NKT Photonics

A HAMAMATSU COMPANY

Hollow-core fibers

Hollow-core photonic bandgap fiber

Unique properties for demanding applications

Hollow-core fibers enable a large variety of applications

In hollow-core photonic bandgap fibers, a microstructured silica cladding with air holes confines the light inside a hollow core.

Hollow-core fibers enable a large variety of applications which require performances that can not be met using traditional solid-core fibers.

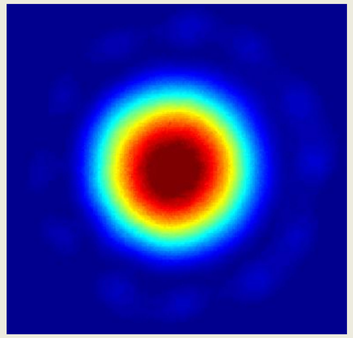
Unique properties
The hollow core allows control of the gas composition and pressure, enabling extremely long interaction lengths between the light and the gas.

The weak interaction between the fundamental mode and the surrounding silica also makes these fibers radiation insensitive.

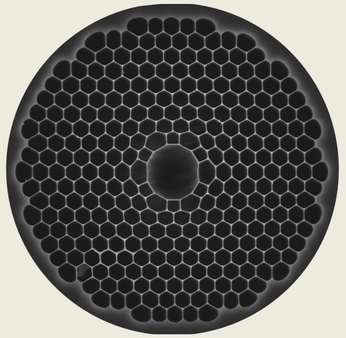
Reduced non-linearities
Since only a small fraction of the light propagates in silica, the effect of material non-linearities is significantly reduced compared to solid core fibers.

Features
> 98% of the optical power is located in the hollow core
Can be gas or particle filled
Ultra-low bend loss
Low Fresnel reflections at end faces
Group index close to unity
Radiation insensitive
Pure silica

Typical near field intensity profile



Schematic fiber cross section



Hollow-core fibers

Applications

Two-photon microscopy
Power delivery
Pulse shaping and compression
Gas spectroscopy
Nonlinear optics
Fiber optic gyroscopes
Sensors
Narrow linewidth delivery

Specifications

Optical

Model	HC-920	HC-1060	HC-1300	HC-1550
Operating wavelength loss threshold [dB/nm]	150	100	60	30
Operating wavelength [nm]	900-970	1030-1090	1290-1330	1490-1680
Mode field diameter @ design wavelength [µm] [1]	7.5 ± 1	6.7 ± 1	7.5 ± 1	9.0 ± 1

Physical properties

Model	HC-920	HC-1060	HC-1300	HC-1550
Core diameter [µm]	8.0 ± 1.5	9.0 ± 1.5	10.0 ± 1.5	11.5 ± 1.0
Cladding diameter [µm]	115 ± 5	120 ± 5	125 ± 5	120 ± 2
Coating diameter (single-layer acrylate) [µm]	240 ± 40	240 ± 40	240 ± 40	220 ± 30

1. Full 1/e2 width of the near field intensity distribution

Hollow-core fibers

All NKT Photonics products are produced under our quality management system certified in accordance with the ISO 9001:2015 standard.

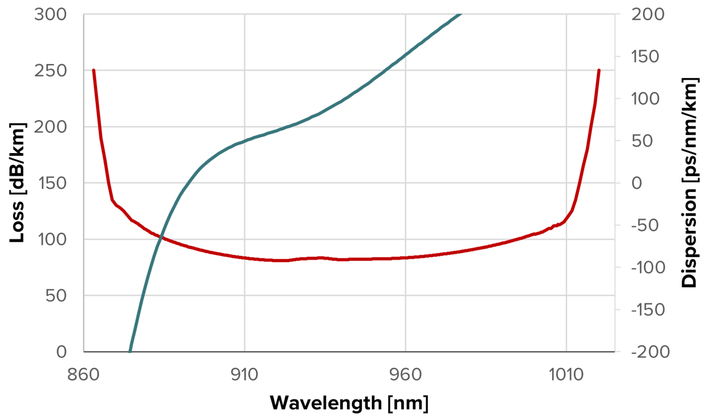
FORCE Certification
Systemcertificering
DS/EN ISO 9001 - Kvalitet

Specifications

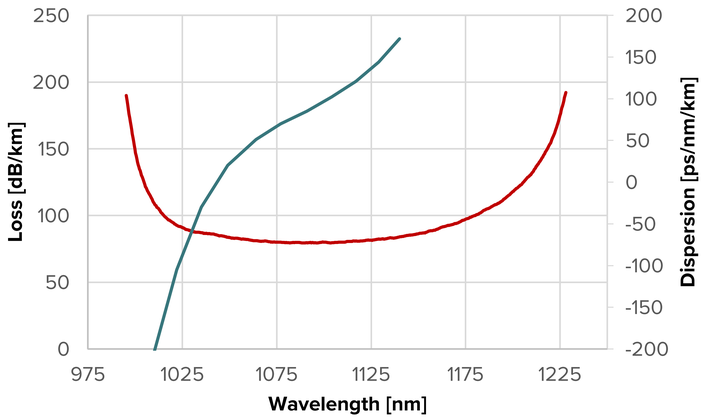
Hollow-core fibers

Typical attenuation and dispersion

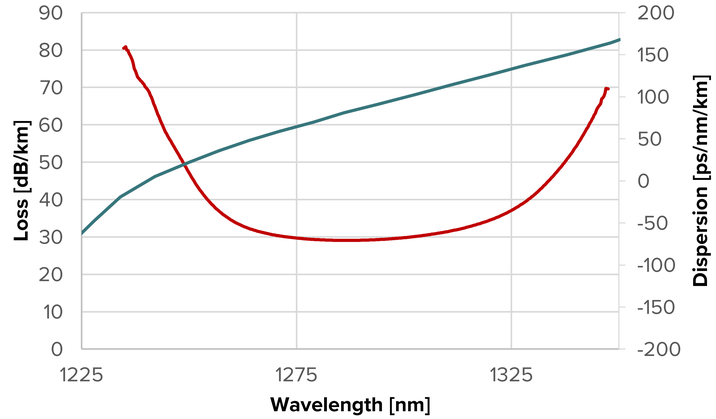
HC-920



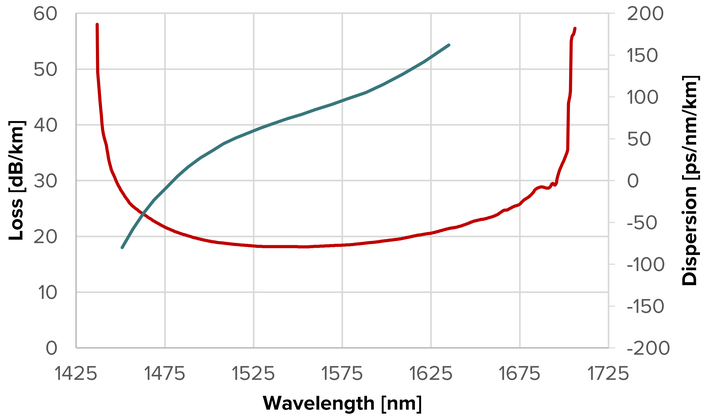
HC-1060



HC-1300



HC-1550



SOLUTIONS FOR INNOVATORS

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