

Single-mode
 Multimode
 Step-index
 Graded-index

Pure silica
Germanium doped
 Fluorine doped

10-2100 μm
 Core diameter

NA up to 0.35
 (All silica)
 NA up to 0.52
 (Hard clad)

Acrylates
 Silicone
 Ormocer®
 Polyimide
 Metal

High temperature application
 Anti-reflection coating
 FBG imprinting

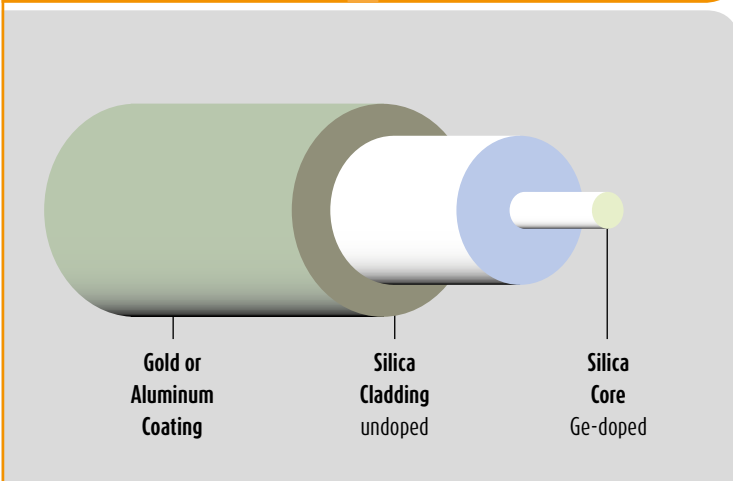
All silica
 Hard clad

Multiple options & combinations available



Singlemode Fibers Metal Coated Series: Gold/Aluminum

The featured Singlemode (SM 9/125) metal coated fiber was designed to provide optimum performance in both the 1310 nm and 1550 nm wavelength operating ranges, according to G.652 A/B standards. The fiber is supplied with either 24 kt Gold or Aluminum coatings. As an electric conductor, these types of coatings provide the user with the ability to terminate the fiber directly to the coating, supporting hermetically sealed assemblies. Gold and Aluminum coated fibers are most capable of withstanding high temperatures and harsh environments compared to polymer coated fibers. A dedicated manufacturing process of these fibers result in low stress corrosion susceptibility, and thus offering an improved mechanical protection to the optical fiber when used in the most challenging harsh environments. All metal coated Singlemode fibers are 100 % quality tested to Heracle's stringent test procedures in accordance with the Telecommunications Industry Association (TIA/EIA) and international Fiber Optic Test Procedures (FOTP). Custom specific tests to verify application requirements are available.



Fiber name	Wavelength	Core [μm] $\pm 2\%$	Cladding [μm] $\pm 2\%$	Coating	Coating [μm] $\pm 10\%$
SM 9/125 IRMG 155	VIS/IR	9	125	Gold	155
SM 9/125 IRMA 175	UV/VIS	9	125	Alu	175

Note: The items listed in these tables are standard configurations. Other configurations are available on special request.

Meeting the need of our customer

Heracle is focused on development and manufacturing of custom specialty optical fibers required for sophisticated applications serving the industrial, medical and optical sensor markets. In addition to a wealth of product, system and marketing experience in the fiber optics industry, the Heracle team and network is well versed in:

Preform design and manufacturing, optical fiber drawing and coating technologies, characterization of optical and mechanical fiber parameters, best practices and international standards.

The company is located in Jena, Germany, and provides customers worldwide with a personal bridge to the innovation and breakthroughs of the optical fiber industry across the globe.

Physical Characteristics	9/125/155 Gold	9/125/175 Alu
--------------------------	----------------	---------------

Core material:	Ge-doped silica	Ge-doped silica
Mode field diameter @ 1310 nm:	9.2 μm +/- 0.4 μm	9.2 μm +/- 0.4 μm
Mode field diameter @ 1550 nm:	10.4 μm +/- 0.5 μm	10.4 μm +/- 0.5 μm
Core/clad Concentricity Error:	$\leq 0.5 \mu\text{m}$	$\leq 0.5 \mu\text{m}$
Cladding diameter:	125 μm +/- 3	125 μm +/- 3
Cladding non-circularity:	$\leq 0.7 \%$	$\leq 0.7 \%$
Coating diameter:	155 μm +/- 10 %	175 μm +/- 10 %
Coating non-circularity:	$\leq 6 \%$	$\leq 6 \%$

Optical Characteristics	9/125/155 Gold	9/125/175 Alu
-------------------------	----------------	---------------

Numerical aperture:	0.12 +/- 0.02	0.12 +/- 0.02
Attenuation @ 1310 nm:	$\leq 12 \text{ dB/km}$	$\leq 16 \text{ dB/km}$
Attenuation @ 1550 nm:	$\leq 10 \text{ dB/km}$	$\leq 14 \text{ dB/km}$
Index of refraction @ 1310 nm:	1.467	1.467
Index of refraction @ 1550 nm:	1.468	1.468
Cut-off wavelength:	1200 - 1330 nm	1200 - 1330 nm
Chromatic disp. (λ 1285 - 1330):	$< 3 \text{ ps/nm}^2 \cdot \text{km}$	$< 3 \text{ ps/nm}^2 \cdot \text{km}$
Zero Dispersion Wavelength:	1310 +/- 10 nm	1310 +/- 10 nm
Nominal Zero Dispersion Slope:	$\leq 0.09 \text{ ps/nm}^2 \cdot \text{km}$	$\leq 0.09 \text{ ps/nm}^2 \cdot \text{km}$

Mechanical Characteristics	9/125/155 Gold	9/125/175 Alu
----------------------------	----------------	---------------

Proof test level:	$\geq 100 \text{ kpsi}$	$\geq 100 \text{ kpsi}$
Median tensile strength:	$\geq 3.3 \text{ GPa}$	$\geq 5.3 \text{ GPa}$
Corrosion parameter:	≥ 50	≥ 100
Young's modulus:	71.7 GPa	71.7 GPa
Operating temp. range:	-269° C to 700° C	-269° C to 400° C
Bend radius short term:	200x fiber radius	200x fiber radius
Bend radius long term:	400x fiber radius	400x fiber radius

Applications

Metal coated singlemode optical fibers are typically used under extreme conditions such as:

- Aircraft, missile, rocket, turbine & jet engine monitoring
- Radiation, caustic & corrosive environments
- Material fatigue sensing applications
- High power laser delivery systems
- Ultra high vacuum applications
- Semiconductor manufacturing

Features

- Wide operating temperature range
- Hermetic & sterilizable
- Directly solderable for vacuum feedthroughs & laser diode pigtailling
- Radiation resistant
- Low outgassing
- Resistant to organic solvents

