

Miniature High-Temperature Hook-Up and Lead Wire



- 300 – 1000°C+
- Small Diameters (0.25mm /0.01 inches)
- Lightweight
- Excellent Electrical and Insulation Properties*

By developing off the technology applied to our ceramic-coated magnet wires, we were able to produce a high-temperature hook up and lead wire with exceptionally small diameters. T-Axel's miniature high-temperature hook up and lead wire is used in applications requiring an extremely low-profile, lightweight, high-temperature wire.

We offer multiple conductor materials, single or multi conductors, and other characteristics such as excellent radiation resistance expected in T-Axel products.

Our hook up and lead wire are custom manufactured per client project requirements and demands. Contact us today to see how we can work with you!

Material Construction

Composite Insulation
1) Fiberglass/ quartz fiber sleeve 2) Extruded SiO₂ insulation
3rd Layer of insulation, to improve the insulation performance between inner conductor and stainless steel jacket

Fiberglass or Quartz fiber sleeve
A very thin layer (0.05mm/ 0.002 inches) of braided material which serves as a second layer of insulation and additional protection for the ceramic layer.

Ceramic-Coated conductor
Conducting material (nickel-plated copper, pure nickel, pure silver, pure copper, and other alloys) coated with the same ceramic used in our high-temperature ceramic-coated wire, giving the wire excellent high temperature insulation performance

Stainless Steel Jacket (OPTIONAL)
A stainless steel (0.1 mm/ 0.04 inches) jacket which protects the inside components from abrasion, impacts, moisture, and other outside forces.

Without Stainless Steel Sheath, Single Conductor

With Stainless Steel Sheath, Single Conductor

Specifications and Wire Options

General Specifications and Options

Conductor Diameter: 0.05mm - 1.024mm

Insulator Thickness:

Ceramic-Coating layer = 0.01-0.03 mm

Braided Sleeve = 0.05 mm and up

Stainless Steel Jacket Thickness: 0.1mm and up

No out-gassing in a vacuum environment

Number of conductors: 2 conductors and up

Conductor material:

Nickel-Plated Copper, Pure Nickel, Pure Silver, Pure Copper,

Thermocouple wire and other alloys

Insulating Material:

- Proprietary ceramic coating
- Ceramic coated layer will be the primary dielectric material

for insulation performance

- < 400°C applications should use fiberglass sleeve
- > 400°C applications should use quartz fiber sleeve
- Insulating sleeve thickness may vary based on requirements



Thermal Specifications

Operating Temperature:

Ni Plated Cu Wire = -271° to 600° C*

Short term use up to 1000° C*

Pure Nickel Wire = -271° to 1000° C

Temperature Shock:

No cracking from -271° C to ambient temperature and ambient temperature to maximum operating temperature

Flammability:

Wire will not burn, at temperatures in excess of 1093° C, the insulation layer may start to melt but will not burn

Electrical Specifications

Voltage:

- Primarily used in low voltage applications
- **Voltage Testing: 250-1000 VDC (1 min.)**

Relative Conductivity:

- Pure Nickel Wire (Nickel 205): 18.2% IACS (Copper is 100.0% IACS) @ 20 ° C
- 27% nickel-plated copper wire: 70.0% IACS (copper is 100.0% IACS) @ 20 ° C
- **Other alloys/ conductors should refer to base performance.**

Radiation Resistance

Able to withstand prolonged exposure to neutrons and gamma rays without affecting the properties of the insulating material.