

Multi-mode Fibre for Industrial Control

Hard Polymer Cladding Optical Fibre

The YOFC hard polymer cladding multi-mode fibre (HPCF) with low hydroxyl content and a large core diameter is suitable for devices and systems with operating wavelengths of 650 nm and 850 nm. With a core diameter of 1,450 μm , the HPCF is suitable for white-light illumination. With hard polymer cladding and an outer tight buffer structure, the optical fibre offers higher tensile strength, and better moisture resistance compared to conventional glass cladding, making it widely used in communication, energy transmission, and near-infrared spectral environments.

Hard polymer cladding: It is made of fluoroacrylate, playing an important role in protecting fibre core while serving as fibre cladding. During installation and end use, the hard polymer cladding is highly resistant to breakage, even when subjected to strong bending or open construction conditions.

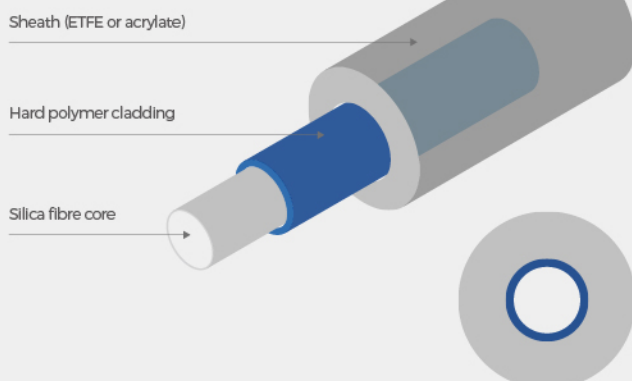
Large core diameter: With a core diameter of 200~1,500 μm , the optical fibre allows for relatively high coupling and transmission efficiency in data connections, energy transmission, and other connectors, thereby lowering the cost of equipment and system components while offering a wider tolerance accuracy range. The HPCF with a large core diameter exhibits excellent performance in short-distance energy transmission and data transmission.

Applications

- High-energy laser transmission
- Medium- and short-distance communication
- Power signal transmission
- Locomotive traction control
- Medical sensors
- Factory automation control
- Laser therapy and operation
- NIR applications
- Optical thermometry
- Nuclear radiation monitoring
- Optical fibre lighting

Features

- Large core diameter, ensuring higher efficiency of coupling with LED and laser sources
- Adaptability to wider temperature and humidity changes
- More efficient connection mode compared with single-mode and multi-mode fibres
- Excellent fatigue resistance
- Excellent radiation resistance
- Excellent compatibility with a variety of light sources



Specifications–1

Fibre type	HP 200/230-37/500E	HP 200/230-37/500	HP 200/230-40/500	HP 200/230-46/500	HP 300/330-37/650E	HP 400/430-37/730E
Part No.	HP2140-A	HP2110-A	HP2111-A	HP2112-A	HP2140-B	HP2140-C
Optical properties^{aa}						
NA	0.37±0.02	0.37±0.02	0.40±0.02	0.46±0.02	0.37±0.02	0.37±0.02
Attenuation @ 850 nm (dB/km)	≤8.0	≤8.0	≤5.0	≤8.0	≤8.0	≤8.0
Hydroxyl content	Low hydroxyl content	Low hydroxyl content	Low hydroxyl content	Low hydroxyl content	Low hydroxyl content	Low hydroxyl content
Fibre refractive index structure	Step index	Step index	graded-index	Step index	Step index	Step index
Geometrical properties						
Core diameter (μm)	200.0±3.0	200.0±3.0	200.0±3.0	200±3.0	300.0±6.0	400.0±8.0
Plastic cladding diameter (μm)	230.0+0/-8	230.0+0/-8	230.0+0/-8	230.0+5/-10	330.0+5/-10	430.0+5/-10
Tight cladding diameter (μm)	500.0±25.0	500.0±25.0	500.0±25.0	500.0±20.0	650.0±30.0	730.0±30.0
Core/cladding concentricity error (μm)	≤5.0	≤5.0	≤5.0	≤5.0	≤6.0	≤8.0
Description of coating/tight cladding						
Core material	Pure silica	Pure silica	doped silica	Pure silica	Pure silica	Pure silica
Cladding material	Fluoroacrylate	Fluoroacrylate	Fluoroacrylate	Fluoroacrylate	Fluoroacrylate	Fluoroacrylate
Tight cladding material	ETFE	Acrylate	Acrylate	Acrylate	ETFE	ETFE
Mechanical performance						
Short-term bending radius (mm)	≥10	≥10	≥10	≥10	≥16	≥29
Long-term bending radius (mm)	≥16	≥16	≥16	≥16	≥24	≥47
Operating temperature range (°C)	-65 ~ 85	-65 ~ 85	-65 ~ 85	-65 ~ 85	-65 ~ 85	-65 ~ 85
Proof test level (kpsi)	100	100	100	75	100	75

Specifications–2

Fibre type	HP 600/630-37/1040E	HP 600/630-37/750E	HP 1000/1100-37/1400E	HP 1450/1570-37/1750
Part No.	HP2140-D	HP2140-E	HP2142-A	HP3001-A
Optical properties				
NA	0.37±0.02	0.37±0.02	0.37±0.02	0.37±0.02
Attenuation @ 850 nm (dB/km)	≤8.0	≤8.0	≤8.0	-
Transmittance per 100m (%)	-	-	-	75
Hydroxyl content	Low hydroxyl content	Low hydroxyl content	Low hydroxyl content	Low hydroxyl content
Fibre refractive index structure	Step index	Step index	Step index	Step index
Geometrical properties				
Core diameter (μm)	600.0±10.0	600.0±10.0	1000.0±20.0	1450±30
Plastic cladding diameter (μm)	630.0+5/-10	630.0+5/-10	1100.0+10/-30	1570±30
Tight cladding diameter (μm)	1040.0±30.0	750.0±30.0	1400.0±50.0	1750±50
Core/cladding concentricity error (μm)	≤8.0	≤8.0	≤10.0	≤20
Description of coating/tight cladding				
Core material	Pure silica	Pure silica	Pure silica	Pure silica
Cladding material	Fluoroacrylate	Fluoroacrylate	Fluoroacrylate	Fluoroacrylate
Tight cladding materia	ETFE	ETFE	ETFE	Acrylate
Mechanical performance				
Short-term bending radius (mm)	≥58.0	≥58.0	≥73.0	≥158
Long-term bending radius (mm)	≥94.0	≥94.0	≥118.0	≥466
Operating temperature range (°C)	-65 ~ 85	-65 ~ 85	-65 ~ 85	-30 ~ 85
Proof test level (kpsi)	75	75	85	100

• 010026 Version No. 202506