

O₂ Sensor

O₂ sensor for measuring oxygen levels in furnace atmospheres



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The online oxygen measurement imposes greater demands compared to hydrogen measurement in terms of sampling.

While hydrogen diffuses very quickly within the inspection room (approx. 6 seconds), in the case of oxygen it may occur that the measured gas phase is not connected or related to the real reactor concentration. The physical characteristics of the oxygen transport are overcome with an oxygen pump with a physical principle similar to that of heat convection.

New, revolutionary procedure for continuous oxygen measuring via modified zircon measuring cell (heated), attached to the recipient. The measuring cell is equipped with an oxygen pump and provides permanently an exchange of the atmosphere at the measuring cell.

The oxygen pump works according to a physical principle similarly the heat convection. The sensor is not applicable for carburizing processes.

Fields of application:

- Nitriding plants at pre-oxidation, post-oxidation, oxynitriding
- Residual oxygen measurement in vacuum plants (leakage rate determination)

Technical Data

- No wear
- Vacuum solid
- No exhaust gas via the sensor
- Pressure-insensitive measurement principle
- Max. allowed measuring pressure at the sensor: 3bar
- Min. measuring pressure at the sensor: 10^{-7} mbar
- Leak rate $< 10^{-7}$ mbar \cdot l/s
- Reaction time depending on installation situation < 20 s
- Calculation of the oxygen partial pressure according to Nernst at 0...20,64 Vol.-% O₂ and at 600°C measuring cell temperature
- Temperature at KF flange: max. 65 °C
- Measuring range: 0...20,64 Vol% O₂ (1500 mV bis 0 V),
20,65...100 Vol% O₂ (0 bis -35 mV)

Connections:

- Power supply: 24 V DC/1 A
- Mechanical connection: KF40 vacuum-flange

Dimensions:

- 105 x 66 x 250 mm (L x W x H)

Incl. Accessories:

- DIN rail power supply unit 24V/1A short circuit proof
- Connector

Requirement for use:

- KF 40 vacuum flange for connection
- If necessary convection pipe depending on installation on request

Exemplary installation
Pit-type furnace

