

# 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 SiO<sub>2</sub> 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

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## 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:** Options for single or multi conductor

**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.