

Hollow Core | Fibers

Optical signal in a hollow core photonic bandgap fiber is guided in an air core surrounded by a high air filling factor PBG microstructured region (>90%). Added to the low bend sensitivity due to the core high NA, this confers to this fiber design significantly reduced material nonlinearities since more than 95% of optical power is propagating in air.

In addition air/undoped silica provides excellent temperature immunity critical for high performance fiber sensing and metrology applications.

Partnership with Phononics Bretagne

Key Features

- Air core, ultra-low nonlinear coefficient
- Low background losses
- Low dispersion in the centre of the transmission band
- High damage threshold
- Nearly single mode guidance
- Ultra low dispersion in the transmission bands
- Faster light transmission

Applications

- Power delivery
- Fibre sensors
- Nonlinear applications
- Pulse compression and shaping
- Laser machining
- Gas-filled AR hollow core fibre laser
- Molecular tracing
- Gas detection
- High power delivery for pico and sub-picoseconds optical pulses
- Low latency data transmission



Main Specifications

Product Name	Core diameter (μm)	Cladding diameter (μm)	Center wavelength (nm)	Minimum attenuation (dB/km)	Spectral transmission window (nm)	Maximum attenuation in transmission window (dB/km)	MFD (μm)
IXF-HCF-10-100-950	10 +/- 1	100 +/- 5	950 +/- 10	125	910 - 970	200	8 +/- 1
IXF-HCF-10-110-1060	10 +/- 1	110 +/- 5	1060 +/- 20	40	1030 - 1120	100	8.5 +/- 1
IXF-HCF-11-80-750	11 +/- 1	80 +/- 5	750 +/- 10	135	700 - 780	300	8.5 +/- 1
IXF-HCF-12-85-785	12 +/- 1	85 +/- 5	785 +/- 10	125	770 - 800	300	8.5 +/- 1

Common specifications

- Fibre material: synthetic silica
- Optical power fraction: > 90 %
- Effective modal index: 0.99
- Core concentricity error: < 0.5 μm
- Coating outside diameter: 240 +/- 10
- Coating type: dual coat high index coating
- Proof test level: 75 kpsi

Main Specifications of Anti Resonant Fiber

Product Name	Core diameter (μm)	Core NA	Cladding diameter (μm)	Coating diameter	Center wavelength (nm)	Attenuation (dB/km)	MFD (μm)
IXF-ARF-33-160	33 +/- 2	0.03	66 +/- 2	325 +/- 5	1064	< 50 @ 1064 nm	26 @ 1064 nm
IXF-ARF-45-240	46 +/- 2	0.03	99 +/- 3	355 +/- 5	1550	< 35 @ 1550 nm	37 @ 1550 nm
IXF-ARF-40-230	40 +/- 2	0.03	105 +/- 5	340 +/- 10	2000	< 80 @ 2 μm	33.5 @ 2 μm

Common specifications

- Fibre material: air core
- Mode overlap with core: > 99.99 %
- Coating type: dual coat high index coating
- Proof test level: 50 kpsi