

Hot Wire Filaments & Thermistors

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Hot Wire Filaments

A choice of materials is available depending on the application in question. The choice includes: Gold-Sheathed Tungsten (AuW), Tungsten (W), Rhenium-Tungsten (WX), Nickel (Ni) and Nickel Alloy.

Each type has specific characteristics such as corrosion resistance, oxidation resistance, catalytic reactions and sensitivity for use which are dependent on the application required.

Hot Wire Filaments required for corrosive applications are best suited to be manufactured in Gold-sheathed tungsten, with special resistance to Oxygen. The Filaments are sold as matched pairs with standard 50mm (2") leads or at lengths more suited to the customer's requirement.

Thermistors

The Thermistor is a thermally sensitive resistor that has a high negative coefficient of resistance. They are manufactured from a mixture of the oxides of Manganese, Nickel and Cobalt. They are sintered in an oxidising atmosphere in the form of small beads (0.012" dia.). A covering of glass is then placed over the bead to protect it from further oxidation and reduction.

The characteristic of thermistors is such that they can be operated at relatively low operating temperatures, they have high sensitivity and are suitable for sub-ambient temperatures.

Customised Hot Wire Filaments

AGC Instruments can customise to a customer specific requirement. We can manufacture Hot Wire Filaments to meet your exact requirement or to best suit your needs.

For more information on our customised solutions please contact us directly.

About Hot Wire Filaments & Thermistors

AGC Instruments is a leading supplier of Hot Wire Filaments, Thermistors and Thermal Conductivity Detectors (TCD) to leading Instrument manufacturers of Gas Chromatographs and Gas Analysers Worldwide.

Pairs or Quads

AGC Instruments filaments are manufactured in matched pairs or quads. A matched pair is made up of two elements matched in gas under varying current conditions. Neither pair is matched to the other. We recommend purchasing 3 to 4 pairs to make a well balanced bridge. Quads are made up of four elements matched as in a cell. These four elements compensate for changes in current, flow and temperature.

Our Customers Include:

- Bruker (Varian)
- Thermo Fisher
- Dani
- Perkin Elmer
- Siemens
- Emerson
- Orthodyne
- Perichrom
- Konik

Thermal Conductivity Detectors (TCD)

AGC Instruments offers our own standard range of TCD. In addition, we are able to advise and design a suitable configuration should your require non standard. Please contact AGC Instruments directly for further details.

Characteristics of the Various Filament Types

Substance	Tungsten (W/WX)	Nickel (Ni)	Gold-Sheathed Tungsten (AuW)
Air/Oxygen	Good	Good	Very Good
Water	Good	Good	Good
Steam	Good (below 700°C)	Good	Good
Ammonia/Amines	Good	Poor in presence of H ₂ O	Poor
CO/CO ₂	Good	Good	Good
Hydrogen	Good	Good	Good
Nitrogen	Good	Good	Fair
Fluorine	Poor (Fluoride forms at 20°C)	Good	Poor
Chlorine	Fair	Good	Fair
Bromine	Fair	Good	Fair
Iodine	Fair	Good	Fair
Sulfur	Fair	Poor	Good
H ₂ S/SO ₂	Fair	Poor	Good
HC	Fair	Good	Fair
Aqua Regia	Fair	Poor	Poor
HF	Fair	Good	Fair
HF/HNO ₃	Poor	Good	Poor

Ordering Information

Part	Code	Mount	Material	Resistance Cold, Ohms 25°C
Filaments				
13-001	W	9225	Tungsten	18
13-002	WX	9225	Rhenium-Tungsten	32
13-003	W2	333	Tungsten	40
13-004	W2X	333	Rhenium-Tungsten	64
13-005	Ni	9225	Nickel	12.5
13-006	Ni2	333	Nickel	25
13-007	Ni299	299	Nickel	12.5
13-210/13-270	WX7	480/9225	Rhenium-Tungsten	60
13-014	WX	480	Rhenium-Tungsten	26
13-019	WX	480	Rhenium-Tungsten	32
13-026/13-100	WX/WXR	9225	Rhenium-Tungsten	26
13-300	AuW	9225	Gold- Sheathed Tungsten	25.5
13-330	AuW2	333	Gold-Sheathed Tungsten	24
Thermistors				
13-500	G112	G112	Glass Beads	8000
13-502/13-504	GBT8	9225J/9225A	Glass Bends	8000
13-506	GBT8	9225AA	Glass Beads	8000

Repair Service of Thermal Conductivity Detectors (TCD)

As a leading manufacturer and supplier of TCD'S, we are therefore in a position to repair nearly all TCD's that are produced by other Gas Chromatograph manufacturers. If your TCD manufacturer is not listed on this brochure, please contact us and we can advise you personally.