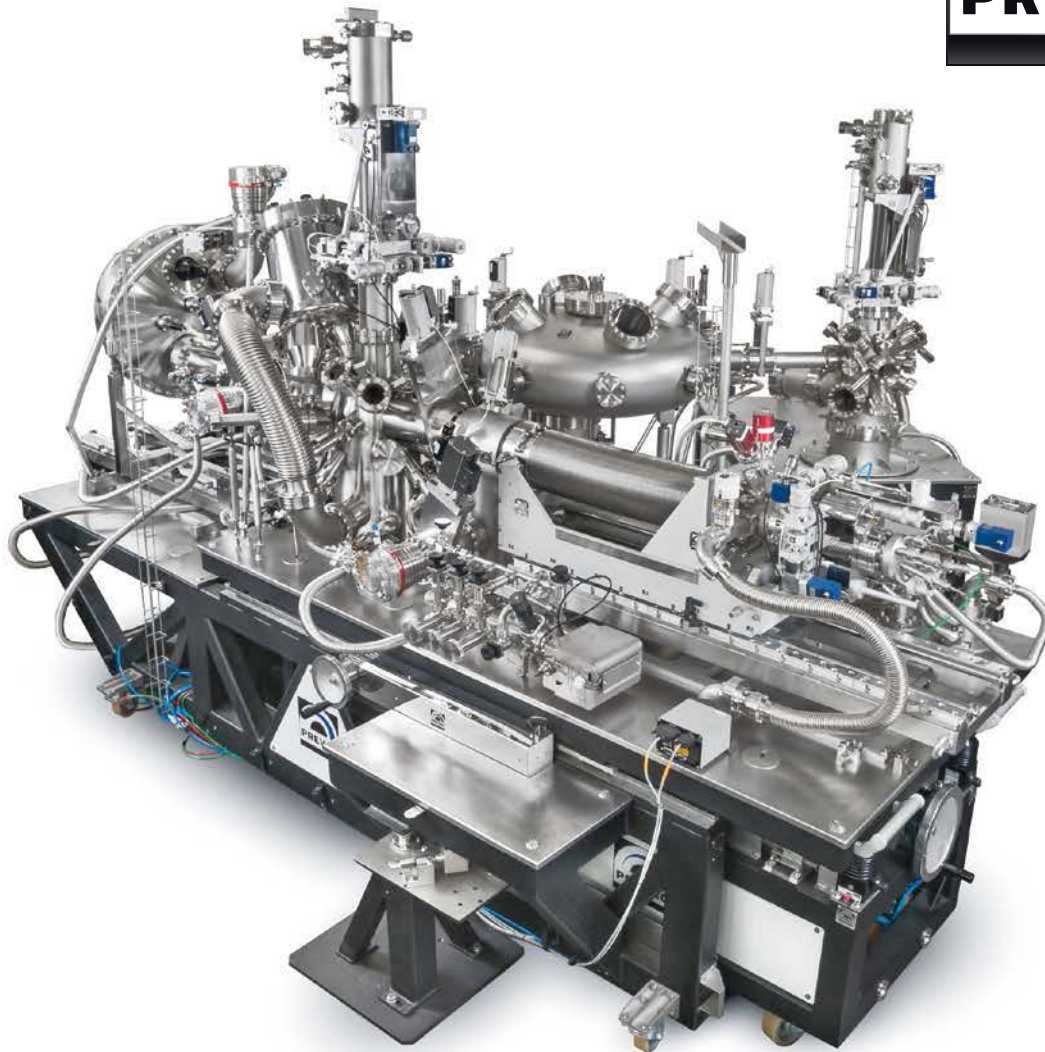


Precision and Vacuum Technology



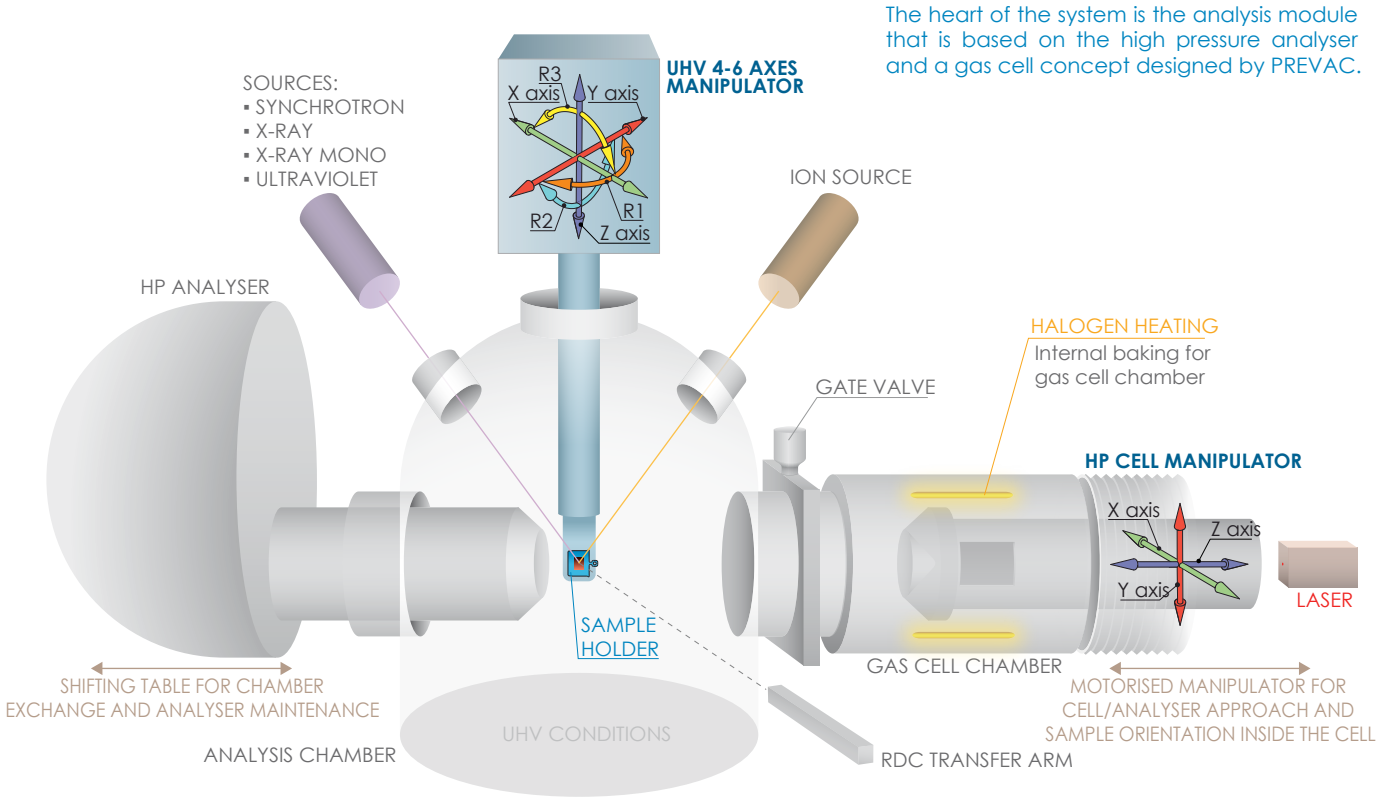
HIGH PRESSURE PHOTOEMISSION SPECTROSCOPY UHV SYSTEMS

Innovative solutions for HP-photoemission spectroscopy

www.prevac.eu

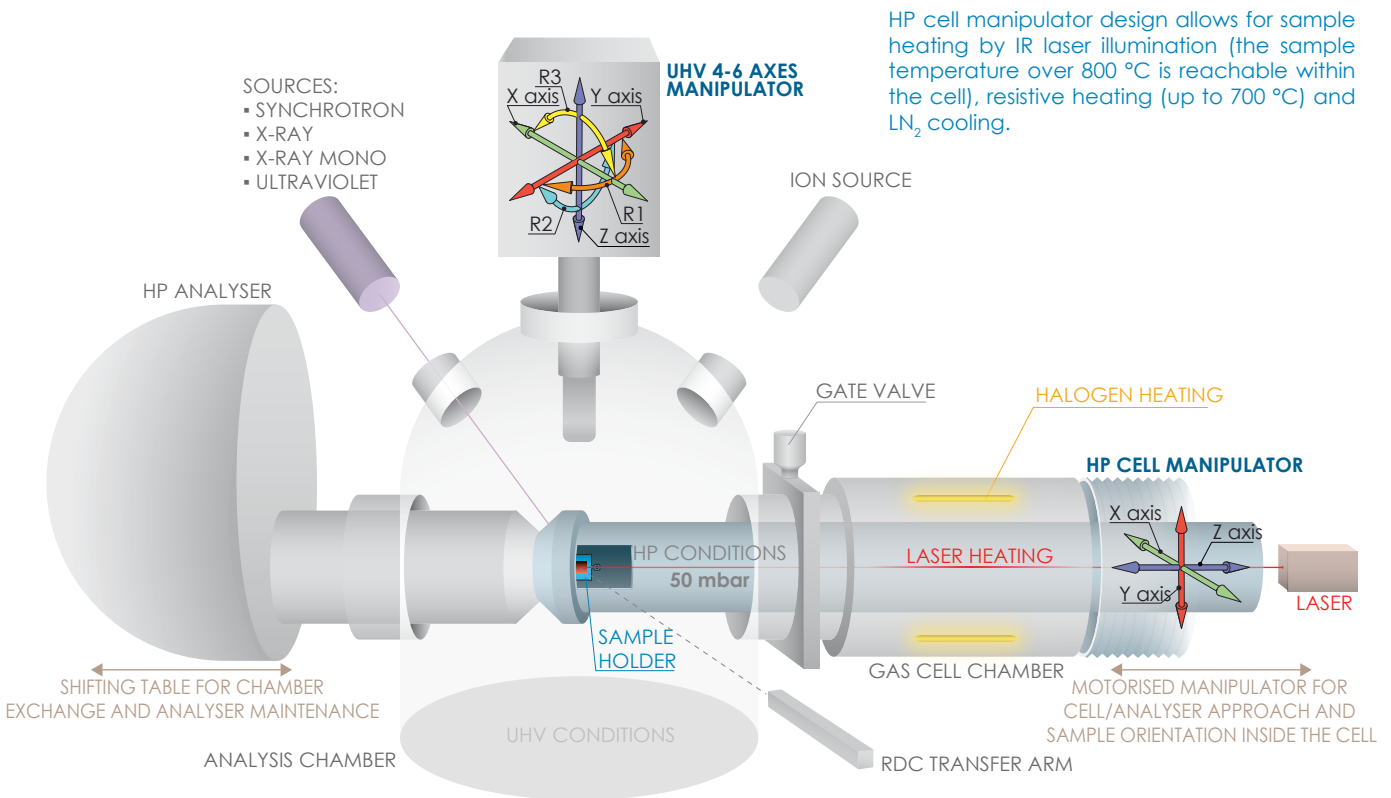
PREVAC HP-PES systems is a unique, superior performance analysis system for state-of-the-art high pressure photoemission spectroscopy. It is equipped with a HP analyser but the focus is on a highly flexible sample environment, partly in form of a newly developed, highly versatile, gas cell, partly in form of the possibility of replacing the analysis chamber with a completely different chamber setup. The station will thus allow for frontier research on gas-solid and gas-liquid interactions. The system is equipped with automated control features to allow for safe and efficient operation of many different types of samples by many different operators.

ANALYSIS MODULE GEOMETRY | SAMPLE IN UHV CONDITIONS



The heart of the system is the analysis module that is based on the high pressure analyser and a gas cell concept designed by PREVAC.

ANALYSIS MODULE GEOMETRY | SAMPLE IN HP CONDITIONS

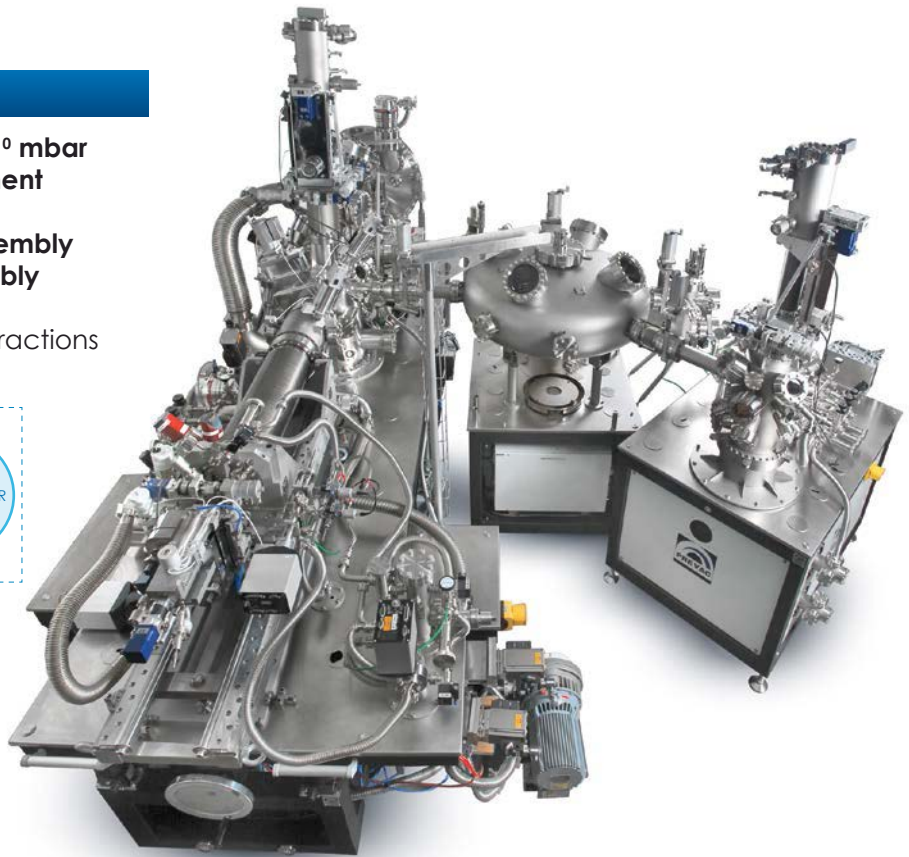
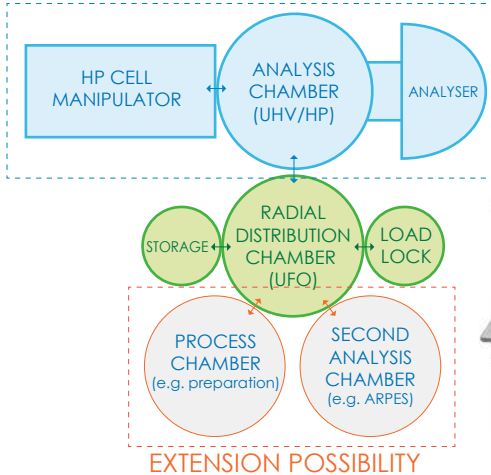


HP cell manipulator design allows for sample heating by IR laser illumination (the sample temperature over 800 °C is reachable within the cell), resistive heating (up to 700 °C) and LN₂ cooling.

HP-PES UHV SYSTEM

- Ambient pressure 50 mbar - 10^{-10} mbar
- Highly flexible sample environment
- Innovative, versatile gas cell
- Easy HP cell manipulator disassembly
- Easy analyser module disassembly
- Easy operation
- For gas-solid and gas-liquid interactions

ANALYSIS MODULE



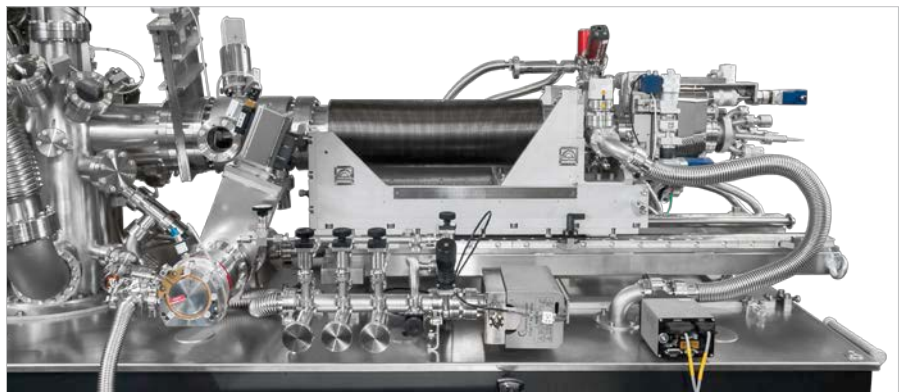
ANALYSIS CHAMBER

High pressure analysis chamber with 4-6 axes UHV manipulator (LN₂ or LHe cooled, open or closed cycle)



HIGH PRESSURE CELL MANIPULATOR

Special designed 3-axes high pressure cell manipulator with IR laser heating possibility (double Z axes: one for gas cell proper placement and second for high precise sample positioning). For easy disconnection from the gas cell chamber, the manipulator is mounted on the rails.



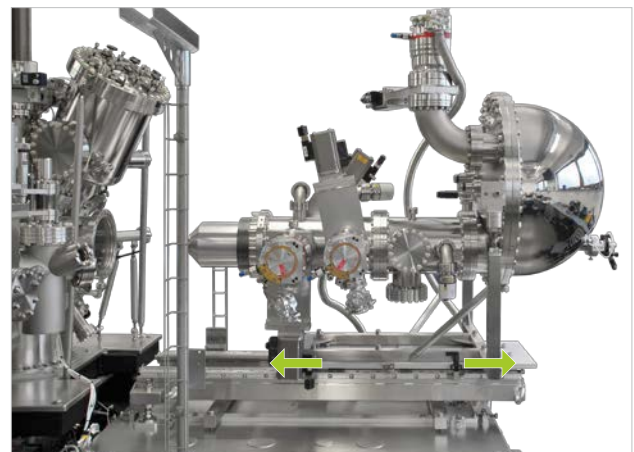
SAMPLE HOLDERS

The system is compatible with flag style sample holders with on board thermocouple for precise temperature measurements on the sample.



HIGH PRESSURE ANALYSER

HP analyser with shifting table that allows disconnect from analysis chamber. Thereby whole analyser frame can be easily changed to other equipment set extending the system flexibility and versatility.



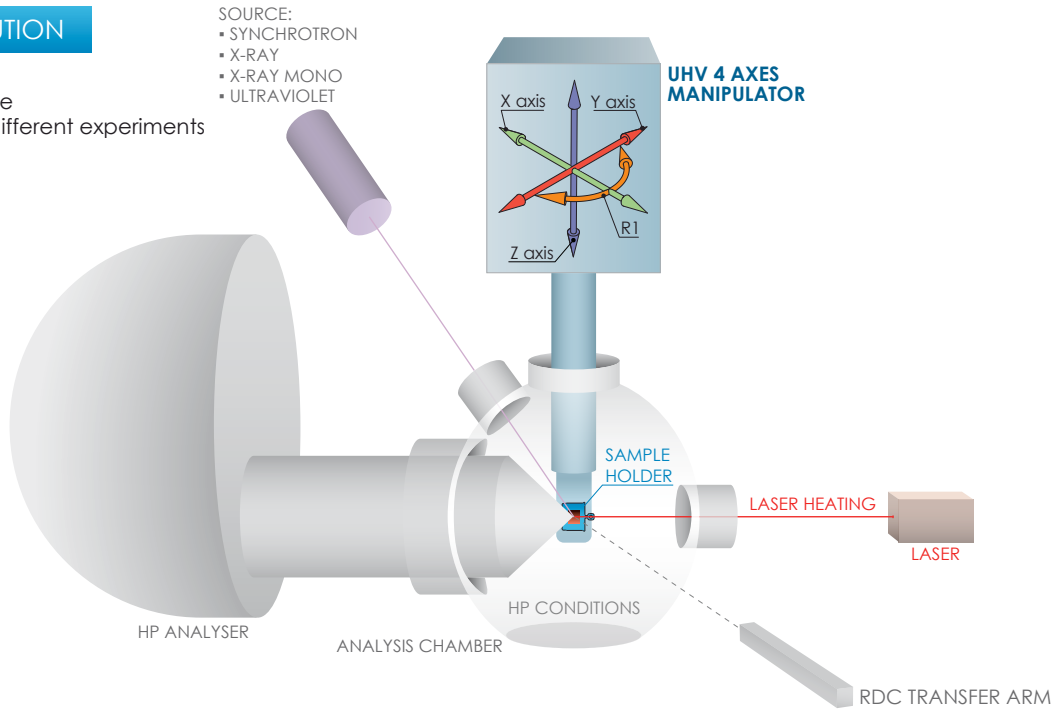
GAS DOSING SYSTEM



The purpose of the gas system is to deliver controlled flow, pressure (range from 10^{-7} mbar to 50 mbar) and composition of ultraclean gases to the high pressure cell (for in situ NAPXPS experiments) and reaction cell (for off-line measurements at higher pressures).

BACK FILLING SOLUTION

- **Minimum volume**
- Easy chamber exchange
- Different geometry for different experiments
- Chamber coating
- Resistive & IR heating
- LN₂ cooling



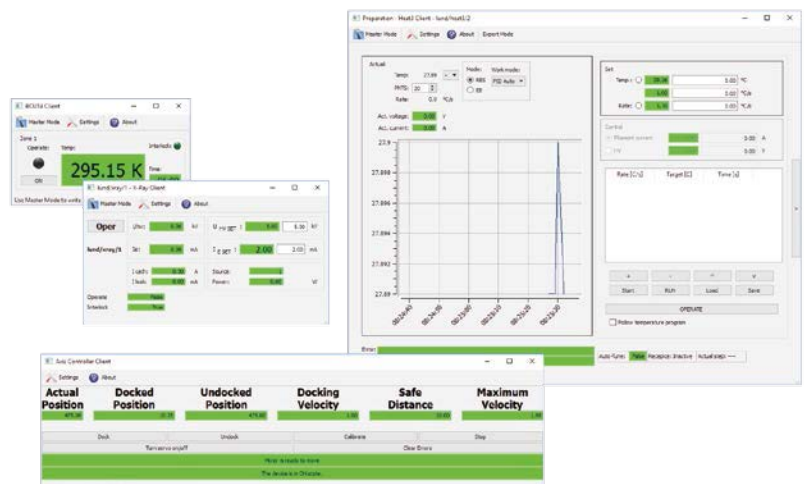
SOFTWARE PROCESS CONTROL AND AUTOMATION

The system is fully automated and designed for maximum measurement capabilities and ease of use. RAPID software environment allows for system control and operation, including simple measurement methodology. A well-defined programming interface makes integration to external control environments (e.g. TANGO) straightforward.

RAPID TANGO



HIPPIE control system is a ready to use software package based on RAPID TANGO software platform, which allows the user to control the equipment in the analysis chamber. Package provides many modules, for example to control: 6-axes manipulator, beamline energy, sample temperature, pumping system, bake-out equipment, system and data acquisition of the registered components (e.g. analyser) and others. The central part of software is Recipe Editor, which is designed to run and manage automated procedures within sequences, including the measurements sequence of the analyser (e.g. in synchronization with corresponding position of the manipulator and a set temperature of the sample). The acquisition of measurement data is an integral part of the RAPID TANGO system.



If you need any further information, please do not hesitate to contact our sales department

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