ArmD™ MIR
Silver halide fiber

This unique fiber, which comprises a photosensitive compound (AgCl, AgBr), offers extremely low attenuation values in the mid-infrared (MIR) range.

Wavelength

ArmD™ MIR	3 – 17 µm

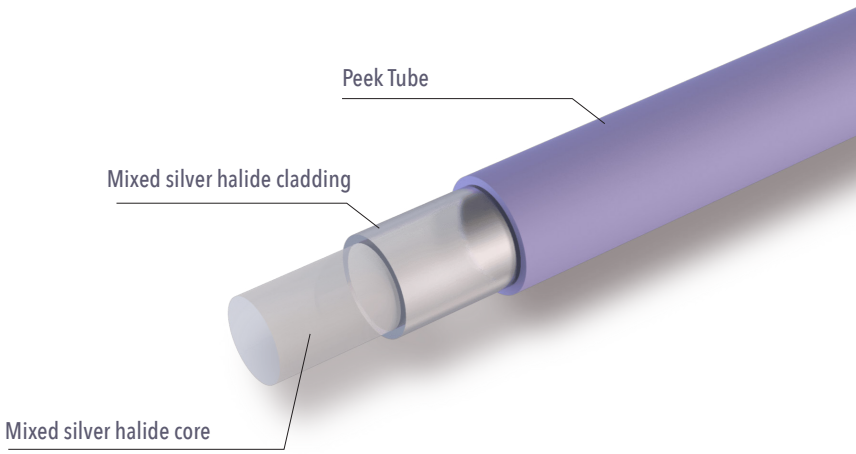
Numerical aperture (NA)

Low	0,13 ± 0,02
Standard	0,25 ± 0,02
High	0,35 ± 0,02

Middle Infrared Range

Advantages

- Optimized for CO- and CO2-laser applications
- Low attenuation in the mid-infrared (MIR) range
- Robust and flexible
- Non-hydroscopic and Non-toxic material
- Available in core/cladding or pure core versions



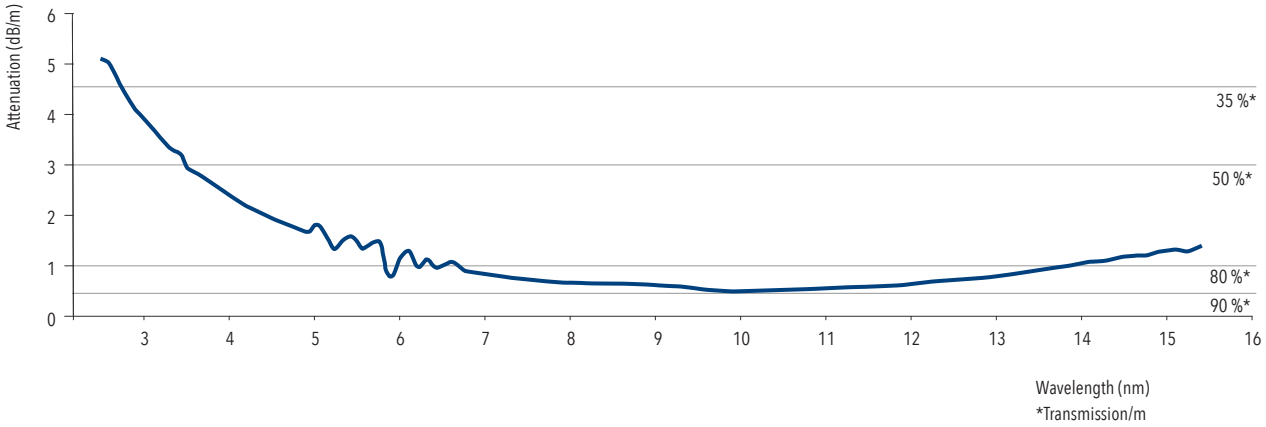
Technical data

Wavelength / spectral range	ArmD™ MIR: 3 – 17 µm
Numerical aperture (NA)	0,13 ± 0,02 | 0,25 ± 0,02 | 0,35 ± 0,02
Operating temperature	-273 to +140 °C
Standard diameter	Core / cladding (µm) 240/300 µm | 600 / 700 µm | 900 / 1000 µm
Calculation index (core)	2,1
Reflective losses @ 10.6 µm	25 %
Minimum bending radius	100 × [fiber diameter]
Maximum bending radius	200 × [fiber diameter]
Laser damage threshold	CW CO2laser >12 kW/cm^2

Attenuation values

The following diagram provides an overview of attenuation values relative to the wavelengths:

ArmD™ MIR



Applications

First choice for applications including Mid IR Spectroscopy, Flexible IR pyrometry, Flexible IR-imaging Systems, and power delivery for Quantum Cascade Lasers (QCLs).

Instructions for using ArmD™ MIR fibers

1. Handling Silver Halide Fibers:
   Avoid touching the bare core/cladding; use dry, soft polymer, or paper. Never touch the surfaces at the ends of the fibers to prevent laser damage. Protect fibers from visible and UV radiation, including luminescent light.
2. Storage:
   Maintain optical properties by storing in a dry, dark environment (e.g., loose, black polymer tube).
3. Protection During Storage:
   Cover fiber tips with opaque caps to shield against contamination and UV/visible radiation. Remove caps just before use, ideally in red light.
4. Preventing Deformation:
   Ensure a minimum bending radius of 100 times the fiber diameter to prevent deformation.
5. Connecting to Laser Beam:
   Begin at low intensity and check spot size before increasing laser power.
   Do not place the fiber too close to the irradiated area during intense radiation.
6. Preventing Overheating:
   Use cooling measures when cables are employed for laser cutting or drilling. Prevent fiber tips from melting (melting point: approx. 412 °C).
7. Smoothing Fiber Tip:
   Use the sharpened edge of a knife, scalpel, or diamond knife (preferably from a dielectric material).
   A microtome is recommended for optimum results; cut the thin part of the fiber slowly after the first cut.

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