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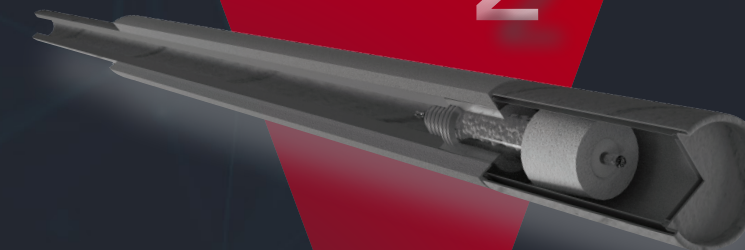
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H₂



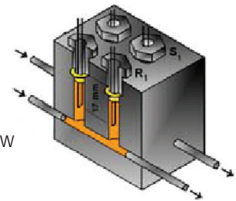
PRODUCT

AccuH2*
Hydrogen System and Probes

Hydrogen Probes Measurement Principle

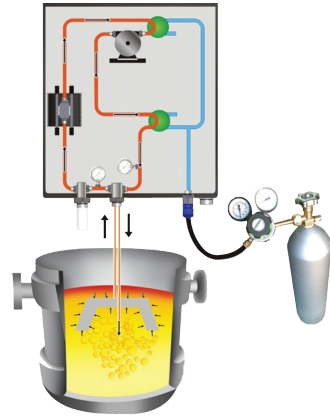


$$H = K/f * \sqrt{P_{H_2}}$$



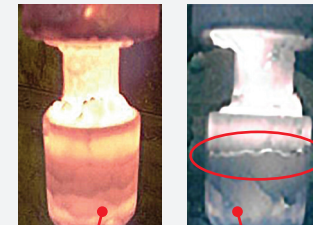
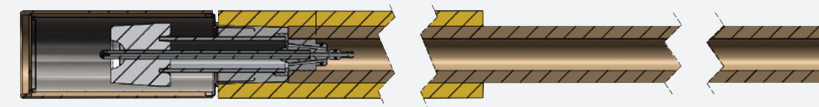
TCD schematic view

- The Hydrogen Disposable Probe is the medium between the measurement System and the molten steel.
- The system blows pure nitrogen into the molten steel. The nitrogen combines with the hydrogen content of the bath and changes its thermal conductivity. The combined gas is then sucked into the system and analyzed by the TCD, which converts the difference in thermal conductivity into H₂ ppm.
- Sievert's Law provides the theoretical base used for Hydrogen measurement in molten steel bath. The law states that the solubility of a diatomic gas in metal is proportional to the square root of the partial pressure of the gas in thermodynamic equilibrium. Hydrogen, oxygen and nitrogen are examples of dissolved diatomic gases of frequent interest in metallurgy.
- TCD (Thermal Conductivity Detector) is an assembly block which consists of a single "matched couple" of thermistors (thermo-sensible resistors) with the goal of measuring the thermal conductivity of the Gas. The thermistors are connected to an electric circuit called Wheatstone Bridge.

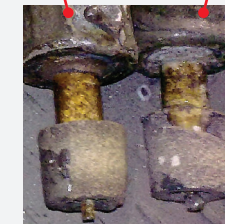


Why choose Vesuvius Sensors & Probes Crackless Hydrogen Probe technology?

- Quick measurement result
- Available for all application: Ladle treatment, Degasser stations, Tundish and Ingot
- "Plug and play"- compatible with your existing system



Ecil Met Tec probe after use Competitor probe after use



Problem: Ceramic Cracking

When exposed to thermal shock in normal operation, some probes currently on the market can show cracks and/or mechanical failure (chunking type).

Consequence: False High/Low Measurement

When cracking, the ceramics let contaminants reach the gas measurement loop; once polluted, the gas reading gives erratic hydrogen reading.

Answer: Ceramics Technology

Ecil Met Tec patented crackless ceramic bells offer superior resistance to thermal shock and superior reliability in hydrogen measurement.

