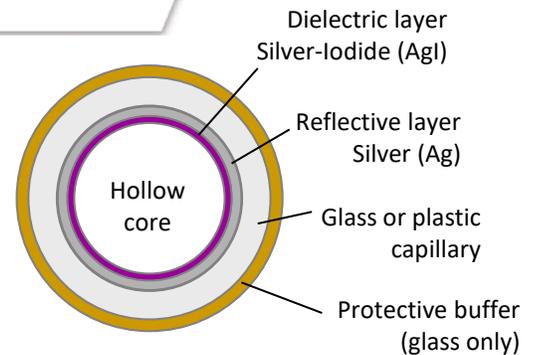




## Mid-Infrared Fiber Patch Cables



Hollow core fiber

Single mode and multi mode patch cables are available for the entire Mid-IR wavelength range from  $\lambda = 2$  to  $16 \mu\text{m}$  including both off-the-shelf and made-to-order assemblies.

	Glass					Plastic
Internal Diameter (ID)	200 $\mu\text{m}$	300 $\mu\text{m}$	500 $\mu\text{m}$	750 $\mu\text{m}$	1000 $\mu\text{m}$	1500 $\mu\text{m}$
<b>Typical Loss (straight)†</b>	4 dB/m	1 dB/m	0.5 dB/m	0.2 dB/m	0.1 dB/m	0.2 dB/m
<b>Single Mode Range</b>	$\lambda \geq 5 \mu\text{m}$	$\lambda \geq 8 \mu\text{m}$	$\lambda \geq 12 \mu\text{m}$	---	---	-
<b>Output Divergence ½ Angle‡</b>	50 mRad	40 mRad	30 mRad	30 mRad	30 mRad	30 mRad
<b>Minimum Bend Radius</b>	5 cm	5 cm	10 cm	20 cm	50 cm	5 cm
<b>Maximum Power*</b>	5 W	10 W	30 W	50 W	100 W	30 W
<b>Patch Cable Length</b>	0.1 - 1.0 m	0.1 - 2.0 m	0.1 - 5.0 m	0.1 - 5.0 m	0.1 - 5.0 m	0.1 - 5.0 m

† Additional loss on bending, which scales with bending radius (R) as  $1/R$ .

‡ Value listed is for  $\lambda = 10 \mu\text{m}$ , and generally scales linearly with wavelength

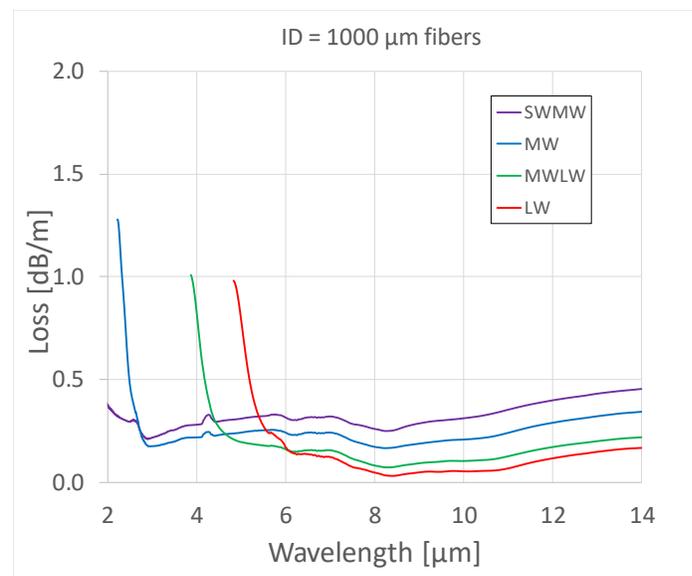
\* CW power rating assuming proper coupling and alignment. Initial alignment should always be done at reduced power.

### Fiber Internal Diameter (ID)

Transmission depends strongly on the fiber internal diameter (ID). Theoretically, loss can be described by Hybrid  $HE_{lm}$  modes with attenuation coefficients scaling as  $1/(ID)^3$ . Larger ID fibers have lower loss, but support more modes (i.e., multi-mode). Smaller ID fibers have higher loss, but heavily damp out the higher order modes, and can thus deliver single mode output.

### Internal Dielectric Coating

The relative spectral transmission of hollow fibers depends on the thickness of the dielectric layer deposited inside the hollow fiber. We offer 4 standard coating options covering the entire Mid-IR. Additional options are also available for other wavelength regions including UV, Visible, and THz.





## Mid-Infrared Fiber Patch Cables

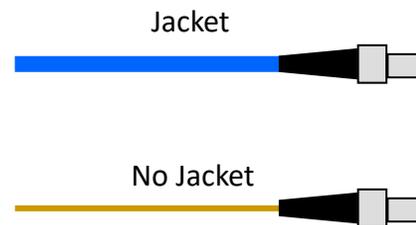
### Connector Options

Fibers can be packaged with standard SMA 905, FC/PC type connectors, or left bare. The FC connectors have a 2 mm key, which mates to most FC/PC and FC/APC receptacles. Due to size constraints, the FC connectors are NOT available for the plastic 1500  $\mu\text{m}$  fibers. With the "bare" fiber option, there is no connector on the end of the fiber.



### Jacket Options

Fibers can be packaged with or without a protective jacket. We use standard furcation tubing, the fiber sits in an inner tube, surrounded by aramid fibers, with a PVC jacket on the outside. The jacket comes in a choice of different colors. For fibers with an ID < 750  $\mu\text{m}$ , the jacket diameter is 3.0 mm, and for fibers with an ID  $\geq$  750  $\mu\text{m}$ , the jacket diameter is 3.8 mm.



### Custom Bundles

Guiding assembles custom bundles that enable multi-beam delivery of multiple laser sources in a single connector. Note: the fibers are side-by-side rather than fused. In addition to hollow fibers for the Mid-IR, we can also include standard solid core fibers for visible, NIR, and SWIR wavelengths.



### Contact Us

Email: [sales@guidingphotonics.com](mailto:sales@guidingphotonics.com)

Web: <https://guidingphotonics.com>

We are a spin-off from Opto-Knowledge Systems, Inc. 