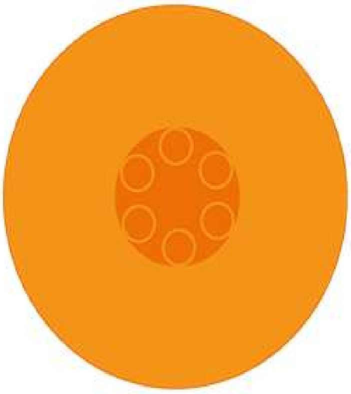
Hollow Core Anti-Resonant Fiber

Drawing of fiber cross section:



Description:

Heracle's Hollow-Core Anti-Resonant Fibers (HC-ARFs) are engineered for high-power laser transmission featuring high threshold for non-linear effects, exceptional beam quality, and low dispersion. Designed for consistent fundamental-mode operation, HC-ARFs offer stable, high-quality beam transmission across a broad spectral range.
Manufacturing of hollow core fibers is done under stringent process control standards, ensuring reproducible fiber structure and comprehensive traceability. Heracle offers technical support from initial design through final integration to optimize application-specific fiber performance.

Key Features:

Ultra-Low Nonlinearity: Hollow-core structure minimizes interaction between light and fiber glass, reducing nonlinear effects such as SRS (Stimulated Raman Scattering) and SPM (Self-Phase Modulation).

High Damage Threshold: Air-core structure supports high-intensity picosecond and femtosecond laser pulses without material degradation, with the possibility of vacuum or gas filling to further enhance damage and non-linear effects thresholds.

Higher-Order Mode Suppression: Precisely engineered core geometry ensures stable fundamental-mode operation and superior beam quality.

Broad Spectral Transmission: Wide spectral windows across visible and near-infrared ranges, providing flexibility for multi-wavelength applications.

Controlled Dispersion: Tailorable dispersion characteristics can be achieved by customizing core dimensions, wall thickness, and optional gas fills for pulse preservation and compression.

Bend Tolerance: Fibers are optimized for low bending sensitivity, improving versatility of operation.

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General Information:		
Cladding Material		Pure fused silica, 6-tube design
Coating Type - Primary		High-temp low or high RI acrylate
Coating Type - Secondary		High-temp protective acrylate
Typical Application		Ultrafast laser beam delivery, precision spectroscopy, nonlinear optics experiments, medical laser delivery, advanced sensing systems
Performance Properties		
Parameter	**Unit**	**Specification**
Operating wavelength	nm	600 – 1800
Bandwidth	nm	200 – 400
Minimum Bending Diameter	cm	> 20
Optical Properties		
Attenuation	dB/km	< 50
Geometrical Properties		
Core Diameter	µm	20 – 100
Number of Tubes	-	4 – 8
Bare Fiber Diameter	µm	125 – 500
Secondary Coating Diameter	µm	250 – 600

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