



Photonic Crystal Fibre (PCF)

Photonic crystal fibre (PCF), also known as microstructured optical fibre (MOF) or holey fibre, is mainly characterized by a regular pattern of two-dimensional through holes or doped zones on the pure silica substrate along the length of the optical fibre. According to the light-guiding mechanism, PCF can be classified as total internal reflection (TIR) type and photonic bandgap (PBG) type. The special structure of PCF and the special manufacturing process, such as tube-rod stacking method, allow for a greater degree of freedom in the design and manufacture of PCF. Based on various optical fibre designs, PCF can exhibit one or more of the following characteristics: endless single-mode transmission, ultra-large single mode field diameter, adjustable dispersion in a wide range, ultra-high nonlinear coefficient, excellent birefringence, and hollow waveguide transmission. Compared to ordinary optical fibres, these distinctive and excellent properties give PCF unparalleled advantages in supercontinuum sources, optical fibre lasers, amplifiers, high-energy laser transmission, and gas/liquid sensors.

As a world-leading supplier of communication fibres, YOFC is committed to the research and development of this new series of optical fibres. Leveraging synthetic raw materials, PCVD process, and unconventional doped fibre preform manufacturing process, combined with theoretical simulation calculations, YOFC has developed a range of PCF products tailored for various applications.

Features

Compared to similar optical fibres, the YOFC PCF has the following characteristics:

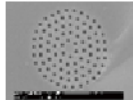
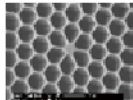
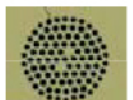
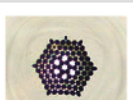
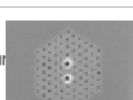
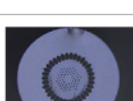
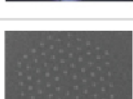
- Low attenuation
- Long continuous uniform segment
- Excellent microstructure and excellent characteristic performance of specific optical fibre type
- Single material composition i.e. high-purity silica (except all-solid photonic bandgap fibre)

Applications

- Supercontinuum sources
- Optical fibre lasers and amplifiers
- High-energy laser transmission
- Optical fibre grating and sensors
- All-optical signal processing

Typical Products

- Endless single-mode PCF
- Polarization-maintaining single-mode PCF
- Highly nonlinear PCF
- All-solid photonic bandgap fibre
- Multi-core PCF

Main class	Subclass	Fibre type	Part No.	Description of key characteristics	Picture of optical fibre end face	Application example
TIR type	Endless single-mode Photonic crystal fibre	PC SM	PC1010-A	Pure silica core Low attenuation, below 1 dB/km		Broadband single-mode transmission and energy transmission
	Highly nonlinear Photonic crystal fibre	PC HNL	PC1011-A	Low filling rate, and easy splicing with common single-mode fibres About 1,030 nm zero dispersion Low attenuation		Supercontinuum generation by 1µm short-pulse pump
				HNLF with a high filling rate and a small core diameter: Zero dispersion: 700 - 900 nm; nonlinear coefficient at 1,550 nm: greater than 18W-1km-1		Supercontinuum generation by 800nm pulsed light pump Non-linear optical study Nonlinear optical fibre lasers
	Multi-core PCF	PC DC	PC1012-A	Dual pure silica core		Sensors and directional couplers
		PC 7C	PC1012-B	Seven pure silica cores, supermode		Supercontinuum sources; nonlinear optical study
	Polarization- maintaining PCF	PC PMF	PC1013-A	Excellent radiation resistance, high temperature stability, and excellent bending performance		Gyroscopes, Interferometers
	Passive double-clad Photonic crystal fibre	PC PDC	PC1015-A	Pure silica core, large mode area (LMA), fibre core single-mode transmission, and large cladding NA		Single-mode pulsed laser transmission; spectroscopic study
PBG type	All-solid photonic bandgap Photonic crystal fibre	PC ASPBG	PC1014-A	All-solid, easy splicing with common single-mode fibres Low attenuation, below 1 dB/km Obvious bandgap characteristics and easy control of sideband position		Filtering Special rare earth doped fibre Optical fibre with special dispersion and special operating wavelength

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