

# SiO<sub>2</sub>

SiO<sub>2</sub> is a silicon dioxide dielectric cable designed for specific applications when low-density high-velocity PTFE isn't ideal. These are extreme environmental applications with requirements of:

Extreme temperature from just above absolute zero to 900 °C

A need for strict phase stability

Radiation where cables must withstand up to 100 mega rads



## IDEAL FOR:

- Hypersonic missiles
  - Deep space
- Radar systems
  - Rockets
- Particle colliders
- Quantum computing
  - Decoys

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The exceptional performance of SiO<sub>2</sub> in extreme environments stems from its unique construction.

- **304L SS jacket** is a material designed to resist radiation and perform in extreme temperatures.
- Connectors use a unique termination style: **laser welding** instead of soldering. Laser welding increases temperature resistance and provides a hermetic seal at the connector to cable junction.
- SiO<sub>2</sub> connectors utilize **glass to metal seals** to create a hermetic seal at the interface. A hermetic seal is required as the SiO<sub>2</sub> dielectric is a desiccant and performance will degrade with moisture ingress. Cables rated to 900C, connectors to 600C.



Ω Impedance  
50 Ohms

Op Temp  
-454 to +1832°F  
-270 to +900°C

## Specifications

|                             | Units        | .090          | .125          | .141          | .270          |
|-----------------------------|--------------|---------------|---------------|---------------|---------------|
| Maximum Operating Frequency | GHz          | 40            | 36            | 36            | 18            |
| Velocity of Propagation     | %            | 80.00%        | 80.00%        | 80.00%        | 80.00%        |
| Dielectric Constant         | NA           | 1.56          | 1.56          | 1.56          | 1.56          |
| Capacitance                 | pF/ft (pF/m) | 26.02 (85.37) | 25.39 (83.3)  | 25.59 (83.96) | 26.20 (85.96) |
| Shielding Effectiveness     | dB           | -110          | -110          | -110          | -110          |
| Diameter                    | in (mm)      | 0.090 (2.286) | 0.125 (3.175) | 0.141 (3.581) | 0.270 (6.858) |

All stated values are to be taken as nominal

## Phase Change VS Temperature (SiO<sub>2</sub> 0.090")

