



ROBUST, PORTABLE AND EASY TO USE

ALSPEK* H

THE DIRECT MEASUREMENT OF HYDROGEN IN ALUMINIUM ALLOYS

Fast accurate measurement

Spot or continuous measurement

Continuous display

Automatic data logging

Graphic display charts





ALSPEK H

The direct measurement of hydrogen in aluminium alloys

What is ALSPEK H?

ALSPEK H is a device for the direct measurement of hydrogen concentration in aluminium alloys. It is built around an innovative electrochemical sensor that is capable of the rapid and real-time measurement of hydrogen.

The sensor is mounted inside a thermocouple housing which is protected by a plasma coating to achieve long life in aluminium melts.

The signal from the sensor is processed by an analyser and displayed as hydrogen concentration in ml/100g.

The ALSPEK H device enables the foundry to monitor the melt quality and to report this data for quality control purposes.

A full diagnostic capability in the analyser also provides a continuous check on the function of the sensor ensuring optimum performance at all times.

How it works

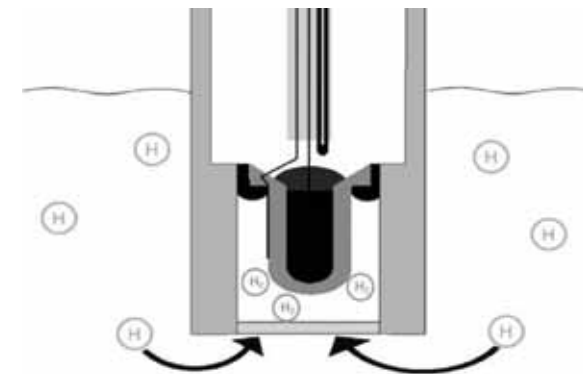
The probe is based on a ceramic material ($\text{CaZrO}_3\text{-In}$) which can conduct hydrogen ions.

All ALSPEK H sensors contain a "Solid State Reference"; a solid material which has a known hydrogen concentration. The electrode exposed to the solid state reference is the "Reference Electrode" and the electrode exposed to the measured gas is the "Measuring Electrode".

The figure below shows a schematic arrangement of a probe to measure hydrogen concentration in molten aluminium.

Hydrogen solubility strongly depends on temperature. Therefore the melt temperature must also be measured in order to calculate the dissolved hydrogen level.

Principle of probe operation



ALSPEK H Applications

ALSPEK H is a robust and user-friendly device that can be used in a variety of ways to improve foundry performance.

ALSPEK H

ALSPEK H is delivered in an aluminium case with a multi-colour graphic display. It is designed for extended quality control and certification purposes as well as to control the FDU degassing process using pre-set minimum or maximum hydrogen levels.

Features:

- Spot measurements
- Continuous measurements
- Touch screen
- Up to 17 days data logging
- Data transfer options

ALSPEK H Multi

The ALSPEK H Multi read out unit can record data from up to 4 different sensors. It is mainly designed to measure hydrogen levels in holding / casting furnaces for high-quality castings.

Features:

- WLAN or LAN connection to sensors
- Battery powered sensor operations
- Up to 50 m distance between sensor and receiver

ALSPEK H Mini

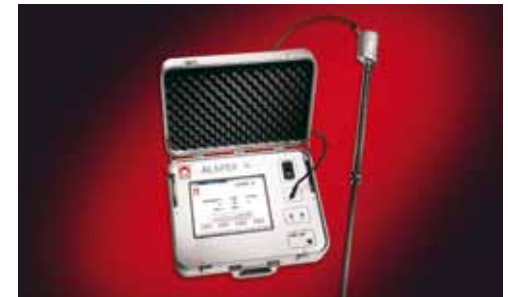
The ALSPEK H Mini unit is in a compact design which enables the operator to carry it within the foundry. It is suitable for spot measurement in both holding and melting furnaces.

Features:

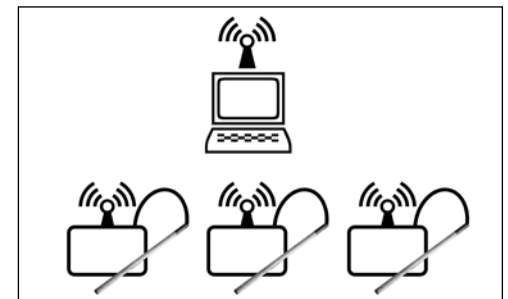
- Comfortable display
- Single button operation to save data
- Input operation for batch numbers
- Data transfer via USB or memory card



Sensor for ALSPEK units



ALSPEK H



ALSPEK H Multi



ALSPEK H Mini

ALSPEK H

The direct measurement of hydrogen in aluminium alloys

Melt quality measurement

The ease of use of ALSPEK H means that it can readily be used to measure melt quality in different locations around the foundry. Fast and accurate spot measurements of hydrogen concentrations can be made in ladles and furnaces, or the probe can be left immersed in one location to provide continuous real time measurement of hydrogen levels. It is also possible to make real time hydrogen measurements during a degassing treatment.

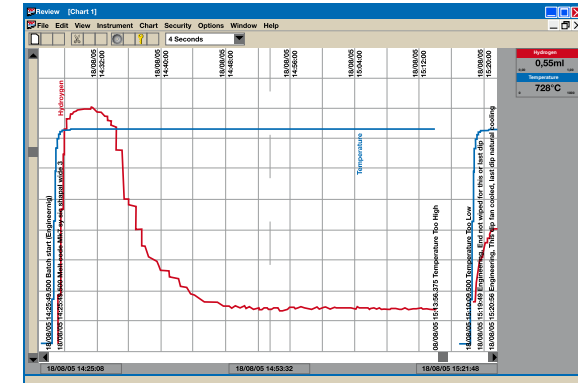
ALSPEK H can also be used for the development or optimisation of melt treatment procedures.

Process control

The ability to measure during a degassing treatment means that ALSPEK H can be used to achieve real control over the degassing process.

ALSPEK H can be combined with a Foseco rotary degassing unit so that the output of the sensor can be used to trigger both high and low hydrogen alarms. These alarm outputs can in turn be used to start or stop the degassing unit.

The portable analyser can be fitted with these alarm outputs to maintain complete flexibility; alternatively, ALSPEK H can be integrated into the control panel of an FDU to provide a dedicated controllable degassing unit.



ALSPEK H screen shot

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COMMITTED TO FOUNDRIES

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