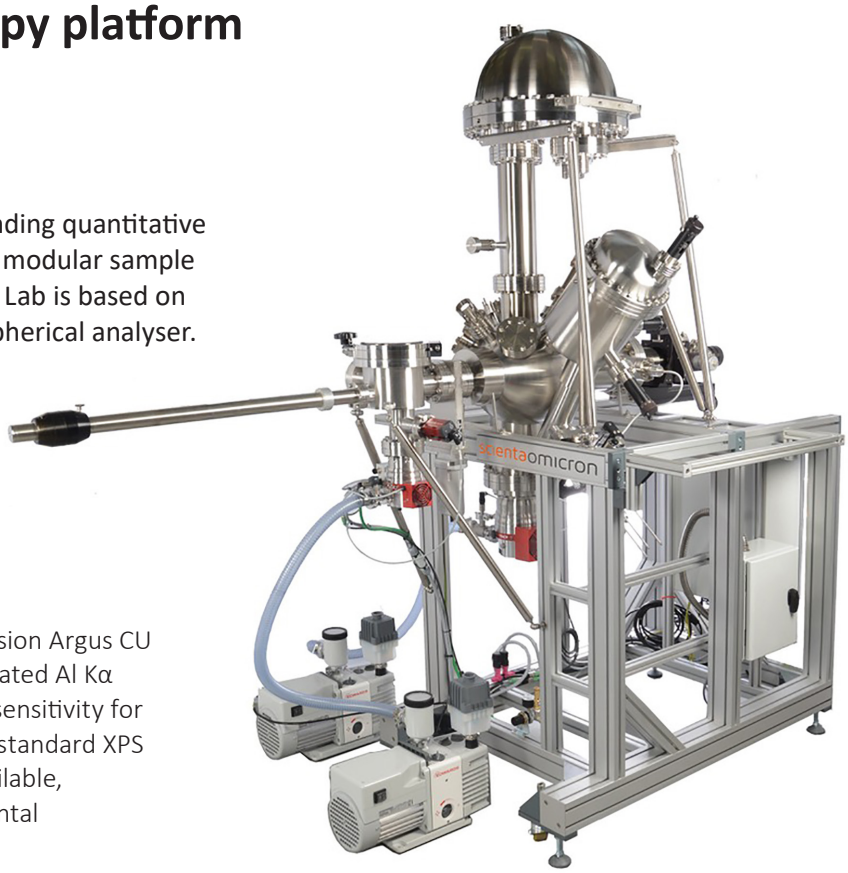
XPS Lab

Versatile electron spectroscopy platform



The XPS Lab has been designed to combine outstanding quantitative XPS performance with ease of operation through a modular sample handling concept. The exceptional value of the XPS Lab is based on the high-transmission, high-speed Argus CU hemispherical analyser.

The versatile XPS Lab incorporates advanced system, instrument, and software technology based on Scienta Omicron's comprehensive electron spectroscopy and surface analysis experience. The XPS Lab is designed to combine outstanding quantitative XPS performance with ease of operation with in a modular and flexible platform.

The XPS Lab can be configured with the high-transmission Argus CU hemispherical analyser and a high-power monochromated Al Kα X-ray source, specifically optimized to deliver highest sensitivity for quantitative XPS analysis. To complement and extend standard XPS functionality, a wide range of dedicated options is available, ensuring that the XPS Lab can be tailored to experimental requirements, no matter how diverse.

An integrated calibration block simplifies periodic routine measurements and ensures the reliability and reproducibility of the acquired data.

The system offers three sample handling configurations, allowing adaptation of the system to a wide range of sample types and experimental workflows.

Flag style sample stage (standard configuration)

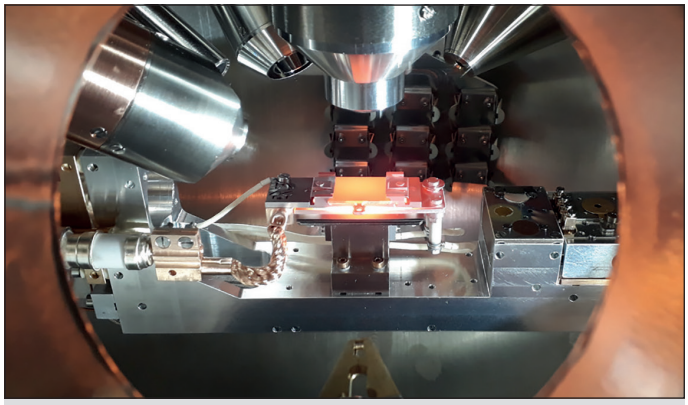
Designed for small sample plates, the flag style stage offers full compatibility with the complete Scienta Omicron product range. It can be directly integrated into Scienta Omicron surface science systems or used as a standalone configuration.

Large sample carrier

The large sample carrier provides a loading area of up to 30 cm², enabling flexible mounting of samples of different sizes and shapes. This configuration supports automated sequential measurements of multiple samples and positions, and it includes specialized holders for powders and atmospheric containers for air-sensitive materials.

Wafer configuration

Designed for 2" and 4" wafers, enabling efficient analysis of larger substrates.



Advanced in-situ photoelectron experiments are enabled by virtually live snapshot data acquisition and extended sample manipulation capabilities, including a wide temperature range (130 K < T < 1,100 K).

The XPS-Lab at a glance:

- Outstanding quantitative XPS performance
- Compact footprint with excellent accessibility
- User friendly experiment control and data acquisition software
- Versatilely configurable to meet individual demand
- Subsystem for Materials Innovation Platform MIP

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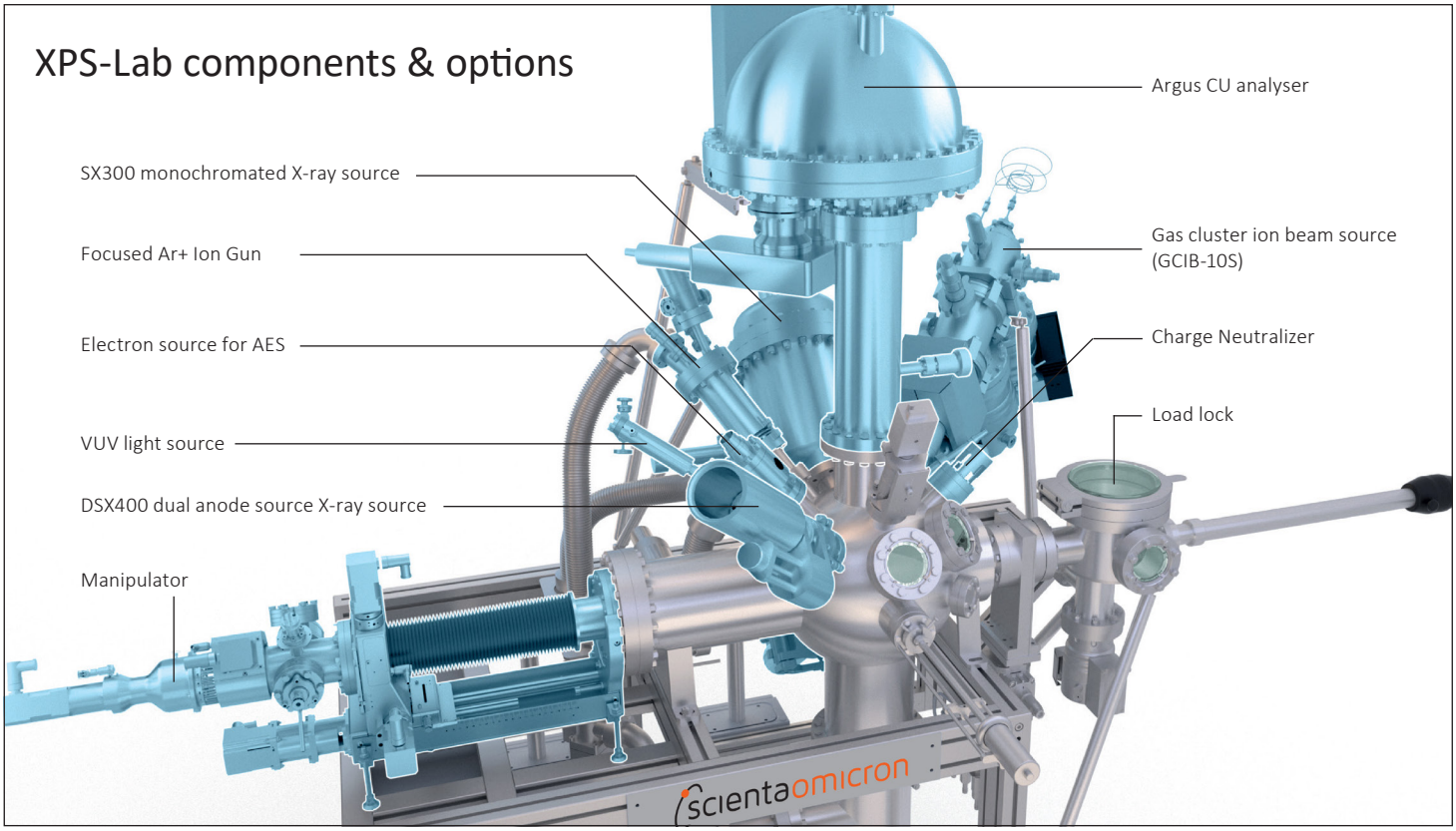
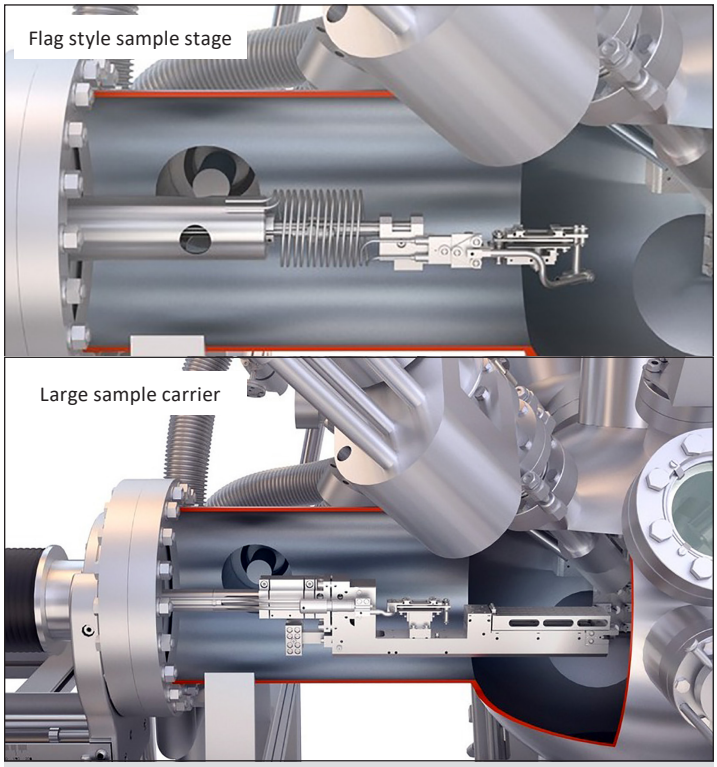
XPS-Lab components & options



Technical Data

System Details	Specification
Base pressure:	< 2 x 10^{-10} mbar*
Chamber materials:	Non-magnetic steel or mu-metal
Sample handling options:	Flag style sample plates Large Sample Carrier Wafer up to 4“ diameter
Features	▪ 128 channel detection ▪ Large area XPS ▪ Selected area XPS ▪ Angle resolved XPS ▪ Snapshot XPS ▪ Monochromated Al Kα ** ▪ Charge neutralization ** ▪ Imaging XPS ** ▪ Sputter depth profiling ** ▪ Gas cluster ion beam sputtering ** ▪ VUV light source for UPS ** ▪ Electron source for AES ** ▪ Sample biasing ▪ Sample heating ** ▪ Sample cooling ** ▪ Compucentric Zalar rotation ***

* Specification for pump configuration consisting of Turbomolecular pump, Ion getter pump and Titanium sublimation pump.
** Available as option.
*** Available as option. Requires Large Sample Carrier upgrade.



Cross-sectional view of the XPS Lab illustrating two sample-handling concepts.
The flag style sample stage is the standard configuration and offers full compatibility with the complete Scienta Omicron product range.
The large sample carrier allows for mounting of several samples and offers great flexibility in sample size and shape.

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