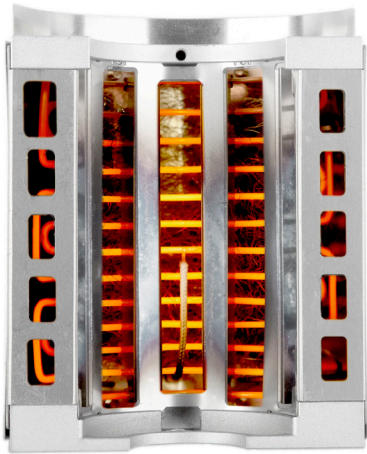


Miniature Heaters

Constant Wattage & Self-Regulating



- Small diameter (1.5mm)
- High reliability
- Robust construction
- Excellent insulation resistance
- Constant wattage or self-regulating
- Easily formed to any shape

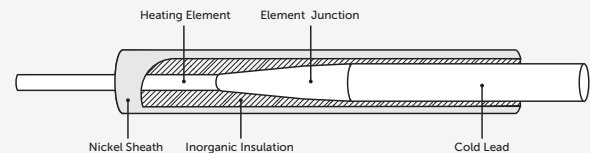
H&B Sensors manufacture bespoke Miniature Heaters to exact customer requirements. Miniature Heaters are manufactured with Ø1.5mm Inconel or Alloy sheaths and are suitable for use up to +900°C.

Miniature Heaters are used widely in industrial, laboratory and aerospace applications and are designed to withstand very high levels of vibration.

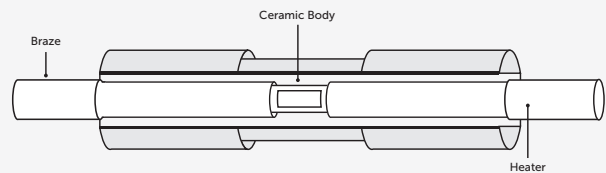
The heaters have a uniform external diameter and are ductile enough to be formed into virtually any shape with a minimum bend radius of 1.5mm. Our heaters are hermetically sealed with a choice of terminations to suit most applications. Standard terminations can withstand up to 600°C. H&B miniature heaters use an insulation material that is inorganic and not hydroscopic.

Heater Construction

The following diagram shows the basic construction of the heater which consists of an outer nickel sheath swaged down onto the inorganic insulation material surrounding the nickel-chromium heating element.



Terminal Construction



Miniature Heaters

Constant Wattage & Self-Regulating

Constant Wattage Heaters

Constant wattage heaters are designed to operate at a fixed wattage with watt densities of up to 20W/cm and temperatures of up to 900°C. Type J or Type K thermocouples can be incorporated onto the heater assembly for temperature measurement and control.

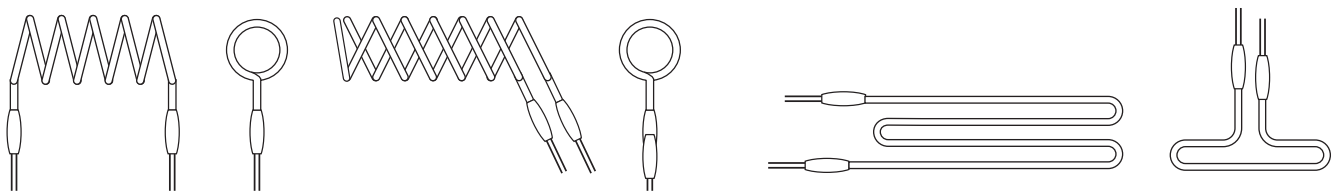
Construction	Inconel / Nickel
Sheath Ø	1.5mm
Watt Density	Max. 20w/cm
Insulation Resistance	Max. 500Vdc
Termination	Flying Leads / Solid Pins
Options	Type J Thermocouple / Type K Thermocouple

Self-Regulating Heaters

Self-regulating heaters are designed to prevent the heater from overheating during changes in flow or process conditions. Designed primarily for operation under icing conditions, as the heater temperature increases so does its resistance thereby reducing the power draw allowing the heater to maintain a steady temperature.

Construction	Inconel / Nickel
Sheath Ø	1.5mm
Insulation Resistance	Max. 500Vdc
Termination	Flying Leads / Solid Pins

Forming Examples



H&B heaters are normally constructed with a cold lead at each end, special heaters can be built with composite elements to supply a variable wattage density or intermediate unheated sections if required see <http://hbsensors.com/products#heaters> for further details.