

# Anti-Resonant Hollow Core Fibers

## IXF-ARF

Optical signal in a hollow core anti-resonant fibre propagates in an air core surrounded by single ring of anti-resonant tube elements. Guidance is based on an anti-resonance from the thin glass membranes constituted by the non-touching tubes surrounding the hollow core. The extremely low overlap of guided power with the surrounding silica, less than  $2 \times 10^{-5}$ , added to the mode effective area, confers to this fibre design record material non-linearity.



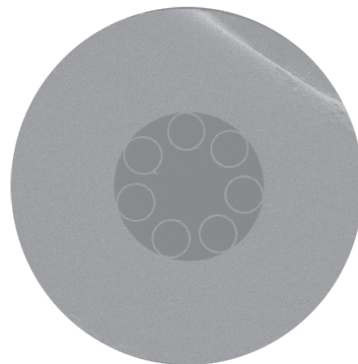
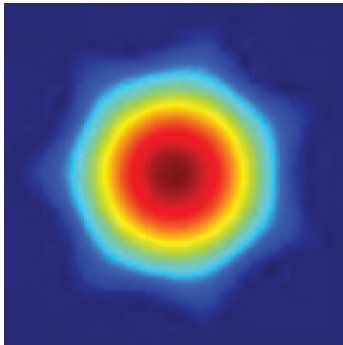
Partnership with **PHOTONICS**  
BRETAGNE  
Product line **PERFUS**

## FEATURES & BENEFITS

- High damage threshold
- Nearly single mode guidance
- Ultra low dispersion in the transmission bands

## APPLICATIONS

- Low latency data transmission
- Gas-filled AR hollow core fibre laser
- Molecular tracing, gas detection
- High power delivery for pico- and sub-picoseconds optical pulses



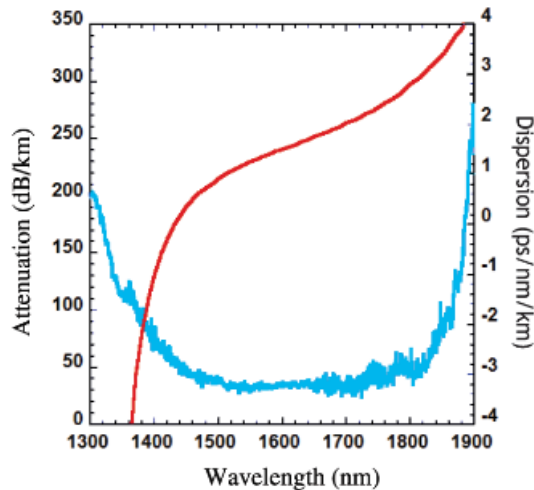
# IXF-ARF TECHNICAL SPECIFICATIONS

## Parameters

P/N: IXF-ARF-	40-240	33-160	45-240	40-230	120-400
Optimized for (nm)	750	1064	1550	2000	3000
Material	air core				
Core diameter ( $\mu\text{m}$ )	38 +/- 2	33 +/- 2	46 +/- 2	40 +/- 2	119 +/- 2
Cladding diameter ( $\mu\text{m}$ )	71 +/- 3	66 +/- 3	99 +/- 3	105 +/- 3	233 +/- 3
Fiber diameter ( $\mu\text{m}$ )	242 +/- 5	160 +/- 5	239 +/- 5	230 +/- 5	404 +/- 5
Coating outside diameter ( $\mu\text{m}$ )	398 +/- 10	325 +/- 10	355 +/- 10	340 +/- 10	492 +/- 10
Coating type	dual coat high index acrylate				
Attenuation* (dB/km)	< 50	< 50	< 35	< 80	< 70
Transmission bandwidth (nm) (< 100 dB/km)	700 – 915	1000 - 1350	1350 - 1850	1600 - 2200	2900 – 3150
Mode field diameter* ( $\mu\text{m}$ )	29	26	37	33.5	90
Dispersion* (ps/nm/km)	~ 0.8	~ 2	~ 1	~ 2	~ 0.8
Mode overlap with core (%)	> 99.99				
Numerical aperture	~ 0.02	~ 0.03	~ 0.03	~ 0.03	~ 0.03
HOM suppression (dB)	N/A	10 (after 3 m)	10 (after 5 m)	> 25 (after 5 m)	N/A
3 dB Bend loss radius* (cm)	4 +/- 1	4 +/- 1	6 +/- 1	8 +/- 1	11 +/- 1

\* at specified optimised wavelength

*Specifications are subject to change without notice*



*Typical measured attenuation and dispersion of IXF-ARF-45-240*