

ALU COMPACT

Keywords:

- Measuring hydrogen content less than 1 minute
- Economic, continuous stable and ease of use
- Portable datalogger, store up 1000 measuring values



Technical Specification:	
Measuring Range	0.05 – 9.99 ccm/100 g
Reproducibility	0.02 ccm/100g
Resolution	0.01 ccm/100 g
Serial Interface	RS 232
Dimension	680 x 460 x 430 mm
Weight	45 kg approx.
Voltage	230 VAC / 115 AC

Hydrogen Measurements

General information for measurements

The measurement of hydrogen is based on the principle of the first bubble. At the moment the pressure in the environment of a sample of liquid metal is the same or lower than the pressure of dissolved gas in the sample, the gas gets on the surface and out of the sample. This is seen as a bubble on the surface. Since hydrogen is the only gas dissolved in liquid aluminium, the partial pressure of hydrogen in the metal can be measured in this way. The user observes the surface of the liquid metal sample and presses shortly the MEASURE button as soon as he sees the first bubble. A "real" bubble is a bubble where other bubbles immediately follow. If the button was pressed too early, then the user is allowed to press the MEASURE button again within 10 seconds to correct the value. With the so measured partial pressure of hydrogen, the measured metal temperature and the typed in alloy-elements the hydrogen-concentration is calculated.

Pay attention to following subjects:

- Set the heater-temperature at the level of the metal temperature
- To have a long lifetime of the crucible-inlay-cylinder, coat it regularly
- Regular coat the thermocouple-metal to increase lifetime
- Make at least 3 measurements and calculate an average value
- Allways remove metal-rests from the crucible-inlay-cylinder after measurement

Measure Hydrogen

- Select the alloy with the alloy-selector-switch
- Open the vacuum-upper-chamber
- Take a metal sample. Please coat and preheat the ladle with which you take the sample well.
- Fill the liquid metal uniformly in the crucible-inlay-cylinder
- Take care that the sealing surface of the crucible-inlay-cylinder and the O-Ring on the vacuum-upper-chamber stay clean
- Close the vacuum-upper-chamber
- Start a measurement by pressing the START button
- Observe the surface of the metal. As soon as you see bubbles on the surface, shortly press the MEASURE button. On the display the calculated H₂-concentration is displayed.

About 10 seconds after you have pressed the MEASURE button the protocol is printed. If the bubble was not a "real" bubble or if the button was pressed by mistake, you have 10 seconds time to press it again.

Open the vacuum-upper-chamber and empty the crucible-inlay-cylinder into the graphite crucible by turning on the handle. Clean the crucible-inlay-cylinder from metal rests.
The hydrogen measurement may be interrupted by pressing the START and MEASURE button at the same time.



Optionals: Datalogger, can store up 1000 values



Hydrogen content value