

DESCRIPTION

IRphotonics offers the HPF fiber (High Power Fiber) especially designed for delivering high power laser beams in the Mid Infrared wavelength range. IRphotonics built on its mid-infrared expertise to develop a special high power fiber made of fluoride glass offering exceptional optical and mechanical characteristics.

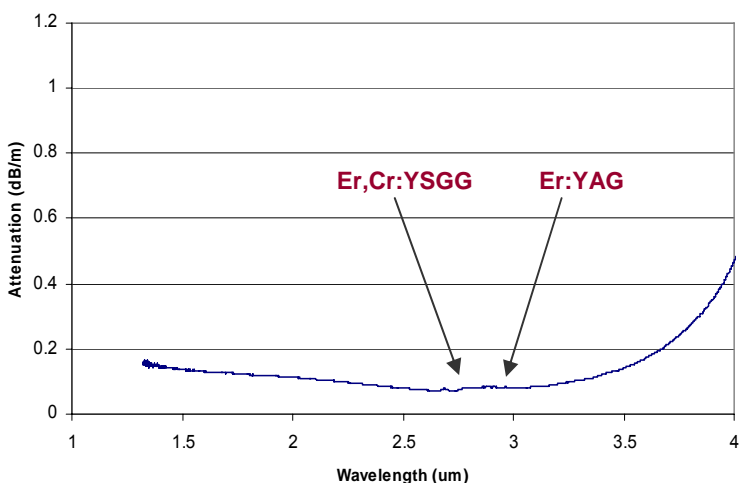
The HPF's unique properties provide a higher transmission in the Mid Infrared than competing technologies, especially at Er:YAG (2.94 μ m), Er,Cr:YSGG (2.78 μ m) or Tunable Mid-IR OPO wavelengths. In addition, IRphotonics HPF fiber transmits very efficiently visible light from pointing lasers.

The standard HPF fiber features a 450 core that provides the ideal tradeoff between mechanical flexibility and high coupling efficiency.

FIBER SPECIFICATIONS

- Fiber Core Diameter: 450 μ m typical
- Attenuation < 0.1 dB/m @ 2.9 μ m
- Numerical Aperture: 0.20 +/- 0.02
- Dual clad for higher power handling
- High Laser Damage Thresholds
- Very Low Fresnel Losses of 4% per End Face

TYPICAL SPECTRAL ATTENUATION



High Power Laser Delivery Mid-IR Fiber



FEATURES

- Highest transmission in the Mid-IR
- Ideal for single wavelength, multiple wavelengths or tunable laser sources.
- Higher mechanical flexibility than traditional laser delivery waveguides.
- Low Loss in the Visible
- Connectorized Assemblies Available

APPLICATIONS

- Dermatology
- Mass Spectrometry
- General surgery
- Aerospace and Defense

SPECIFICATIONS

FIBER	
Core Diameter	450 ± 15 µm
Composed of Primary Glass Cladding and of Low Index Polymer Cladding within Acrylate coating	
Minimum Bending Radius	10 cm
Numerical Aperture	0.20 ± 0.02

OPTICAL	
Operating Wavelength Range	0.3 to 4.5 µm
Typical Loss from 2.5 to 3.2 µm*	≤ 0.1 dB/m
Loss in Visible (pointing laser)*	≤ 0.3 dB/m

* Excluding connector loss

POWER HANDLING SPECIFICATIONS

The HPF fiber can withstand peak power density in MW/cm² and probably up to GW/cm². Power handling specifications can vary greatly with launch conditions and laser specifications (energy per pulse, repetition rate, pulse duration, wavelength, and beam diameter).

ORDERING INFORMATION

1st) Indicate the product code:

H	450	S	20	I	O	J
	Core Diameter		NA= 0.20	Input	Output	Jacket
				B = Bare Fiber	B = Bare Fiber	B = Bare Fiber
				S = High Power SMA	S = High Power SMA	P = PVDF
						S = Stainless Steel

2nd) Indicate the desired fiber length in meters: **L = xx m** (0.5 to 4 meters)

Examples:

H450S20BBB with L = 1.5m for a 1.5m long HPF fiber

H450S20SSB with L = 0.5m for a 0.5m long HPF bare fiber with HP SMA connectors on both ends

H450S20SBP with L = 1.0m for a 1.0m long HPF PVDF Jacketed with HP SMA connector on one end

H450S20SSS with L = 2.0m for a 2.0m long HPF Stainless Steel jacketed fiber with HP SMA on both ends

IRPHOTONICS CUSTOMIZATION PROGRAM

If you have any unique requirements, please contact us to discuss tailoring a product or design to optimize optical performance for your specific application. Custom NA's, dopants, fiber diameters and other specifications can be adapted to your requirements.

Contact IRphotonics for prices and availability or to obtain the name of your local representative.

IRphotonics Inc operating under ISO 9001-2000 Quality Management System.

IRphotonics has made every effort to ensure that the information contained in this specification sheet is accurate. However, we accept no responsibility for any errors or omissions, and we reserve the right to modify design, characteristics and products at any time without obligation.