius)	≥ 4 m
交货长度 Delivery Length	2.1~50.4km/盘(km/reel)

光学特性 Optical Specifications

模场直径 (MFD)	@ 1310nm	8.8 ± 0.4 μm
Mode-Field Diameter (MFD)	@ 1550nm	9.8 ± 0.6 μm
衰减 Attenuation	@ 1310nm	≤ 0.35 dB / km
	@ 1383nm	≤ 0.35 dB / km
	@ 1550nm	≤ 0.21 dB / km
	@ 1625nm	≤ 0.23 dB / km
相对于波长的衰减变化 Attenuation VS. Wavelength	@ 1285-1330nm, 相对于1310nm @ 1285-1330nm, Rel. λ @ 1310nm @ 1525-1575nm, 相对于1550nm @ 1525-1575nm, Rel. λ @ 1550nm	≤ 0.03 dB / km ≤ 0.02 dB / km
衰减点不连续性 Point Discontinuity	@ 1310nm @ 1550nm	≤ 0.04 dB ≤ 0.04 dB
偏振模色散系数 (PMD) Polarization Mode Dispersion (PMD)	单根光纤最大值 Maximum Individual Fiber PMD 光纤链路值 (M=20, Q=0.01%) PMD Link Design Value (M=20, Q=0.01%) 典型值 Typical Value	≤ 0.1 ps / (km ^{1/2}) ≤ 0.06 ps / (km ^{1/2}) 0.04 ps / (km ^{1/2})
零色散波长(λ ₀) Zero Dispersion Wavelength(λ ₀)		1312 ± 12 nm
零色散斜率(S ₀) Zero Dispersion Slope(S ₀)		≤ 0.092 ps / (nm ² .km)
波长范围内的色散 Dispersion in the range of wavelength	1550nm 1625nm	≤ 18 ps / (nm.km) ≤ 22 ps / (nm.km)
光缆截止波长 λ _{cc} Cable Cutoff Wavelength λ _{cc}		≤ 1260nm

机械性能 Mechanical Specifications

筛选张力 Proof Test		≥ 9.0N, ≥ 1.0%, ≥ 100Kpsi
动态疲劳参数 Nd Dynamic stress corrosion susceptibility parameters Nd		≥ 20
涂层剥离力 Coating Strip Force	平均值 Average	1.5 N
	峰值 Peak	1.3-8.9 N
宏弯附加损耗 Macrobend Loss	1圈 直径20mm @ 1550nm & 1625nm 1 turn Φ20mm @ 1550nm & 1625nm	≤ 0.5 dB, ≤ 1.0 dB
	10圈 直径30mm @ 1550nm & 1625nm 10 turns Φ30mm @ 1550nm & 1625nm	≤ 0.15 dB, ≤ 0.75 dB

环境性能 Environmental Specifications

温度附加衰减 (-60°C到 ± 85°C, @ 1550nm) Temperature Dependence (-60°C to ± 85°C, @ 1550nm)		≤ 0.05 dB / km
温度-湿度循环附加衰减 (-10°C到 ± 85°C, 相对湿度98%, @ 1550nm) Temperature Humidity Cycling (-10°C to ± 85°C, at 98%RH @ 1550nm)		≤ 0.05 dB / km
浸水附加衰减 (23 ± 2°C, 30天 @ 1550nm) Water Immersion (23 ± 2°C, 30 days @ 1550nm)		≤ 0.05 dB / km
干热老化 (85 ± 2°C, 30天 @ 1550nm) Dry Heat Soak (85 ± 2°C, 30 days @ 1550nm)		≤ 0.05 dB / km
湿热老化 (85 ± 2°C, 相对湿度85%, 30天 @ 1550nm) Damp Heat (85 ± 2°C at 85%RH, 30 days @ 1550nm)		≤ 0.05 dB / km

保证

包装及储存

杭州永特信息技术有限公司自主生产和检测光纤，所有合格光纤参数均满足技术规范要求。
保证盘具和光纤外观无异物及损伤，用薄膜和光纤盘罩包装，光纤盘和光纤罩上分别有编码标识。
包装好的光纤置于恒温25°C避光仓库存放。产品出库时装入纸箱固定，箱体上附有箱号以及光纤编码信息，每批货物附电子检测报告。

Warranty

The company produces and tests optical fiber independently, all qualified fibers meet the requirements of technical specifications.

Packing & Storage

Ensure no foreign matter on the reel and fiber surface, wrap it with film and cover, and label fiber coding on the reel and cover respectively.

The packaged optical fiber is stored at a constant temperature of 25°C in a light-proof warehouse. The products are fixed in the carton when they are shipped out of the warehouse. The carton number and fiber coding information are attached to the carton, and the electronic test report is attached to each shipment.



杭州永特信息技术有限公司
地址：杭州市富阳区东洲工业功能区11号路11号
电话：+86 13867126150
邮箱： miri@fcjopto.com
网址： www.fcjopto.com

HANGZHOU YONGTE INFORMATION TECHNOLOGY CO.,LTD
Add:#11, Rd11,Dongzhou Industrial Zone,Fuyang Distric,Hangzhou City,PRC
TEL: +86 13867126150
E-mail: miri@fcjopto.com
Web: www.fcjopto.com