



25 YEARS OF
INNOVATIVE
THINKING



PRECISION & VACUUM TECHNOLOGY

PREVAC multi-purpose research platforms

Slawomir Frysztak
Senior Technical & Sales Advisor

Lukasz Walczak, PhD
Business Development Manager

Sylwia Gatnar
Managing Director

PREVAC sp. z o.o.

ABOUT

PREVAC is a world leading manufacturer of analysis and deposition systems based on vacuum technology, dedicated for the investigation of chemical and physical properties of solid state surfaces, thin films and nanomaterials.

25

25 **years of presence**
on the international market

60

Installations in over 60 **countries**
all over the world

240

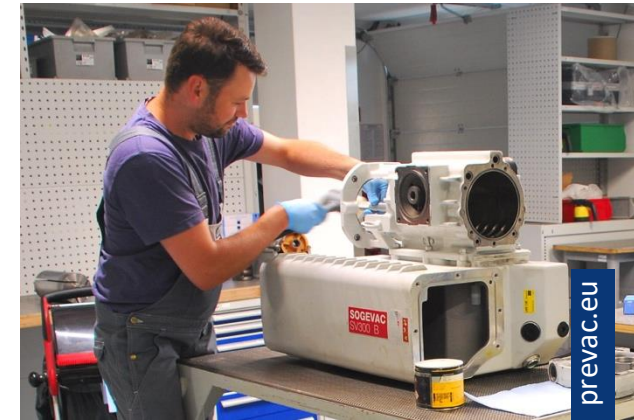
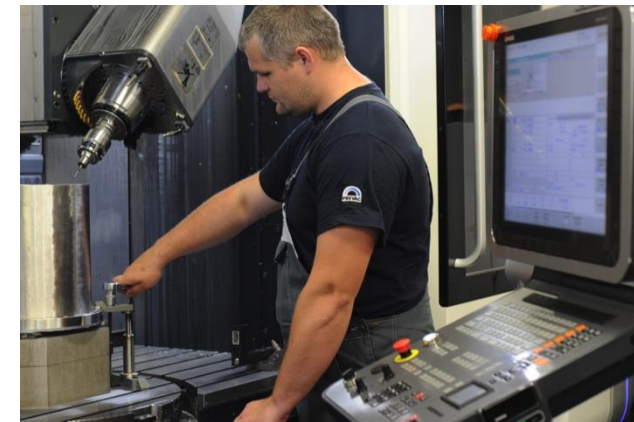
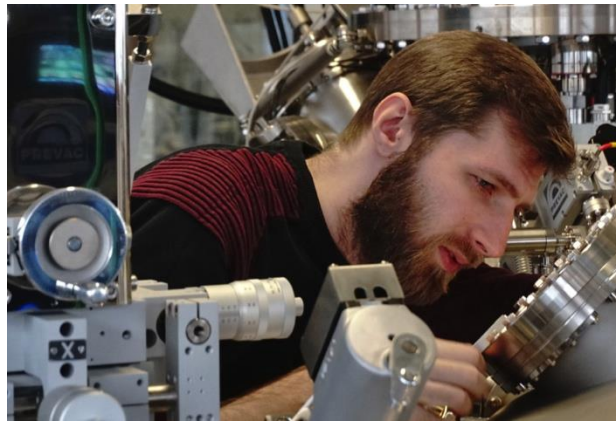
Over 240 **specialists**
from various fields,
including physics, chemistry,
mechatronics, electronics etc.

570

Over 570 completed **projects**
for universities, research
centres and companies

OUR TEAM

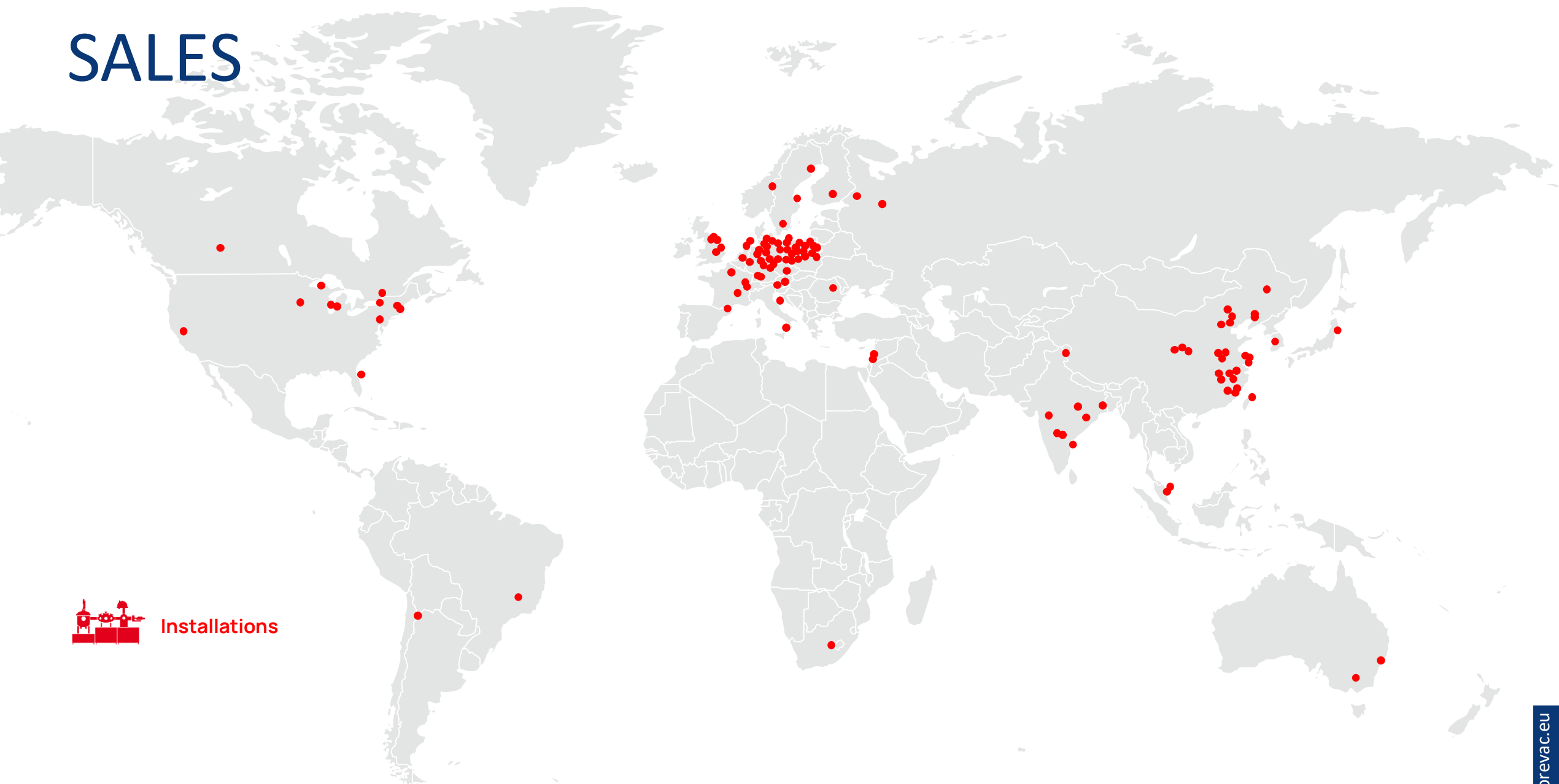
PREVAC's greatest assets are many years of experience in vacuum technology and a highly skilled, dynamic and ambitious workforce comprising the best specialists, who are characterised by openness to innovation, initiative and creativity.



SALES



Installations



ANALYTICAL SYSTEMS

Systems for materials analysing in ultra high vacuum or high pressure conditions.

- XPS / ESCA
- HP XPS
- UPS
- ARPES
- ARUPS
- XAS
- HP XAS
- ISS
- HREELS
- FTIR
- HP IR
- AFM
- HP AFM
- STM
- LEED / AES
- RIXS
- MOKE
- TPD
- inne

PHOTOELECTRON
SPECTROSCOPY



SYNCHROTRON
ENDSTATIONS



AFM



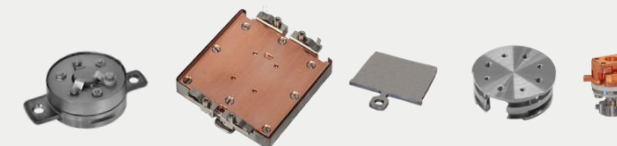
MOKE



FTIR



Examples of sample holders:

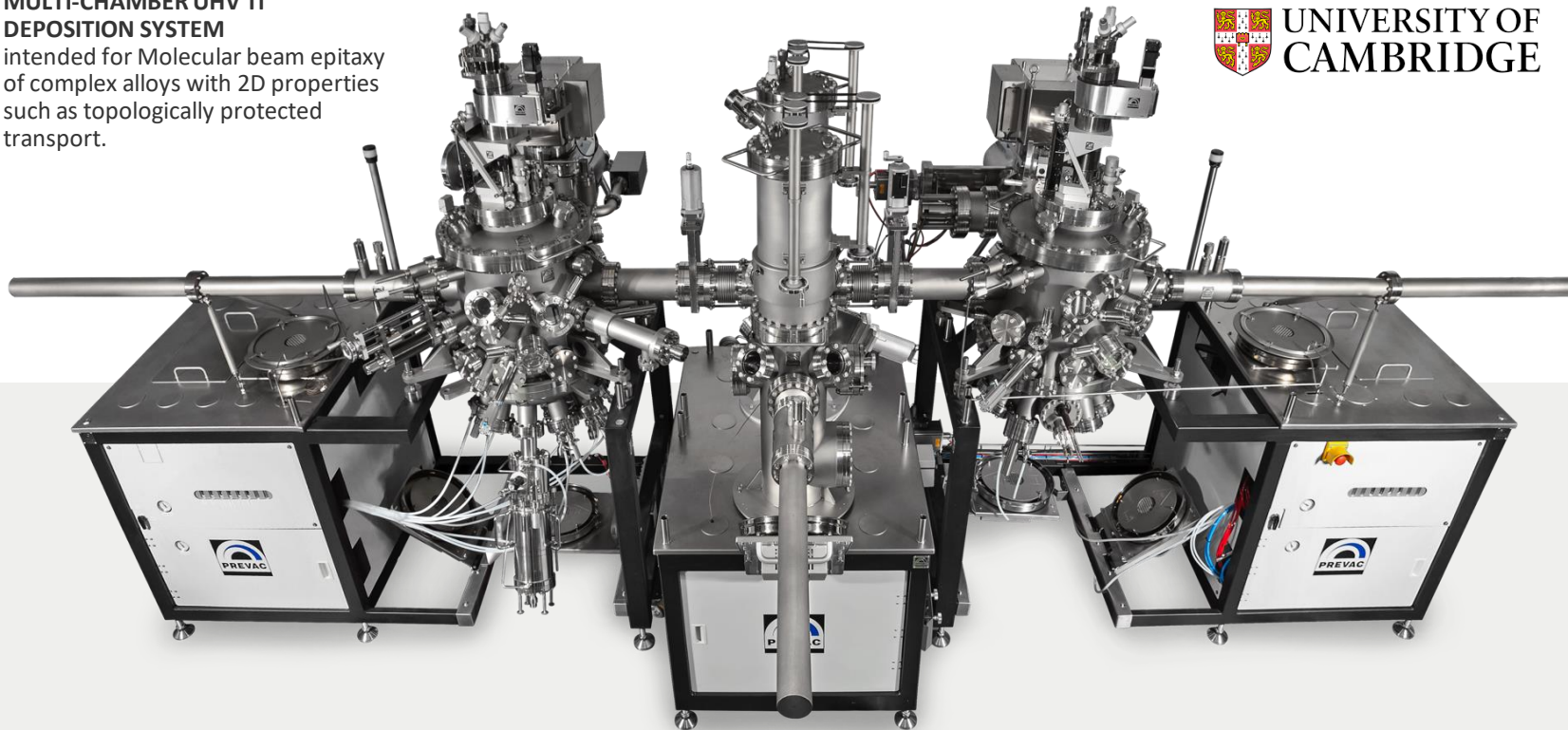


DEPOSITION SYSTEMS

Systems for creation of new materials in ultra high vacuum or high pressure conditions.

MULTI-CHAMBER UHV TI DEPOSITION SYSTEM

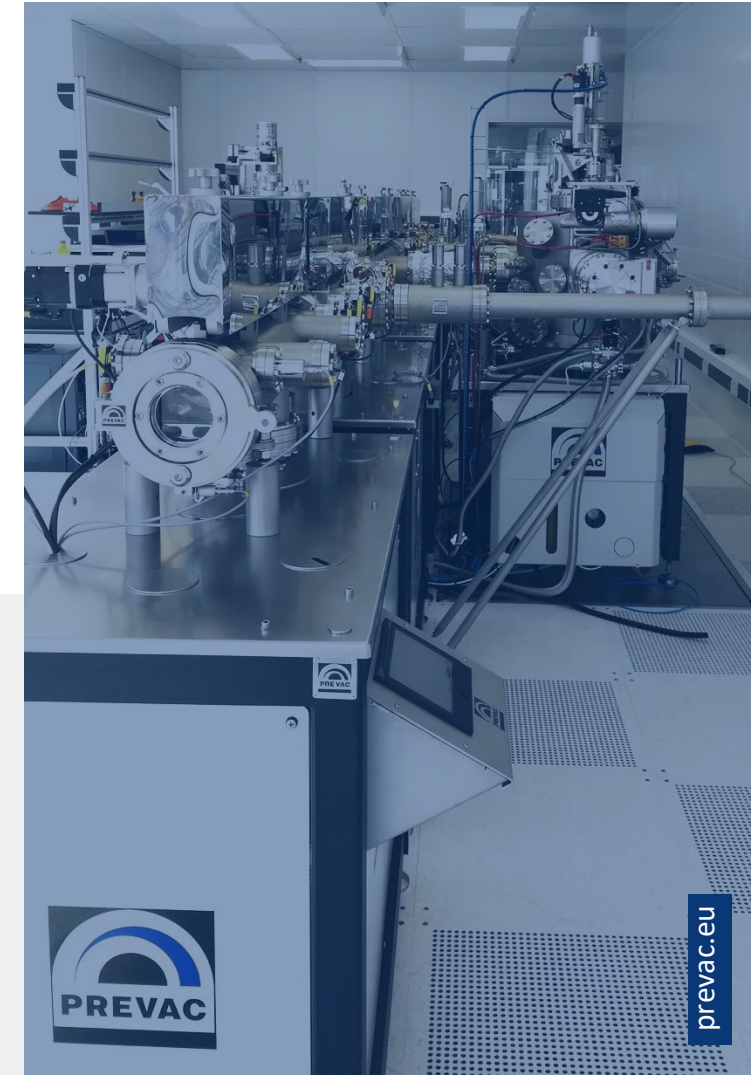
intended for Molecular beam epitaxy of complex alloys with 2D properties such as topologically protected transport.



 UNIVERSITY OF CAMBRIDGE

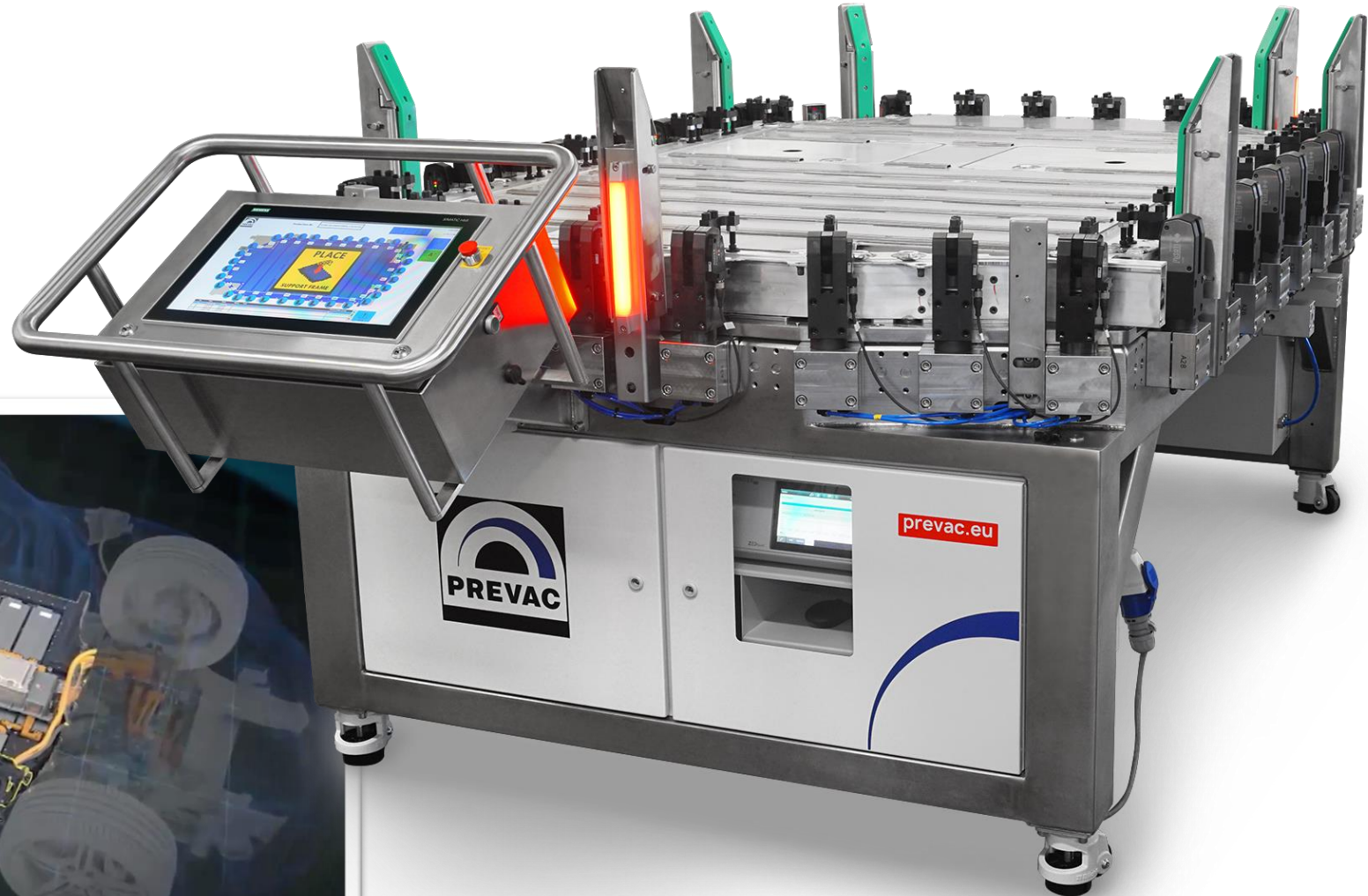
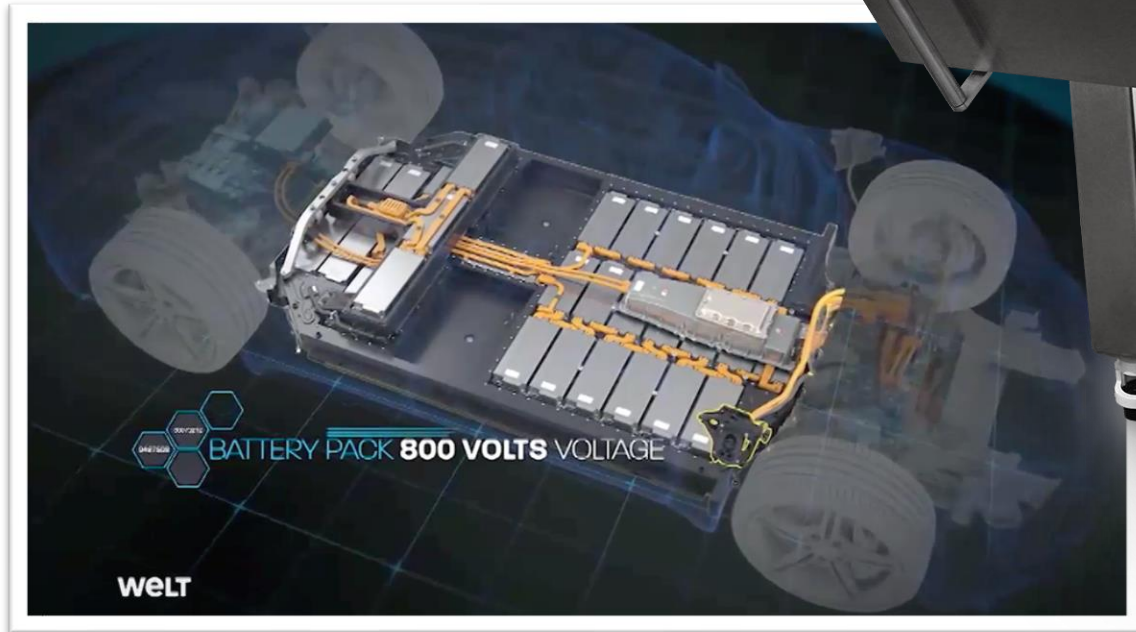
UHV MULTI-CHAMBER CLUSTER TOOL
to perform a wide range of tasks on
fabrication and characterisation of atomically
thin layers of 2D materials.

MANCHESTER
1824
The University of Manchester



AUTOMATIC LEAK DETECTION SYSTEM

for battery boxes for Porsche
Taycan & Audi e-tron GT cars



SYNCHROTRON END STATIONS

Analytical platforms for beamlines, integrating different surface analysis methods.

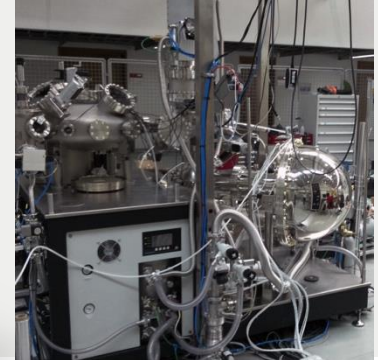
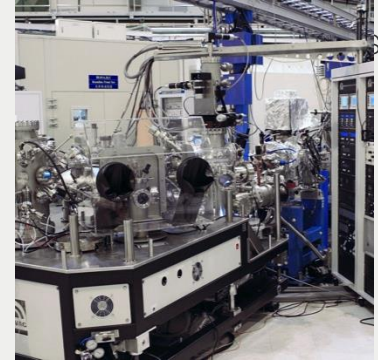
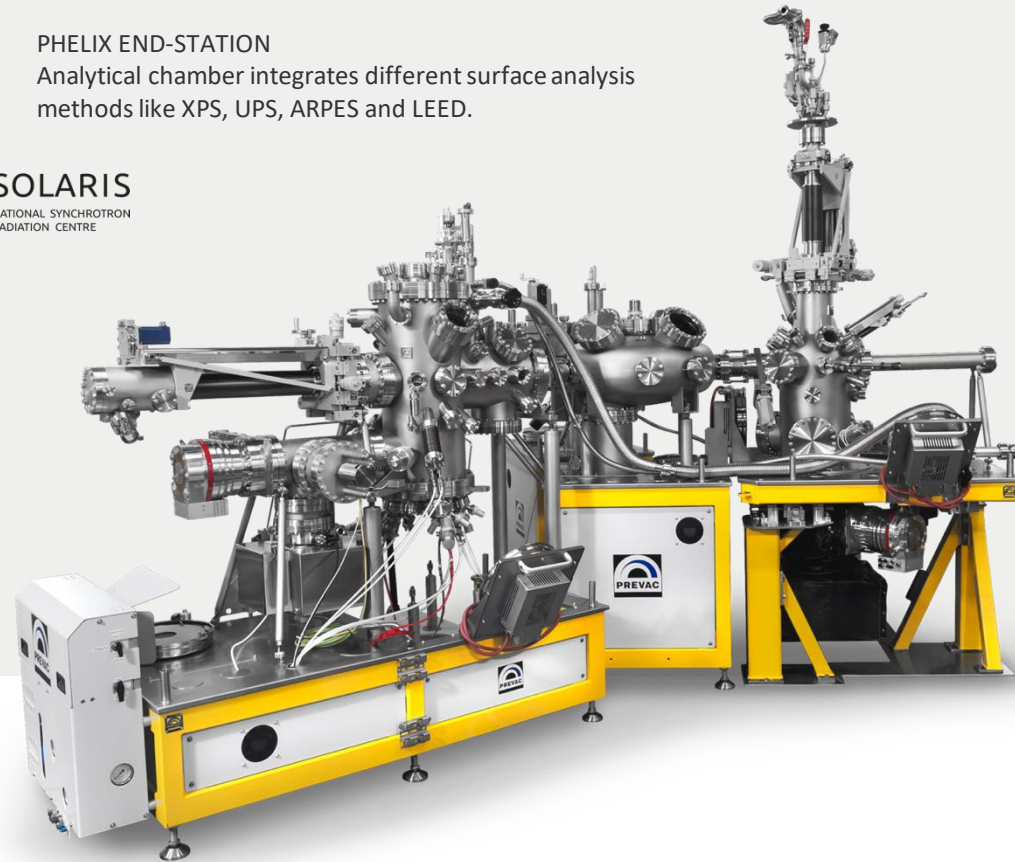
UARPES END-STATION

Analytical chamber integrates different surface analysis methods like XPS, UPS, ARPES and LEED.



PHELIX END-STATION

Analytical chamber integrates different surface analysis methods like XPS, UPS, ARPES and LEED.



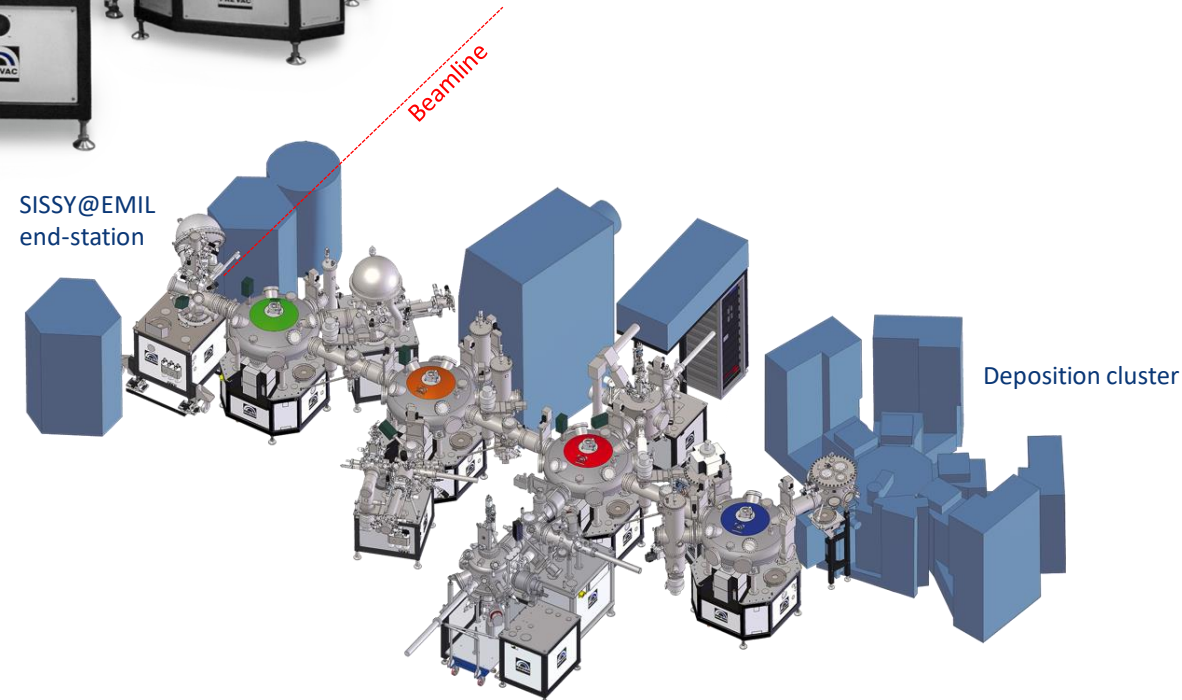
SYNCHROTRON END STATION

EMIL MULTITECHNIQUE SYSTEM

HZB Helmholtz
Zentrum Berlin



SISSY@EMIL MULTITECHNIQUE UHV SYSTEM
Multichamber UHV system (**EMIL**) for transfer between the SISSY@EMIL end-station, the silicon thin film deposition cluster and other analysis tools, load-lock and storage chambers located along the sample transfer system and the radial distribution chamber.

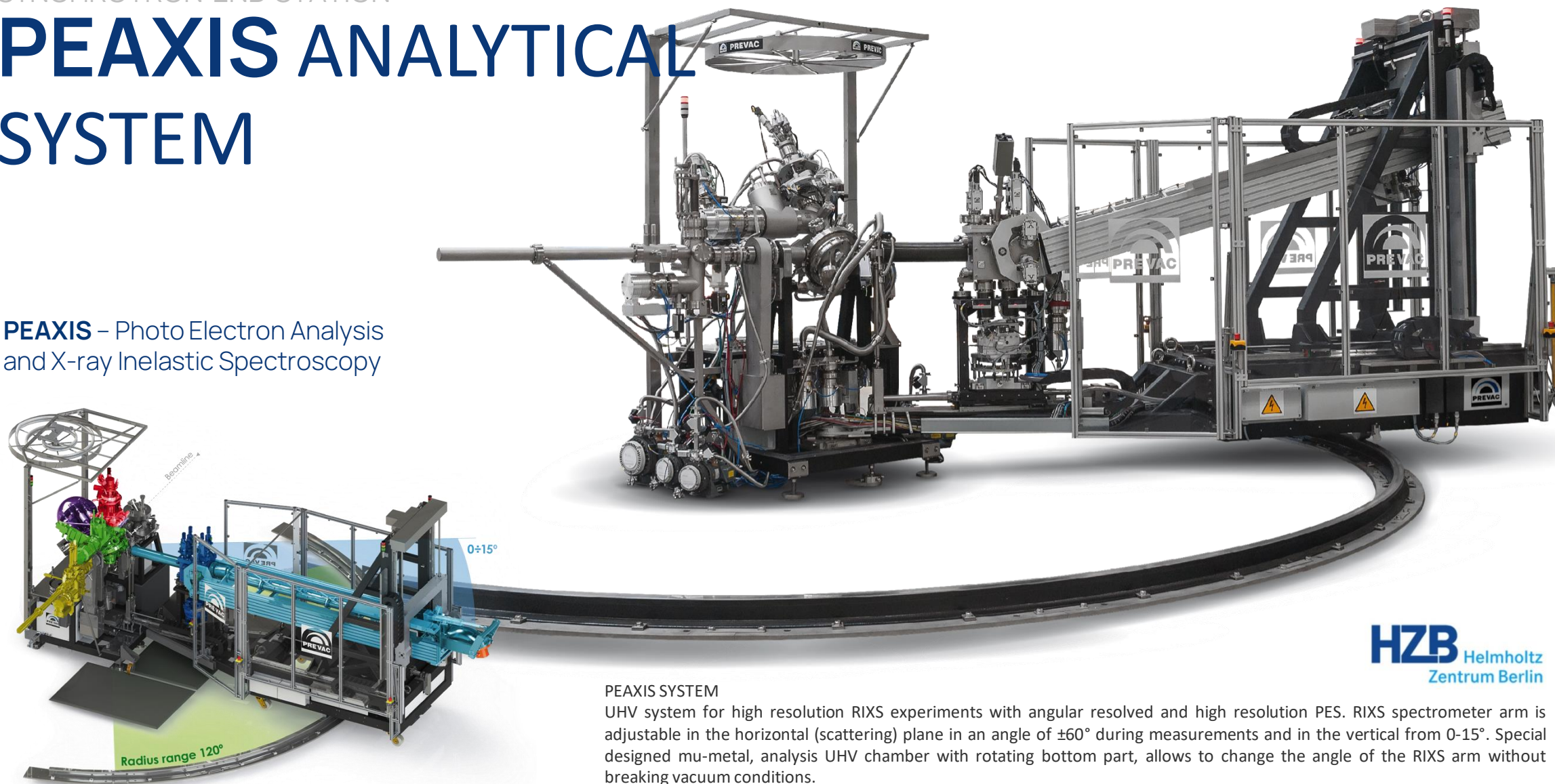


The biggest automated
analytical project in the world.

SYNCHROTRON END STATION

PEAXIS ANALYTICAL SYSTEM

PEAXIS – Photo Electron Analysis and X-ray Inelastic Spectroscopy



PEAXIS SYSTEM

UHV system for high resolution RIXS experiments with angular resolved and high resolution PES. RIXS spectrometer arm is adjustable in the horizontal (scattering) plane in an angle of $\pm 60^\circ$ during measurements and in the vertical from $0-15^\circ$. Special designed mu-metal, analysis UHV chamber with rotating bottom part, allows to change the angle of the RIXS arm without breaking vacuum conditions.

HZB Helmholtz
Zentrum Berlin

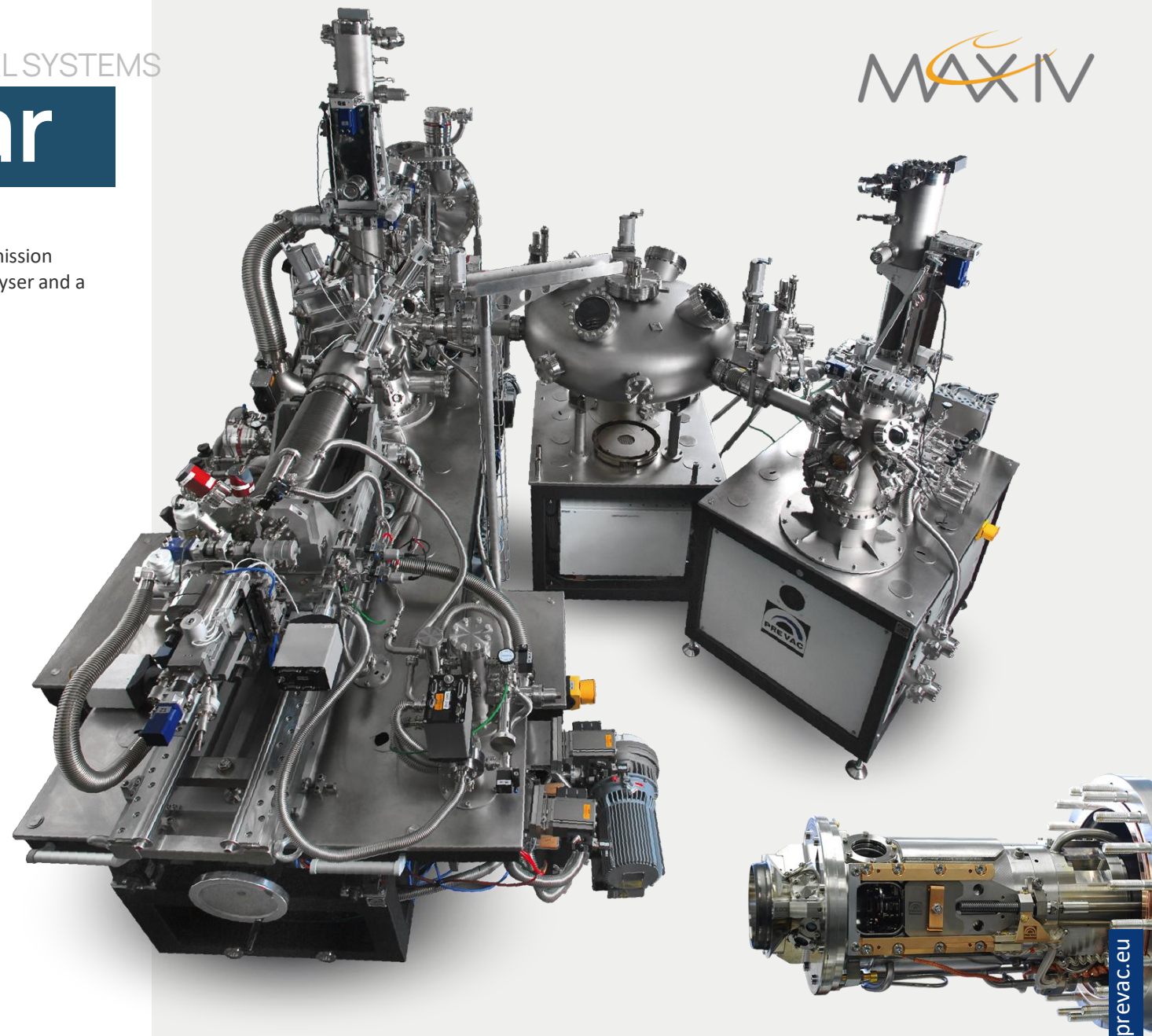
PHOTOELECTRON SPECTROSCOPY (PES) ANALYTICAL SYSTEMS

PES UHV-50 mbar

HIGH PRESSURE PES SYSTEM

Unique, superior performance analysis system for state-of-the-art high pressure photoemission spectroscopy. The heart of the system is the analysis module that is based on the HP analyser and a newly developed, highly versatile gas cell.

- XPS / UPS / ARPES / AES / ISS / LEIPS technique | **UHV**
- HPXPS / APXPS technique | **HP**
- **Standard solutions** or **customized design**
- **Innovative, versatile gas cell**
- HP cell manipulator disassembly
- Analyser module easy disassembly
- **Full automation of the experimental procedures**
- Vertical or horizontal sample orientation
- **HP hemispherical energy analyser**
- High power dual anode **HP X-ray source monochromator** AlK α , AgL α and **UV source**
- **Multi-axes fully automated manipulator** with Zalar rotation and **wide temperature range**
- **Fully automated transferring system** and load lock/storage mechanisms with specimens data base and sample registration
- **Laser heating** option



MAXIV



PHOTOELECTRON SPECTROSCOPY EXTENSION POSSIBILITIES

PREVAC UHV systems facilitates the integration of many different techniques and offers the ability to work with and prepare samples in-situ and in individual, dedicated chambers.

MODULAR FRAME DESIGN ALLOWS
FOR EASY SYSTEM DEVELOPMENT WITH OTHER
ANALYSIS, PREPARATION OR DEPOSITION MODULES.



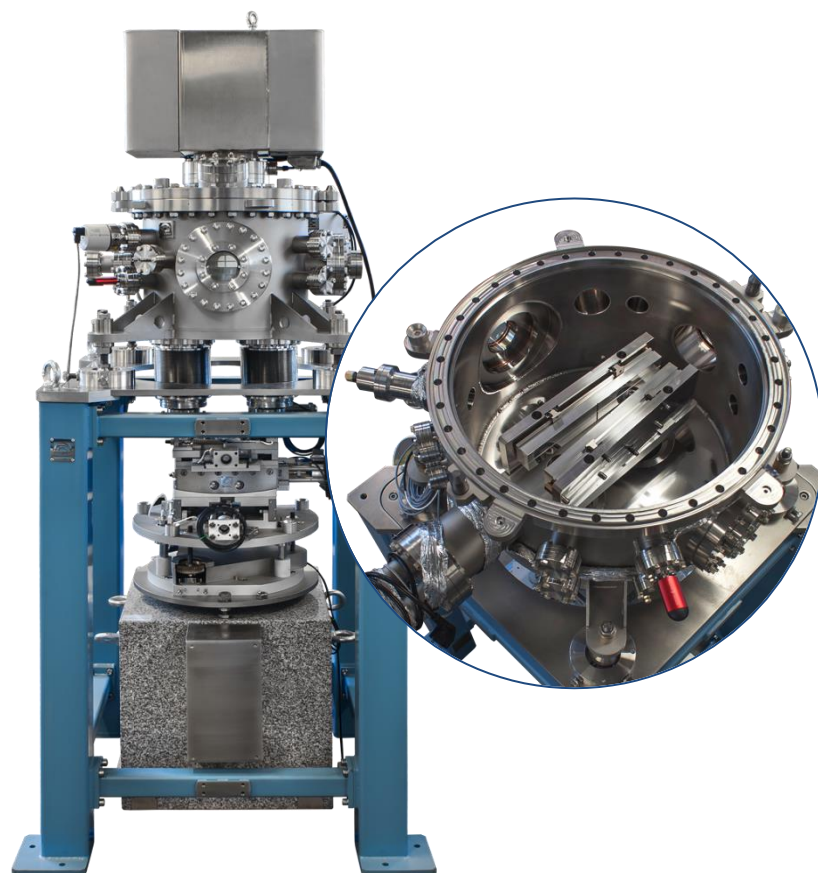
Each system may be semi- or fully-pc controlled in both transferring and analysis tasks.

EQUIPMENT FOR SYNCHROTRON APPLICATIONS

BEAMLINE CHAMBERS

MIRROR / GRATINGS SYSTEM

Mirrors are located inside the chamber and mounted on a vibration isolated special holder which is moved using a multi-axis manipulator in order to determine the correct direction of the beam.



SLIT UNITS

Horizontal and vertical shutters, positioned inside the vacuum chamber, are translated via a single axis manipulator in order to adjust the shape of cross-sectional area of the beam.



DIAGNOSTIC GAS CHAMBER

The diagnostic gas cell has an arrangement for calibration of the spectral resolution of the monochromator.

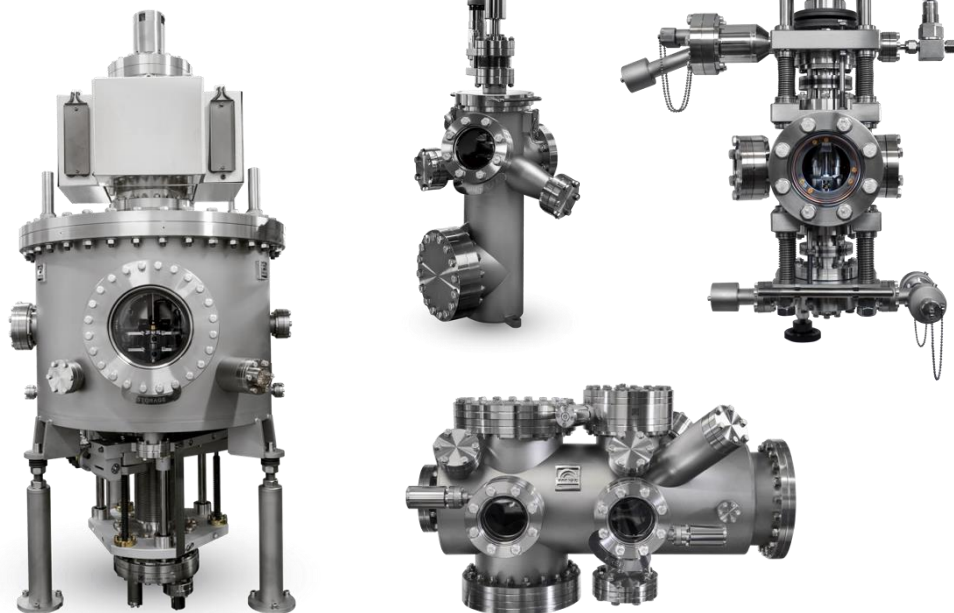


- DIAGNOSTIC SYSTEM
- PUMPING CHAMBERS
- BEAMLINE PIPING
- BAKEOUT SOLUTIONS
- SOFTWARE CONTROL

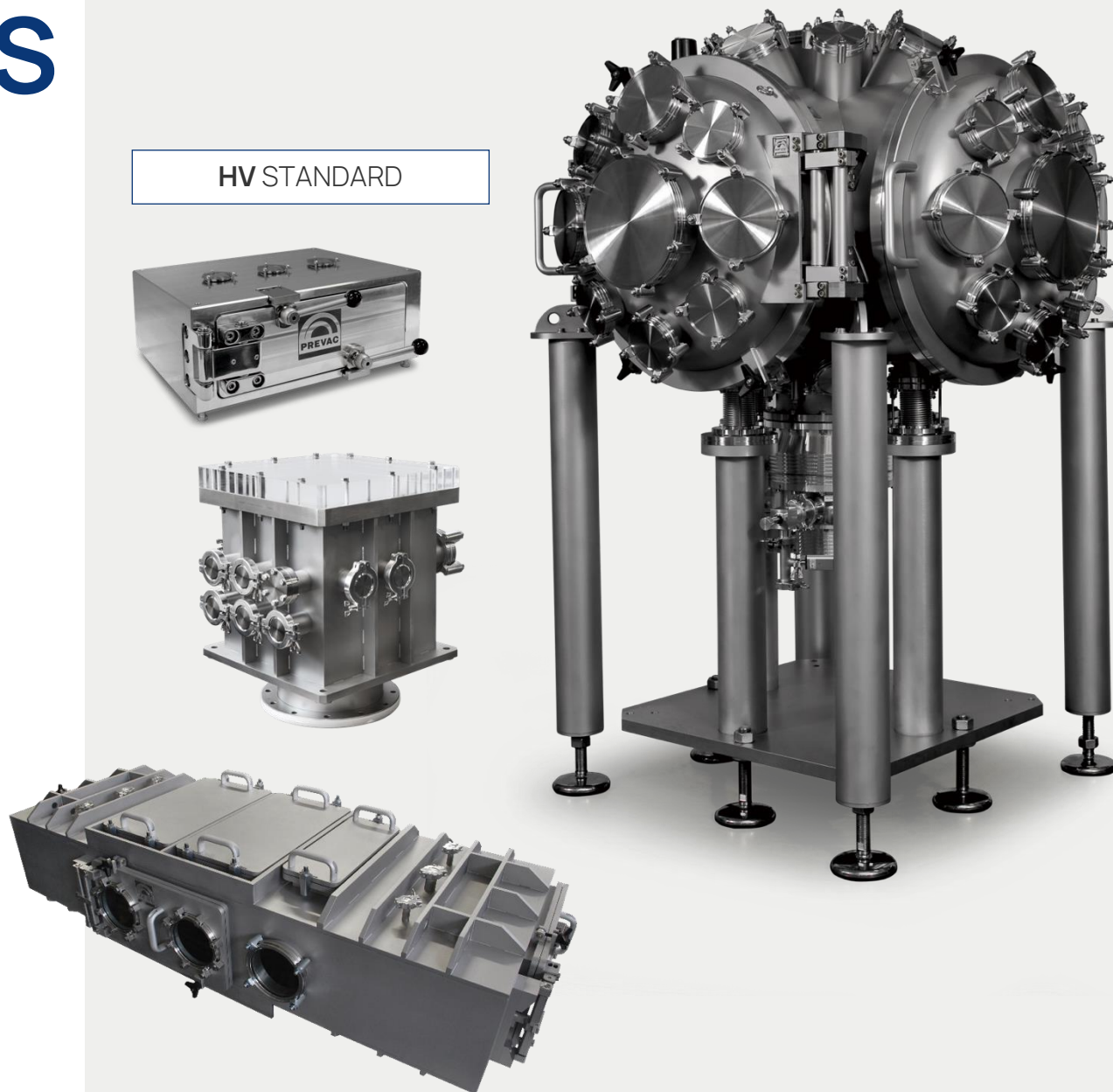
VACUUM CHAMBERS

- Analytical and deposition chambers
 - Preparation chambers
 - Load lock/intro chambers
 - Storage chambers
 - High pressure reactors
 - Cleaver chambers
 - Infrared chambers
 - many others
- Metal sealed chambers
 - Elastomer sealed chamber
 - Chambers with door access
 - Chambers with mechanisms
 - Rectangular chambers
 - Customized designs

UHV STANDARD



HV STANDARD



INSTRUMENTS | ELECTRONICS

ANALYTICAL & DEPOSITION INSTRUMENTS

- Hemispherical energy analysers
- X-ray sources with monochromator
- UV sources
- Ion sources with Wien filter
- Electron sources
- Cylindrical mirror analyser
- Thermal desorption spectrometers
- Effusion cells
- Electron beam evaporators
- Quartz balances



ELECTRONIC DEVICES

- Power supplies for magnetron, X-ray, UV, ion, electron sources
- Heating power supplies
- Emission controllers
- Multi gauge controllers
- Thickness monitor controllers
- High voltage power supplies
- Bakeout control units
- Stepper motor control devices



TRANSFERRING & POSITIONING

Transferring systems ensure fast, smooth and easy handling of your samples under ultra high vacuum conditions.

TRANSFERRING CHAMBERS AND MECHANISMS

MANUAL

SEMI-AUTOMATIC

AUTOMATIC

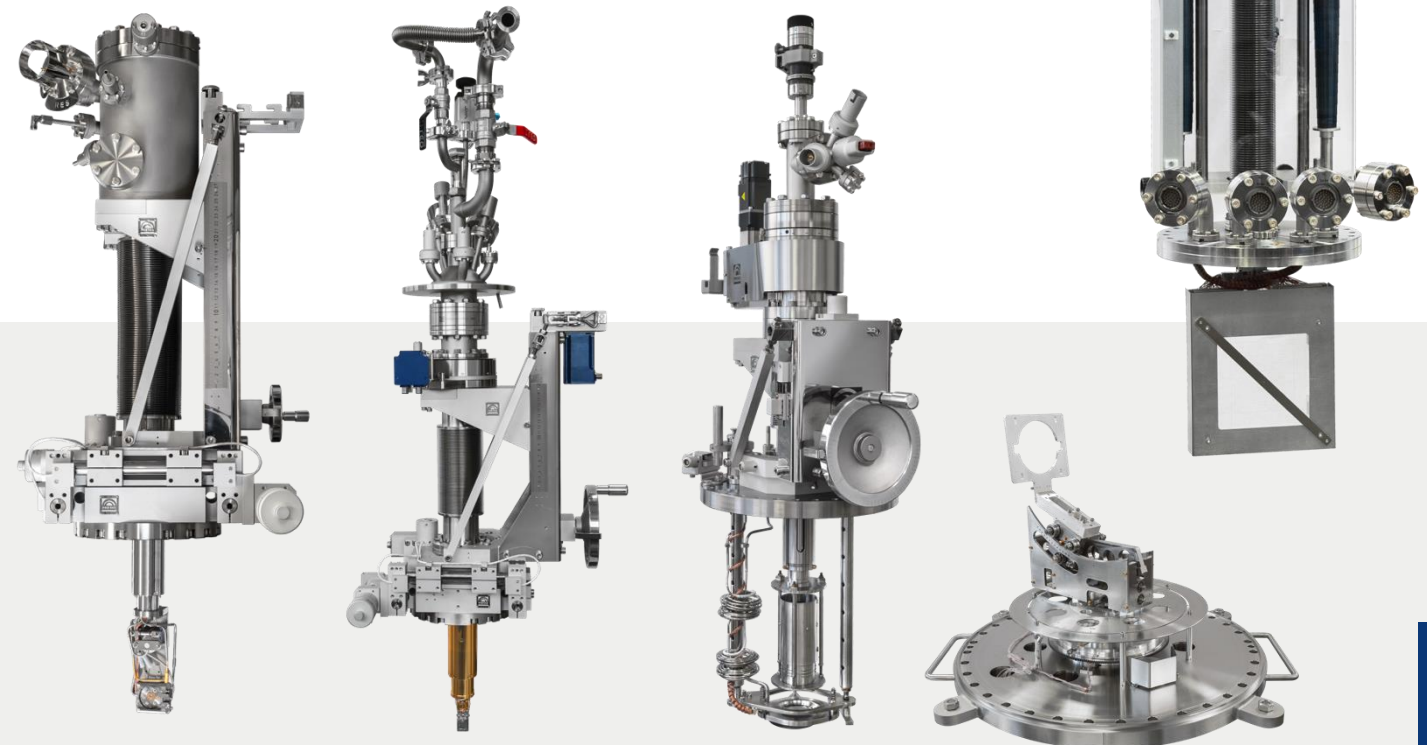


Manipulators allow for precise sample positioning in many axes, with the possibility of heating, cooling and many other options.

MANIPULATORS AND GONIOMETERS

HEATING UP TO 2000 °C

COOLING DOWN TO 10K



SOFTWARE



Spectrum is a control and data acquisition software dedicated to EA15 class analysers. It is a progressive and user-optimized software tool with a very intuitive graphical interface.



Synthesium is an innovative software tool optimized for easy and complete control over the entire deposition process and all components in the system.

**TRANSFERRING
SYSTEM**
Control & automation



Integration with
**TANGO
CONTROL SYSTEM**



USERS



Centre national de la
recherche scientifique



Massachusetts Institute
of Technology



ExxonMobil



ADVANCED LIGHT SOURCE



Agency for
Science, Technology
and Research



Karlsruher Institut für Technologie



Helmholtz
Zentrum Berlin

SIEMENS



BROOKHAVEN
NATIONAL LABORATORY



Hüttenwerke
Krupp Mannesmann



מכון ויצמן למדע
WEIZMANN INSTITUTE OF SCIENCE



Shanghai Synchrotron
Radiation Facility



NIPPON STEEL &
SUMITOMO METAL



NATIONAL ACCELERATOR LABORATORY



UNIVERSITY OF
OXFORD



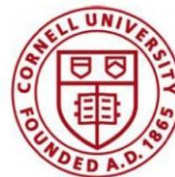
The University of Manchester



UNIVERSITY OF
CAMBRIDGE



bp



CORNELL UNIVERSITY
FOUNDED A.D. 1865



MAX-PLANCK-GESELLSCHAFT



National Synchrotron
Radiation Laboratory
University of Science and Technology of China





Thank you
for your attention



Please visit our website www.prevac.eu