



H SCAN

To Accurately Measure
 H_2 in Molten Aluminium

**Rugged, Accurate
and Economical.**





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What *H-Scan* does

Quite simply, *H-Scan* takes as input a sample of the molten Hydrogen and within 3 minutes, provides the user with a reading of the Hydrogen content in the melt. This reading – whether in ppm or in $\text{cm}^3/100\text{g}$, enables users to assess if and how much more de-gassing is needed or whether the melt can now be cast without risk of high porosity. This enables any adjustments, if required to be made.

The only one of its kind in the world

The presence of Hydrogen in molten Aluminium poses problems to the foundry and casting industries, as high residual hydrogen can result in significant porosity after casting, leading to rejections or the risk of mechanical failure. *H-Scan* makes it easier to substantially improve both the quality and the reliability of Aluminium castings, by enabling precise control of Hydrogen content in the Aluminium melt just before casting. No under- or over de-gassing. No rejections, no wastage of time or money.

Metal Power's *H-Scan* Analyser has been built to rapidly and accurately analyse the Hydrogen content in molten Aluminium and has a number of unique features. *H-Scan* uses the Reduced Pressure Technique to measure the Hydrogen content. By controlled solidification, the partial pressure of all the Hydrogen released is accurately measured and related to its percentage. *H-Scan* gives accurate quantitative information within 3 minutes of sampling, enabling users to optimize the level of de-gassing.

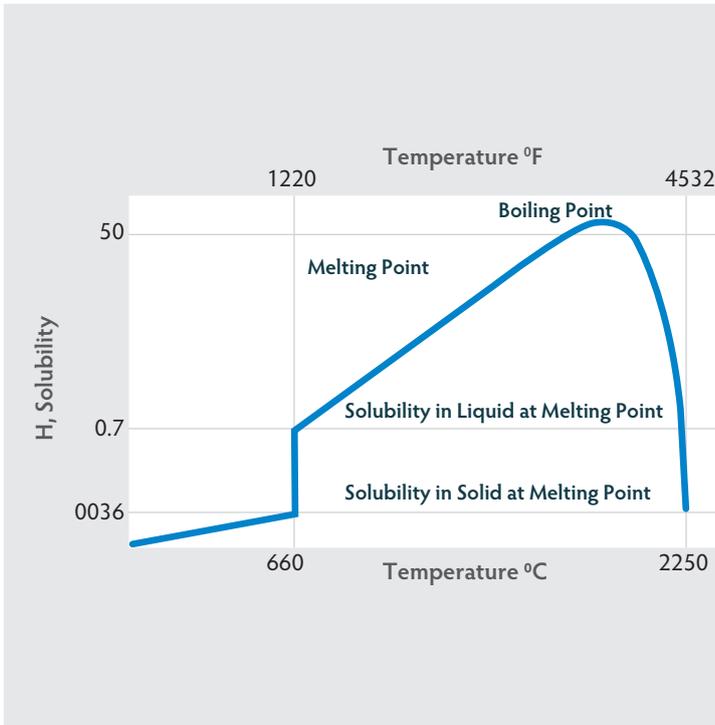


Key Features

- 3-LED, 7-Segment Display for Readout in $\text{cc}/100\text{gm}$ or ppm
- Scratch free keypad to select database fields
- LCD (16*2) interface for showing details like Company Name, Operator Name, Shift No., Sample Name, Date, Time, Furnace no., etc.
- Thermal Printer for printouts of various required output parameters
- USB Interface
- Fast and Accurate correction based on sample weight
- Full traceability – calibrated using certified pipettes
- Self leakage test for periodic maintenance in *H-Scan*
- Works in the harsh environment of foundries up to 60°C
- Emergency STOP Button

Eliminating Porosity - The Cure-Most for Aluminium Foundries

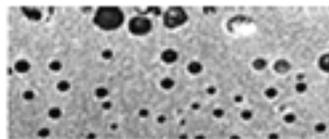
The manufacturing industry has imposed increasing demands on aluminum foundries in recent years for the improvement of the quality & reliability of castings. From high-tech sectors like Automotive, Aerospace and Defence, to the high-volume consumer-focused industries such as Food and Beverages, the demand from Aluminium suppliers is for porosity-free material. Many of the difficulties in achieving the required quality standards when it comes to porosity are derived from an inadequate control of the hydrogen concentration in the melt.



Hydrogen is the only gas that is appreciably soluble in molten aluminum and arises from the reaction between molten aluminum & water vapor ($2\text{Al} + 3\text{H}_2\text{O} = \text{Al}_2\text{O}_3 + 3\text{H}_2$). As solubility of hydrogen in aluminum is significantly lower in the solid form than in molten, the dissolved hydrogen bubbles to the surface as the melt is solidified.



With Proper degassing



Without Proper degassing

Should the melt not be degassed efficiently (release of the dissolved hydrogen) or be cooled too quickly, the resulting solid metal remains porous. In all such situations, the final casting has to be rejected because of the unacceptable level of porosity that has occurred.

It is therefore imperative for all aluminum foundries to invest in the appropriate hydrogen detection and degassing equipment. Most foundries have of course already invested in or indulge in some manner of degassing.

However, most still do not have a good quality instrument for measuring the actual Hydrogen level in the melt. Knowledge of this level obviously enables far more efficient de-gassing and results in far greater assurance even prior to pouring the melt!

Metal Power's *H-Scan* offers the most advantageous solution across multiple assessment dimensions for rapid, accurate and traceable measurement of Hydrogen levels in the molten Aluminium.

With a per analysis cost of just 7 cents (INR 5), the *H-Scan* is one of the most economical instruments in the world and its accuracy is amongst the best too, (within 5% of the vacuum sub-fusion method), making it the most optimal solution for all kinds of quality-conscious users. Not just this, it is also the only instrument that offers traceability – with the ability of testing, validating and calibrating it using certified / standard pipettes (supplied with the instrument or at any time in the future).

H-Scan comes with the assurance of high-quality, reliability and the highest levels of service from Metal Power.

Why *H-Scan*!

H-Scan offers a reliable and automated combination of four key advantages for users that are not available on any other instrument, making it the ideal solution for any quality-conscious foundry:

1. Accuracy – with full automation and storage of results
2. Traceability – without complexity, using certified, calibrated pipettes provided with the *H-Scan*
3. Speed – with reliability; analyses within 3 minutes and within 5% of even the best Lab methods
4. Economy – with a cost of just INR 5 / USD 0.07 per test!

Technical Specifications - *H-Scan*

- Dimensions : 73 x 55 x 110 cm
- Electrical Input : 230V, 50/60Hz OR 110V 50/60Hz
- Power : 1.25KVA
- Sample Weight : 100gm nominal.
- Measurement time : 3 minutes
- Range : Up to 0.85 cc/100gm (0.76 ppm)
- Sensitivity : +/- 0.01cc /100gm
- Accuracy : Less than 5% difference between *H-Scan* Method & Vacuum Sub-fusion Method
- Least Count : 0.01 cc/100gm

Specifications are subject to change on account of product upgrades.



Highest Level of Customer Satisfaction

Our primary objective is to provide the industry with reliable and rugged instruments at affordable prices. In each category, Metal Power's spectrometers offer industry-leading performance, coupled with the lowest costs of ownership. We understand the criticality of our instruments to the operations of our customers and are committed to ensuring minimum downtime.

Our extensive team of dedicated and highly trained service engineers are equipped to handle service issues on our products. This is supported by an efficient call-logging system that is accessible to all customers via our phone lines, email or website.

For customers in the Indian sub-continent, Metal Power offers direct service support and a toll-free helpline (India-only) with a direct field-support team of 35+ in-house engineers spread across 17 locations. In all other markets, Metal Power assures the highest level of service through our authorized partners' engineers, with each trained in regular programs conducted by Metal Power.

All our engineers and partners are supported by our dedicated Central Helpdesk and also provided access to Applications Support when the situation so demands.

Our other products

Metavision 10008X

The zenith of sensitivity



Metavision 1008i³

When excellence is not good enough



Metavision 1008i

Laboratory Powerhouse



Metavision 108NN+

Rugged and versatile thoroughbred



MOSS

Compact and affordable



Metavision M Series

High performance on wheels



Argon Purifier+



CleanSharp



Wire Adaptors



Sampling Mould



Sample Surface Preparation Machines



Certified Reference Materials



Proficiency Testing Services



Founded in 1987, Metal Power provides a comprehensive range of products, applications and services to meet the analytical needs of metal industries. Our product portfolio spans Laboratory Optical / Atomic Emission Spectrometers (OES / AES), Mobile Spectrometers, Hydrogen analysers for molten Aluminium, Certified Reference Materials (CRM), Sample Preparation Machines for spectrometers as well as a wide range of accessories.

Apart from the product range, Metal Power through its Laboratory Division also offers services in Material Analyses and Proficiency Testing for other laboratories. Today the Company boasts over 30 years of experience serving the needs of ferrous and non-ferrous metals industries and has a truly global presence, spread across more than 35 countries in 5 continents.

True pioneers in the field of CCD-based Optical Emission Spectrometers, our product philosophy is driven by the focus on offering a tailored model to meet every customer need – both analytical and financial. As an outcome, we offer the world's widest range of spectrometers – with each offering positioned to be the best-in-class in terms of features as well as on economic value.

Our stationary spectrometer range spans from the high-end R&D-grade **Metavision 10008X**, that delivers virtually every feature known in spectrometry, through the rugged, Laboratory-grade **Metavision-1008i³**, **Metavision-1008i** and **Metavision-108NN+**, to the entry-level **MOSS**.

The common denominator across all our offerings – products, applications and services – remains our commitment to deliver the highest level of quality, reliability and uptime, while also offering the lowest cost over the product lifecycle, through low acquisition costs backed by the highest quality of service and after-sales support to our customers – wherever they may be.



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