Mass spectrometers for vacuum, gas, plasma and surface science

NEW

HIDEN ANALYTICAL

THERMAL DESORPTION STUDIES

TDSLab Series

Thermal desorption spectrometry (TDS) involves heating materials to release absorbed or adsorbed compounds into the gas phase, which are then analysed by mass spectrometry to characterise material properties at the molecular level. This technique is essential for understanding material behaviours under various environmental conditions, assessing contamination, degradation, and the composition of complex material systems.

Advanced Material Analysis with the Hiden TDSLab Series
The TDSLab series represents the cutting edge of thermal desorption technology. These systems offer tailored solutions to meet the demands of advanced research fields including thin films, photovoltaics, hydrogen in metals, semiconductors, and nuclear fusion materials. Each system is designed to deliver precision, reliability, and versatility, accommodating a wide range of scientific endeavours from fundamental research to industrial applications.

Applications

- Thin Film Research
- Photovoltaic Studies
- Hydrogen In Metals Analysis
- Semiconductor Research
- Nuclear Fusion Applications

SOFTWARE

- **User-Friendly** Interface
- **Simplified** Experiment Management
- **Comprehensive** Data Analysis Tools
- **Customisable** 3D Data Analysis
- **Real-Time** Data Monitoring

PERFORMANCE

- **Sensitivity -** <0.01 wt.ppm Detection
- **Speed -** High Speed PIC Detector
- **Accuracy -** Optimised UHV System to Minimise Background Contributions

FEATURES

- **UHV System -** Customisable Multiport UHV Chamber
- **Temperature Limits -** From -100-1000°C Sample Stage
- **Temperature Control -** From 0.5 to 50°C/min

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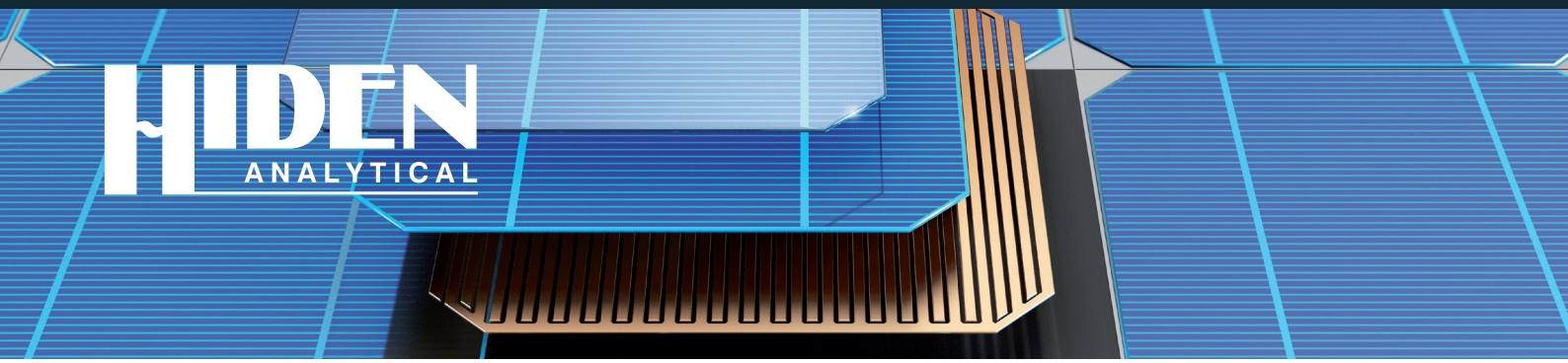

TDSLab-6

For Semiconductor and Hydrogen Desorption Studies

- **Exceptional Hydrogen Detection:** Capable of measuring hydrogen concentrations as low as 0.01 ppm in steel, critical for materials analysis.
- **6 mm Diameter Triple Filter Quadrupole:** Available with mass range to 510 amu, for a wide variety of applications.

Perfect for research on hydrogen embrittlement, corrosion processes, and barrier properties in industrial materials.

TDSLab-9

For High Mass and High Performance Hydrogen Studies

- **High-Mass Capability:** Handles up to 1000amu, essential for complex samples and heavier isotopes in high-tech industries.
- **9 mm Diameter Triple Filter Quadrupole:** Offers high stability, high resolution for enhancing performance in critical analyses eg D_2/He separation.

Ideal for hydrogen diffusion evaluation, photovoltaic research and comprehensive semiconductor analysis, pushing the boundaries of technology in materials science.

TDSLab-20

For Precision Low Mass Isotope Analysis in Fusion Research

- **High Mass Resolution:** Delivers unparalleled accuracy in resolving light gas isotopes, crucial for differentiating D_2 from He, and HD from ^{3}He in nuclear fusion experiments.
- **20 mm Diameter Triple Filter Quadrupole - Hiden DLS-20 QMS:** Includes a new mass filter for ultra-high resolution, facilitating precise isotope analysis and light gas separation. Operates with ultra-high resolution up to 22.5 amu in zone H, and high resolution up to 200 amu in zone 1.

Tailored for nuclear fusion research, the TDSLab-20 also excels in materials science and development, providing critical insights into fusion processes and advanced material interactions.

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