Hydrosteel 6500



Leading multipoint hydrogen flux corrosion monitor, enabling reliable monitoring in extreme environments

Advancing hydrogen flux monitoring

Hydrosteel 6500 is the newest generation in the Hydrosteel range, building on more than 25 years of proven hydrogen flux monitoring technology. Since 2000, Hydrosteel has provided a simple and effective way to measure hydrogen flux through steel, giving operators near-real-time insight into active corrosion and hydrogen-related damage.

Unlike traditional wall loss measurements, hydrogen flux is not limited by the resolution of pipe wall thickness. It provides a direct indication of corrosion occurring within the actual service steel, while offering a non-intrusive alternative to corrosion coupons. This makes hydrogen flux measurement a valuable tool for identifying developing corrosion and supporting informed asset integrity decisions.

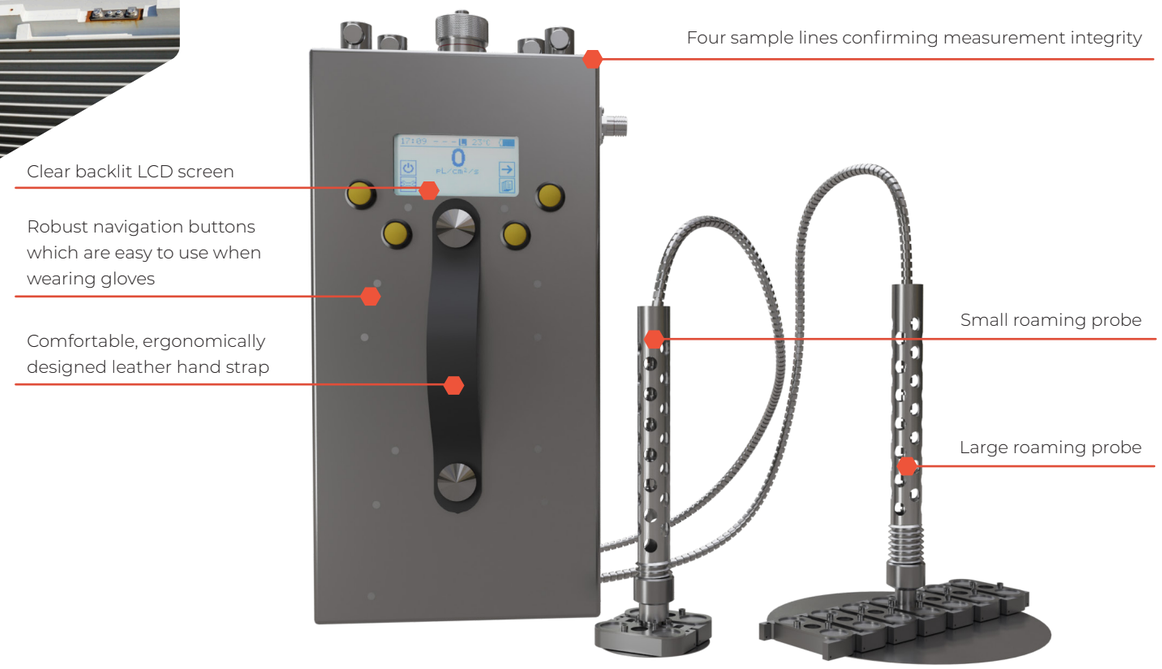
Hydrosteel 6500 can be used across a range of operating conditions. At lower temperatures, hydrogen flux can indicate active sour corrosion and the associated risk of Hydrogen-induced cracking (HIC) risk monitoring. At elevated temperatures, measurements can provide an indication of naphthenic acid corrosion. The monitor can also be used to track hydrogen outgassing following high-temperature steel processes and confirm effective hydrogen removal during pre-weld hydrogen bakeouts.

As the latest evolution of the Hydrosteel range, Hydrosteel 6500 brings established hydrogen flux monitoring technology into a new generation of monitoring capability.



Key Features

- **Patented collection probes**
  Small and large patented roaming probes included as standard suitable for steel surfaces with curvature down to 3.5 in
- **Flexible monitoring**
  Four ports for sequential flux monitoring and multipoint measurements
- **Long battery life**
  Up to 70 hours of continuous battery-powered operation, or months at programmed intervals
- **ATEX certified and intrinsically safe**
  Ensures peace of mind for operators in high risk environments

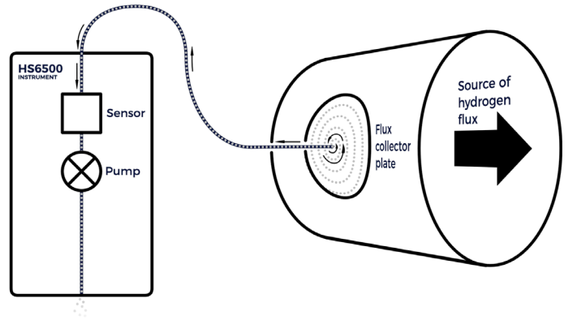


Principle of Operation

Hydrosteel measures hydrogen flux by magnetically attaching a flexible metal plate to the surface of a pipe or vessel. Air is drawn between the underside of the plate and the adjoining steel surface, capturing hydrogen flux (HF) as it exits the steel. The captured sample is then passed over a highly sensitive hydrogen sensor, where the increase in hydrogen concentration is measured.

Using the known sample gas flow rate, capture surface area and measured increase in hydrogen concentration, the Hydrosteel 6500 calculates the rate of hydrogen flux through the steel. The resulting measurement is displayed clearly, providing a direct indication of hydrogen activity at the monitored location and enabling changes in corrosion behaviour to be identified over time.

Designed for simplicity and long-term monitoring, Hydrosteel 6500 provides months of battery-powered operation without the need for a permanent power supply. Four independent sample lines provide greater confidence in measurement integrity and allow multiple measurements to be taken simultaneously. This enables a more detailed characterisation of the hydrogen flux signature within a corrosion scenario, as well as supporting assessment of the effectiveness of corrosion mitigation measures.



The new roaming probe design further enhances the Hydrosteel 6500, providing more reliable attachment to the steel surface and a wider temperature tolerance. The probe can be repositioned between monitoring locations, making the system suitable for investigating different areas of an asset and identifying variations in hydrogen flux.

Hydrosteel 6500 is designed for monitoring hydrogen flux in steel across a wide range of applications and operating environments, providing a practical, non-intrusive approach to understanding corrosion and hydrogen-related damage.

Additional Features

Hydrosteel is a ruggedised field instrument with programmable operation and data monitoring capabilities, ensuring reliable performance in demanding environments. It features a comfortable leather strap-supported carrying case, making it easy to transport and use in the field. The large display with backlight enhances visibility, allowing operators to read measurements clearly, even in low-light conditions. Additionally, robust push-button operation ensures ease of use while wearing PPE, making it suitable for industrial applications.

Designed for seamless integration and ease of maintenance, Hydrosteel offers simple setup, data retrieval, and software upgrades via USB connectivity. The inclusion of Staubli® connectors allows for quick and secure pneumatic connections to the ports, ensuring efficient system connections. A steel-clad flexible sample conduit extends up to 10 meters, enabling extended reach for sampling flux while maintaining durability and flexibility.

Built to withstand harsh conditions, Hydrosteel boasts an IP54 ingress protection rating, safeguarding it against dust and water splashes. This level of protection enhances its reliability in various industrial settings, ensuring continued functionality in challenging environments. The sturdy construction and durable materials further reinforce its suitability for field operations, making it a dependable choice for on-site monitoring.

Common Applications

- HIC risk monitoring
- Sour corrosion control
- Naphthenic acid corrosion monitoring
- Materials testing
- Hydrogen bakeout monitoring
- HFA corrosion monitoring
- Leak detection



Spares & Accessories



Hydrosteel 6500 Carry Case

Protective carry case for transporting and storing the Hydrosteel 6500 and its accessories.

P/N 6500265



Hydrosteel 6500 Leather Case

Protective leather case for carrying the Hydrosteel 6500 during field use.

P/N 6500266



Large Probe Assembly

Replacement large probe assembly for the Hydrosteel 6500.

P/N A-6500256

Spares & Accessories



Small Probe Assembly

Replacement small probe assembly for the Hydrosteel 6500.

P/N A-6500257



Large Collector Plate Assembly

Replacement large collector plate assembly for use with the Hydrosteel 6500 probe.

P/N A-6500261



Hydrosteel 6500 Probe Handle

Replacement handle for Hydrosteel 6500 probe assemblies.

P/N 6500251

Technical Specifications

Measurement range	1 to 20,000 pL/cm²/s
Resolution	1 pL/cm²/s or ±10% accuracy (whichever is greater)
Dimensions	320 x 185 x 90 mm
Weight	4.1 kg (without leather case)
Operating temperature	-20 °C to +60 °C; probes tolerate temperatures up to 350 °C
Battery life	Up to 70 hours of continuous operation
Certifications	ATEX IECEx
Data interface	USB 2.0 with .csv export capabilities
Warranty	1 year (standard) 2 years when registered on the ION Science website

This publication is not intended to form the basis of a contract and specifications can change without notice.

ION Science Ltd
The Hive, Butts Lane, Fowlmere, Cambridgeshire, SG8 7SL, UK

T: **+44 (0) 1763 208503**
E: **info@ionscience.com**
W: **www.ionscience.com**

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Pioneering Gas Sensing Technology. ionscience.com