HYDROGEN MEASUREMENTS IN MOLTEN STEEL

Digital Hydrogen measuring system **SAMP-IN-HYDRO**

The SAMP-IN-HYDRO Hydrogen immersion Vacuum Equilibrium Analysis System is operated directly at the floor by Operator. It measures the amount of Hydrogen dissolved in molten steel, in ppm.

The direct and quick determination of the Hydrogen content in molten steel is today a MUST in modern steel making, whenever dissolved Hydrogen in molten steel might significantly affect steel properties. The accurate measure of Hydrogen curing melting process is an important help to avoid technical deviations and to achieve the requested level in steel quality.

SAMP-IN-HYDRO is also used for accurate Hydrogen readings in alloyed carbon and stainless steel grades, in secondary metallurgy Stations and in continuous casting Tundish. Direct reading with SAMP-IN- HYDRO is a great help to the steel industry.

The analysis instrument and the built-in system controls are all placed into a rough self-standing cabinet, suitable to be installed nearby the measuring point, while a remote touch screen monitor HMI type is available for the operator control room.
Technical Characteristics:

- **Range:** 0,5 ÷ 14 ppm
  (on request 10 ppm or 12 ppm)
- **Measurement Cycle time:** up to 60 s (120 s in calibration mode)
- **Repeatability:** ± 3%
- **Accuracy:** 0,5÷3ppm ± 0,1ppm
  3,0÷14 ppm 3% of measured value
- **Communication:** 2x RJ45 for PROFINET
  (with integrated switch),
  2x RJ45 PROFINET plugs
  1x RS 485/422 for PROFIBUS / MPI
  2x USB-host , 1 x USB-device,
  2x SD card slot, ETHERNET,
- **Touch Screen Display:** 9" display, for easy access and control
  of all settings
- **Embedded memory:** up to 16.000 measurements
- **Cabinet:** rugged steel case IP54 (control room) and IP65 (floor)
- **Dimensions:** H 800mm x W 600mm D 300mm (floor)
- **Remote mode:** Ready - Measuring - End + Horn
- **Carrying Gas:** Nitrogen (2,0 bar supply ; necessary about 0,9 m per 300 measures)
- **Working T:** 0°C to 50°C (32°F to 122°F)
- **Front panel Self Test report:**

Simple special dedicated function for and immediate automatic complete
check – up of all IN-OUT pneumatics and analysis circuits. The final report
status is shown on touch screen (50s)

**SAMP-IN-HYDRO Immersion probes**

The measuring probe consists on a single expendable probe. It includes various parts fitted to guarantee the separation between carrying gas and Hydrogen. Thanks to the state-of-the-art sampling technology of the SAMP-IN-HYDRO system (quick-fit connection between lance and pneumatic hose), the sampled gas is directly analyzed on line.