Hollow core Photonic Bandgap Fibers guide light in a hollow core, surrounded by a microstructured cladding of air holes and silica. Since only a small fraction of the light propagates in silica, the effect of material nonlinearities is insignificant and the fibers do not suffer from the same limitations on loss as conventional fibers made from solid material alone.

### Applications
- Fiber optic gyroscopes
- Pulsed lasers (pulse delivery and/or compression)
- Gas spectroscopy
- Low latency communication

### Physical properties
- **Cladding diameter**: \(130 \pm 5 \mu m\)
- **Coating diameter**: \(220 \pm 50 \mu m\)
- **Coating material**: Single layer acrylate

### Optical properties
- **Design wavelength**: 800 nm
- **Attenuation @ 820 nm**: \(< 250 \text{ dB/km}\)
- **Typical GVD @ 820 nm**: 100 ps/nm/km
- **Operating wavelength**\(^{(i)}\): 780-860 nm
- **Mode field diameter @ 850 nm**\(^{(i)}\): 5.5 ± 2 \(\mu m\)

1. Over which the attenuation is < 250 dB/km
2. Full 1/e-width of the near field intensity distribution

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**HC-800-02**

Hollow Core Photonic Bandgap Fiber

- < 5% of optical power located in silica
- Gaussian-like fundamental mode
- Can be filled with gas
- Negligible bend loss
- Fresnel reflection of core mode to air <10\(^4\)
- Mode effective index close to unity
- Numerical Aperture = 0.2
- Pure silica for good temperature stability

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**Schematic fiber cross section**

**Typical attenuation and dispersion**

**Typical near field intensity profile**