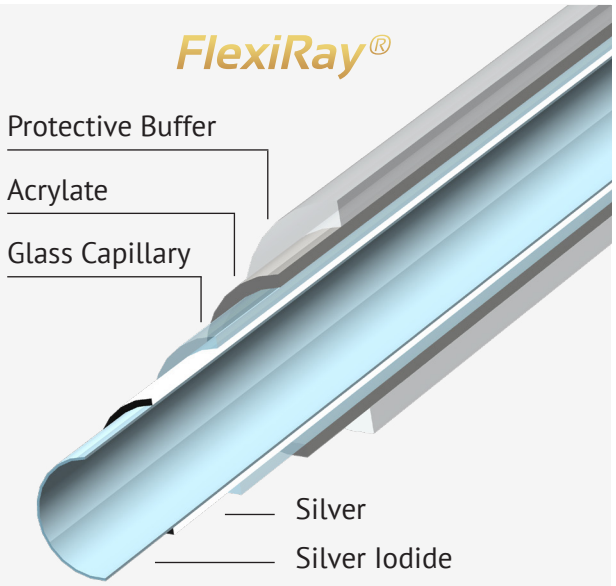
Hollow Glass Waveguides

art photonics
broad spectra fiber solutions

Hollow Silica glass WaveGuides (HWG) enable flexible delivery of InfraRed radiation in Mid IR-range 2-18µm for low divergent beams. HWG cables are free from Fresnel reflection losses at their ends due to the hollow core structure – in contrast to any solid core IR-fibers. This advantage and smaller divergence of the output beam compared to multimode IR-fibers make HWG preferable for laser power delivery. Standard HWG cables with core diameters span in 500-1000µm range are coated with the double polymer jacket providing high flexibility required for a broad variety of applications.

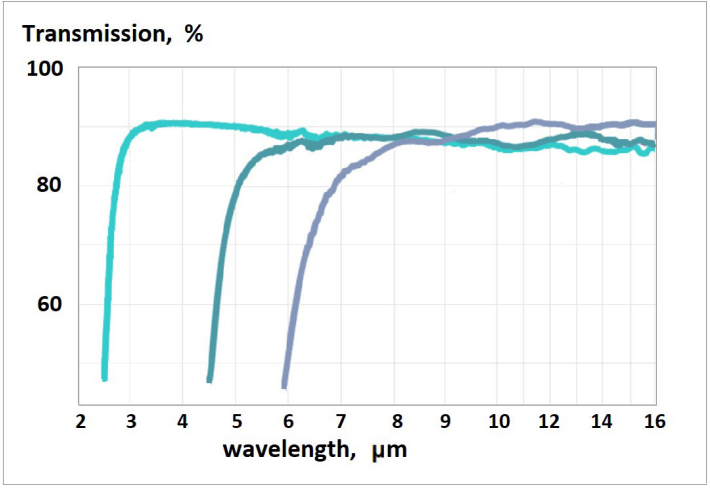


Applications:

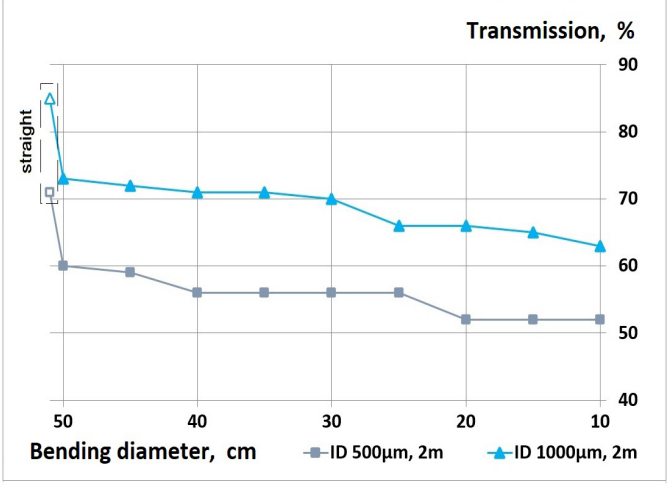
- Laser Power Delivery for Er:YAG, OPO, CO- & CO2-lasers
- Flexible cables for Quantum Cascade Lasers and Spectral Systems
- Spectral analysis of gas mixtures

Features:

- High transmittance in selected parts of 2 - 18µm range for custom applications
- No Fresnel reflection at the end faces
- Inner diameter spans from 500 to 1000µm
- Double polymer coating for high flexibility



Average transmission spectra of Hollow Waveguides designed for 3 different spectral ranges



Transmission of Hollow Waveguides vs bending diameter, full 360° loop

UV | VIS | NIR | MIR

Working Range
2-18 µm

Specifications

Silica glass capillary	SiO2
Fresnel Reflection Losses	0%
Attenuation at designated wavelength	see table below
Recommended max power level for CO2-laser	10W for HWG-500 20W for HWG-750 30W for HWG-1000
Effective Numerical Aperature (output NA)	0.05+/-0.01* *depends on input NA
Bending losses, for 360° loop of ø=400mm	1dB
Protective Jacket	Acrylate + Fluoro polymer
Operating Temperature	–50°C to +90°C
Minimum Elastic Bending Radius	150 x [Inner HWG Diameter]

Parameters of Hollow Glass Waveguides

Code	Inner diameter, µm	Outer diameter, µm	Protective Jacket OD, µm	Optical losses at 10.6µm wavelength, dB/m	Min. bending Radius, mm
HWG 500	500 ± 25	650 ± 20	1000 ± 30	0.7	75
HWG 750	750 ± 30	950 ± 25	1300 ± 50	0.5	100
HWG 1000	1000 ± 30	1300 ± 25	1600 ± 50	0.3	150

art photonics GmbH
Rudower Chaussee 46
12489 Berlin, Germany

+49 (0) 30-6779 887-0
www.artphotonics.com
sales@artphotonics.com

QAS Int. - certified
DIN EN ISO 9001:2015
Certificate No. A1887GER