

Single-mode fiber with aluminum coating

Al1300 | Al50-125 | Al200



We now offer optical fibers coated with aluminum. Thin layer of metal provides mechanical strength and eliminates outgassing, at the same time increasing temperature range and heat conductivity of the fiber. The fibers can routinely withstand temperatures up to 450°C for prolonged periods of time and do not suffer from oxidation. The coating can be stripped within seconds by soaking the fiber in alkaline solution, such as sodium hydroxide.

Al1300 is a single-mode fiber with 125um cladding, fully compatible with regular SMFs. With the coating removed, the fiber can be cleaved, spliced and connectorized exactly as the polymer-coated SMFs. Al50-125 and Al200 are multimode fibers for visible and near-infrared part of the spectrum (UV versions with higher OH content are also available). 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

- Excellent thermal conductivity
- No outgassing
- No oxidation

Applications

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

Specifications

| | Al1300 | Al50-125 | Al200 |
|-----------------------------|----------------|---------------|---------------|
| Operating wavelength | 1300 - 1600 nm | 400 - 1600 nm | 400 - 1600 nm |
| Cut-off wavelength | < 1250 nm | - | - |
| Attenuation (@1310 nm) | 5.5 dB/km | 14 dB/km | - |
| Numerical aperture | 0.13 | 0.22 | 0.22 |
| Core/mode field diameter | 9 um | 50 um | 200 um |
| Cladding diameter | 125 um | 125 um | 215 um |
| Coating diameter | 165 um | 165 um | 270 um |
| Core-clad concentricity | < 0.5 um | < 0.5 | - |
| 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 | < 450°C | < 450°C | < 450°C |

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

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