

TOP® Metal-coated Quartz Fiber

Specification Datasheet · TopRays Optical Fiber

TOP® metal-coated quartz fibers are available with tin, copper, aluminium and carbon-underlayer aluminium coatings. They withstand the highest temperatures of all fiber types and suit harsh environments.



Technical Parameters

Parameter	Value
Operating Temperature	-270 to +600 °C
Core Diameter	Available 25 to 2000 µm
Coating Thickness, µm	Sn: 15 to 50 Cu: 15 to 50 Al: 15 to 150
Tensile Strength (short gauge length), GPa	Sn: 6 to 9 Cu: 2 to 3 Al: 3.5 to 6
Two-point Bending Strength, GPa	Sn: > 10 Cu: > 10 Al: > 10
Static Fatigue Parameter n	Sn: > 100 Cu: > 100 Al: > 100
Minimum Bending Radius	100 × diameter (short-term mechanical stress); 200 × diameter (for high-power laser use)

Optical Performance

Parameter	Value
Wavelength TOP® UV	190 – 1200 nm
Wavelength TOP® NIR	300 – 2400 nm
Numerical Aperture (NA), Low	0.12 ± 0.02 0.15 ± 0.02
Numerical Aperture (NA), Standard	0.22 ± 0.02
Numerical Aperture (NA), High	0.26 ± 0.02 0.28 ± 0.02

Advantages

- Suitable for all fiber types
- Excellent high-temperature performance
- Excellent resistance to strongly corrosive chemicals
- Solderable for easy integration
- Hermetic sealing for greater durability

Construction

Quartz glass core · fluorine-doped quartz cladding · metal coating

Metal Coating Options

Coating	Operating Temperature
Tin	Up to 230 °C
Copper (Cu)	-270 to +600 °C *
Aluminium (Al)	-270 to +400 °C

* With a Cu + Ni double coating, the temperature rating reaches 750 °C