

DESCRIPTION

IRphotonics offers the HPF fibers (**H**igh **P**ower **F**iber) especially designed for delivering high power laser beams in the Mid Infrared wavelength range. IRphotonics built on its mid-infrared expertise to develop special high power fibers made of fluoride glass offering exceptional optical and mechanical characteristics.

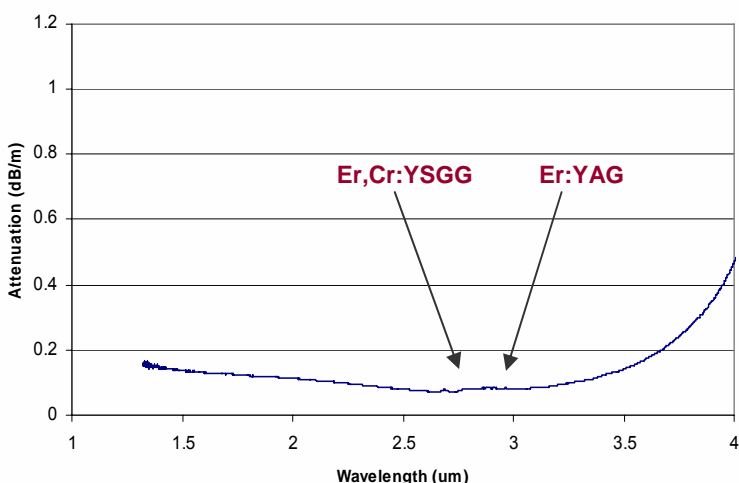
The HPF's unique properties provide a higher transmission in the Mid Infrared than competing technologies, especially at solid state Er:YAG (2.94 μ m), Er,Cr:YSGG (2.78 μ m), Tunable Mid-IR OPO, or Semiconductor laser (QCL) wavelengths. In addition, IRphotonics HPF fibers transmit very efficiently visible light.

The standard HPF fibers feature 100 μ m or 450 μ m cores that provide the ideal tradeoff between mechanical flexibility and high coupling efficiency. A 600 μ m core is available on demand.

FIBER SPECIFICATIONS

- Attenuation < 0.1 dB/m @ 2.9 μ m
- Numerical Aperture: 0.2
- 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 Fibers



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

- Mid-IR Laser Delivery
- Dermatology
- Mass Spectrometry
- General surgery
- Aerospace and Defense

SPECIFICATIONS

FIBER	H100	H450	H600
Core Diameter in μm	100 \pm 5	450 \pm 15	600 \pm 15
Primary Glass Cladding (150, 520, 700 μm OD) and of Low Index Polymer Cladding within Acrylate coating			
Minimum Bending Radius in cm	2.5	10	15
Numerical Aperture	0.20 \pm 0.02		

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

* Excluding connector loss

POWER HANDLING SPECIFICATIONS

The HPF fiber can withstand peak power density in MW/cm^2 and probably up to GW/cm^2 . 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	YYY	S	20	I	O	J
	Core Diameter		NA= 0.20	Input	Output	Jacket
	100			B = Bare Fiber	B = Bare Fiber	B = Bare Fiber
	450			S = Standard SMA	S = Standard SMA	P = PVDF
	600*			H = High Power SMA	H = High Power SMA	S = Stainless Steel

*On demand only

2nd) Indicate the desired fiber length in meters: **L = xx m** (0.5 to 3 meters as standard)

Examples:

Recommended for first time use: H450S20HHP with L = 0.5m for a 0.5m long HPF 450 μm PVDF Jacket with HP SMA connectors on both ends

H100S20BBB with L = 1.5m for a 1.5m long HPF 100 μm core bare fiber with no jacket

H450S20HBP with L = 1.0m for a 1.0m long HPF PVDF Jacketed with HP SMA connector on one end

H600S20HHS 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 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.