



# Assembly and application rules for 600°C sensor elements



## Mechanical design rules

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- Differential thermal expansion of all materials used for assembly should be considered from a manufacturing and operating point of view to avoid any thermal-mismatch induced mechanical stress on the sensor element.
- Vibration stress must be kept as low as possible.
- It is necessary to consider the abrasive effects of potting materials (ceramic powders).

## Material issues

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- All materials must be capable of operating over 600°C.
- All materials used for assembly must be completely moisture and contaminant free.
- All materials used for assembly should be pre-annealed in an oxidizing atmosphere at higher temperatures than the maximum operating temperature.
- The build-up of reducing atmosphere inside of the sensor housing should be avoided.
- Incompatible materials or vapors that can cause an acidic reaction inside the assembly should be avoided to protect the sensor element against poisoning at elevated temperatures.

## Electrical circuit topics

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- To avoid shunt effects at elevated temperatures due to NTC material conductivity, the electrical resistance of all used materials must be as high as possible, especially at high operating temperatures.
- It is strongly recommended that the electrical power supplied to the element be kept as low as possible.

## Connections

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- Soldering
- Brazing
- Crimpable
- Resistance Welding

## Measuring Current

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- 100 Ω: typical 0.3 – 1.0mA, max. 3.0mA
- 1'000 Ω: typical 0.1 – 0.5mA, max. 2.0mA

## Sensor Handling

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- Using gloves is recommended
- Avoid using metal tweezers
- Avoid mechanical stress to lead wires



INNOVATIVE SENSOR TECHNOLOGY

