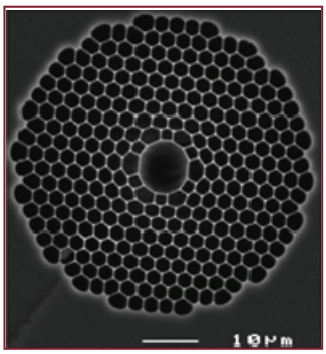
HC-1060-02

Hollow Core | Spectral Filtering

Hollow Core Photonic Bandgap Fiber for 1060nm Range Applications

- >95% of optical power located in air
- Quasi-Gaussian fundamental mode
- Cyan be filled with gas
- Low bend loss down to few mm bend radius
- Fresnel reflection to air at the end faces $<10^{-4}$
- Up to 80% of fiber cross section composed of solid silica, facilitating fusion splicing to conventional fibers
- Undoped silica for good temperature stability

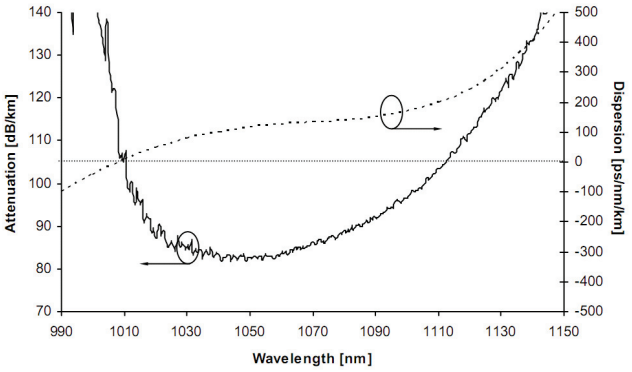


Hollow core photonic bandgap fibers guide light in a hollow core surrounded by a microstructured cladding formed by a periodic arrangement of air holes in silica.

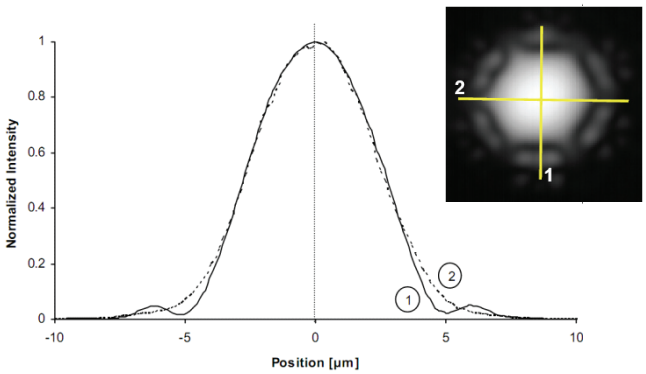
Since only a small fraction of light propagates in glass, the effect of material nonlinearities is significantly reduced and the fibers do not suffer from the same loss limitations as fibers made from all solid material.

Applications include power delivery, pulse shaping and compression, sensors and nonlinear optics.

Typical attenuation and dispersion



Typical near field intensity



Physical properties	
Core diameter*	10 µm ± 1 µm
Pitch	2.75 µm
Air filling fraction PBG region	> 90%
Diameter of holey region	50 µm
Cladding diameter	123 µm ± 5 µm
Coating diameter (single layer acrylate)	220 µm ± 50 µm

Optical properties	
Center wavelength	1060 nm
Attenuation @ 1060 nm	< 0.1 dB/m
Dispersion @ 1060 nm	120 ps/nm/km
Dispersion slope @ 1060 nm	1 ps/nm^2/km
Dispersion slope @ zero disp. wavelength	4.4 ps/nm^2/km
10 dB width of transmission band	> 90 nm
Fraction of light in air	> 90%
Mode field diameter (1/e^2)	7.5 µm ± 1 µm
Effective mode index	~0.99
Mode shape overlap with std. SMF	> 90%

** Core formed by removing 7 hexagonal unit cells of the cladding*

HC-1060-02-090930

NKT Photonics A/S (Headquarters)
Blokken 84 • 3460 Birkerød • Denmark
Phone: +45 4348 3900
Fax: +45 4348 3901
www.nktphotonics.com

NKT Photonics GmbH
Schanzenstrasse 39 • Bldg D9-D13
51063 Cologne • Germany
Phone: +49 221 99511-0
Fax: +49 221 99511-650

NKT Photonics Inc.
1400 Campus Drive West • Morganville
NJ 07751 • USA
Phone: +1 732 972 9937
Fax: +1 732 414 4094