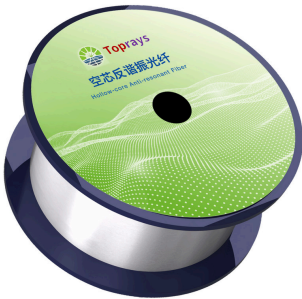


Hollow-core Anti-resonant Fiber (ARF)

Specification Datasheet · TopRays Optical Fiber

Anti-resonant fiber (ARF) is a hollow-core fiber in which light propagates along the fiber axis in an air core whose refractive index is lower than that of the fiber cladding material. Hollow-core fibers feature ultra-low loss, low dispersion, low nonlinearity and near-light-speed propagation, which can advance hollow-core fiber communication transmission and communication devices and lay the foundation for next-generation, ultra-high-capacity, low-latency, high-speed optical communication systems. Hollow-core light guidance also offers ultra-low Rayleigh scattering, a low nonlinear coefficient and tunable dispersion, and can provide a higher laser damage threshold, with potential applications in high-power laser transmission, UV and mid-infrared light transmission, laser manufacturing, ultrafast lasers and other fields.



Features

- Wide transmission bandwidth
- Ultra-low loss
- Low latency
- Ultra-low nonlinearity
- High damage threshold

Application Environment

- High-speed optical communication
- High-power laser energy delivery
- Fiber sensors and hollow-core fiber probes
- Nonlinear optics
- Ultrafast laser pulse compression

Specifications

Optical Performance	ARF-1550-230/380	ARF-1310-230/380	ARF-850-210/380	ARF-3000-420/580
Attenuation (dB/km)	≤0.3	≤0.3	≤1	≤60
Bandwidth (nm)	1530-1625	1260-1360	800-920	2820-3100
Mode Field Diameter (μm)	22±3 @1550nm	22±3 @1310nm	20±3 @850nm	29±3 @3000nm
Dispersion Coefficient (ps/nm/km)	≤5 @1550nm	≤5 @1310nm	-	-
PMD (ps/√km)	≤0.5 @1550nm	≤0.5 @1310nm	-	-
Macrobend Loss (dB)	≤0.2 @1550nm	≤0.2 @1310nm	-	-

Geometric Characteristics	ARF-1550- 230/380	ARF-1310- 230/380	ARF-850- 210/380	ARF-3000- 420/580
Cladding Diameter (μm)	230±5	230±5	210±5	420±5
Coating Diameter (μm)	380±10	380±10	380±10	580±10
Coating-Cladding Concentricity (μm)	≤12.0	≤12.0	≤12.0	≤12.0