



Specialty Fibre for Component

Photonic Single-mode Fibre Series

The YOFC photonic single-mode fibre series for component use (PH-SMF) is specially developed for optical devices with bending application requirements. The optical fibre is manufactured using the PCVD process, featuring a unique Ge/F co-doped material system and a special optical waveguide structure, as well as strict geometrical and optical indicators.

In this series, PH1010-A is specially developed for components, featuring strictly controlled geometrical indicators and meeting the G.652.D standard. PH1010-D meets the G.652.D standard and has a reduced external diameter of 200 μm , making it suitable for scenarios requiring miniaturization.

PH1011-A is specially developed for components, featuring strictly controlled geometrical indicators and meeting the G.657.A1 standard. PH1010-C includes a special Ge/F co-doped material system and features excellent tapering performance, as well as macro-bending performance meets the standard requirements of G.657.A1.

PH1011-C and PH1011-D are single-mode fibres for component, which are designed according to the bending loss requirements and meet the G.657.A2 standard specified by ITU-T. PH1011-C has a conventional size of 125/250 μm , while PH1011-D has a size of 125/200 μm .

PH1012-B is a single-mode fibre for component that meets the G.657.B3 standard. PH1012-A is a bending-insensitive single-mode fibre for component with stringent requirements for bending performance, boasting superior macro-bending indicators compared to the G.657.B3 standard, making it suitable for the C-band. PH1012-C is a fine-diameter fibre that meets the G.657.B3 standard, featuring excellent macro-bending performance, making it highly suitable for miniaturized devices.

Features

- Strictly controlled optical and geometrical indicators
- splicing performance
- Excellent compatibility with G.652 single-mode fibre
- Excellent macro-bending resistance
- Excellent micro-bending resistance
- Excellent mechanical performance, with the proof test level up to 200 kpsi

Applications

- Bending-sensitive environments/miniaturized devices
- Pigtails/jumpers
- Connectors
- Couplers
- Miniaturized integrated erbium-doped fibre amplifier (EDFA)
- Dense wavelength division multiplexer (DWDM)

Product Standard

- The YOFC PH-SMF meets or is superior to the ITU-TG.657 and IEC60793-2-50 optical fibre specifications.

Specifications

Fibre type			PH 9/125- 13/250A	PH 9/125- 13/250C	PH 9/125- 13/200	PH 9/125- 14/250	PH 9/125- 14/250+	PH 9/125- 14/200+	PH 8/125- 14/250	PH 8/125- 14/250B	PH 8/80- 12/165
Part No.			PH1010-A	PH1010-C	PH1010-D	PH1011-A	PH1011-C	PH1011-D	PH1012-A	PH1012-B	PH1012-C
Reference standard			G.652.D	G.657.A1	G.652.D	G.657.A1	G.657.A2	G.657.A2	G.657.B3	G.657.B3	G.657.B3
Optical properties											
Attenuation	@1310 (dB/km)	≤0.35	≤0.35	≤0.35	≤0.35	≤0.35	≤0.35	≤0.35	≤0.35	≤0.35	≤0.40
	@1383 (dB/km)	≤0.35	≤0.35	≤0.35	≤0.35	≤0.35	≤0.35	≤0.35	≤0.35	≤0.35	-
	@1550 (dB/km)	≤0.20	≤0.20	≤0.20	≤0.20	≤0.21	≤0.21	≤0.21	≤0.22	≤0.22	≤0.30
	@1625 (dB/km)	≤0.24	≤0.24	≤0.24	≤0.24	≤0.24	≤0.24	≤0.24	≤0.24	≤0.24	-
Cable cut-off wavelength (nm)		≤1260	≤1260	≤1260	≤1260	≤1260	≤1260	≤1260	≤1260	≤1260	≤1260
Mode field diameter	@1310nm (μm)	8.7 ~ 9.5	8.4 ~ 9.2	8.7 ~ 9.5	8.4 ~ 9.2	8.4 ~ 9.2	8.4 ~ 9.2	8.4 ~ 9.2	8.2 ~ 9.0	8.2 ~ 9.0	8.2 ~ 9.0
	@1550nm (μm)	9.9 ~ 10.9	9.3 ~ 10.3	9.9 ~ 10.9	9.3 ~ 10.3	9.3 ~ 10.3	9.3 ~ 10.3	9.3 ~ 10.3	9.1 ~ 10.1	9.1 ~ 10.1	9.1 ~ 10.1
Geometrical properties											
Cladding diameter (μm)		124.7±0.5	124.7±0.5	125.0±0.7	124.7±0.5	124.7±0.5	124.7±0.5	124.7±0.5	124.7±0.5	124.7±0.5	80.0±1.0
Cladding non-circularity (%)		≤0.5	≤0.5	≤0.7	≤0.5	≤0.5	≤0.5	≤0.5	≤0.5	≤0.5	≤0.7
Coating diameter (μm)		240.0±5.0	240.0±5.0	200.0±5.0	240.0±5.0	240.0±5.0	240.0±5.0	195.0±5.0	240.0±5.0	240.0±5.0	165.0±7.0
Core/Cladding offset (μm)		≤0.3	≤0.3	≤0.5	≤0.3	≤0.3	≤0.3	≤0.3	≤0.3	≤0.3	≤0.5
Coating concentricity		≤8	≤8	≤8	≤8	≤8	≤8	≤8	≤8	≤8	≤12
Curl (radius) (m)		≥4	≥2	≥2	≥4	≥4	≥4	≥4	≥4	≥4	≥2
Macro-bending performance											
Bending radius	Number of turns	Wavelength	Additional loss (dB)	Additional loss (dB)	Additional loss (dB)	Additional loss (dB)	Additional loss (dB)	Additional loss (dB)	Additional loss (dB)	Additional loss (dB)	Additional loss (dB)
10 mm	1	1550	-	≤0.5	-	≤0.5	≤0.1	≤0.1	-	≤0.03	≤0.03
10 mm	1	1625	-	≤1.5	-	≤1.5	≤0.2	≤0.2	-	≤0.10	≤0.10
7.5 mm	1	1550	-	-	-	-	≤0.2	≤0.2	≤0.03	≤0.08	≤0.08
7.5 mm	1	1625	-	-	-	-	≤0.5	≤0.5	≤0.15	≤0.25	≤0.25
5.0 mm	1	1550	-	-	-	-	-	-	≤0.05	≤0.15	≤0.15
5.0 mm	1	1625	-	-	-	-	-	-	≤0.15	≤0.45	≤0.45
Mechanical performance											
Proof test level (kpsi)		100/200	100/200	100/200	100/200	100/200	100/200	100/200	100/200	100/200	100/200
Environmental properties											
Environmental test		Condition	Additional attenuation at 1,310 nm, 1,550 nm (dB/km)								
Temperature dependence		-60°C ~ 85°C	≤0.05								≤0.15
		-40°C ~ 85°C	-								≤0.05
Temperature humidity cycling		-10°C ~ 85°C、 ≤98%RH	≤0.05								
Water immersion		23°C±2°C	≤0.05								
Heat aging		85°C±2°C	≤0.05								
Damp heat		85°C、85%RH	≤0.05								

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