

Single-mode fiber with copper coating

Cu800 | Cu1300 | Cu1300-200

We now offer single-mode fibers coated with copper alloy. Thin layer of metal provides mechanical strength and eliminates outgassing, at the same time increasing temperature range and heat conductivity of the fiber. Surprisingly cost-effective compared to their gold-coated counterparts, the fibers can withstand temperatures up to 600°C or higher, depending on heating pattern and atmosphere composition. High-temperature metal coating makes the fiber fully solderable. The coating can also be stripped within seconds by soaking the fiber in 50% nitric acid solution.

Cu800 and Cu1300 are single-mode fibers with 125um cladding, fully compatible with regular SMFs. Strong and robust, both fibers can be cleaved, spliced and connectorized exactly as the polymer-coated SMFs. Cu1300-200 is a larger-cladding fiber, designed to provide lower attenuation in loss-sensitive applications. The fibers are available in continuous lengths up to 1 km.

Coating materials and maximum sustainable temperatures

UV-cured acrylate	100°C
Polyimide	400°C
Copper+polyimide	400°C
Aluminum	450°C
Copper alloy	600°C
Gold	700+°C



Features

- High operating temperature
- Excellent thermal conductivity
- No outgassing
- High strength
- Solderable

Applications

- Sensors for harsh environments
- Ultra-high vacuum fiber-optic devices
- Radiation-resistant fiber sensors
- High-rate temperature measurement

Specifications

	Cu800	Cu1300	Cu1300-200
Operating wavelength	800 - 900 nm	1300 - 1600 nm	1300 - 1600 nm
Cut-off wavelength	< 770 nm	< 1250 nm	< 1250 nm
Attenuation (@ 850 and 1310 nm)	10.5 dB/km	5.5 dB/km	<1 dB/km
Numerical aperture	0.13	0.13	0.13
Mode field diameter	6 um	9 um	9 um
Cladding diameter	125 um	125 um	200 um
Coating diameter	165 um	165 um	260 um
Core-clad concentricity	< 0.5 um	< 0.5 um	< 0.5 um
Cladding offset	< 5 um	< 5 um	< 5 um
Proof test	100 kpsi	100 kpsi	100 kpsi
Short-term bending radius	> 10 mm	> 10 mm	> 15 mm
Long-term bending radius	> 25 mm	> 25 mm	> 40 mm
Operating temperature range	< 600° C	< 600° C	< 600° C

Apart from standard fiber versions listed above we offer a variety of custom products with copper alloy coating. For more information please contact us at (416) 661 1418 or info@ivgfiber.com

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