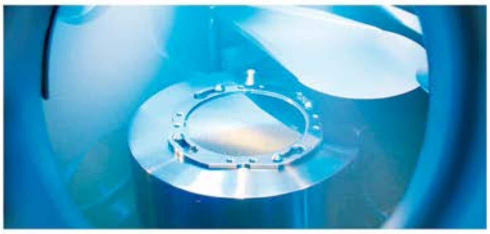
Product Overview

An overview of reliable solutions for **science**.



25 YEARS OF INNOVATIVE THINKING

www.prevac.eu

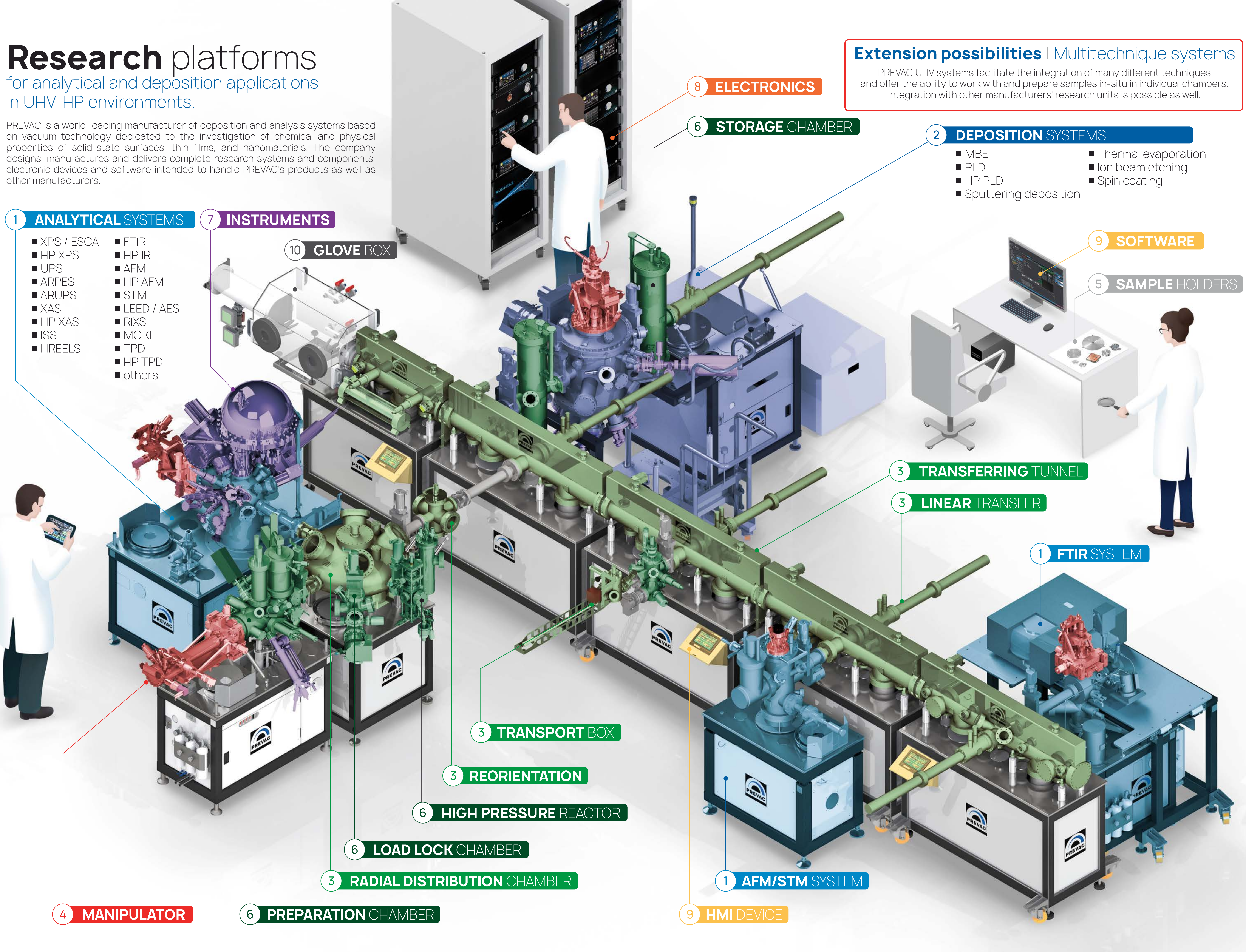
Research platforms

for analytical and deposition applications in UHV-HP environments.

PREVAC is a world-leading manufacturer of deposition and analysis systems based on vacuum technology dedicated to the investigation of chemical and physical properties of solid-state surfaces, thin films, and nanomaterials. The company designs, manufactures and delivers complete research systems and components, electronic devices and software intended to handle PREVAC's products as well as other manufacturers.

Extension possibilities | Multitechnique systems

PREVAC UHV systems facilitate the integration of many different techniques and offer the ability to work with and prepare samples in-situ in individual chambers. Integration with other manufacturers' research units is possible as well.



1 **ANALYTICAL** SYSTEMS

- XPS / ESCA
- HP XPS
- UPS
- ARPES
- ARUPS
- XAS
- HP XAS
- ISS
- HREELS

7 **INSTRUMENTS**

- FTIR
- HP IR
- AFM
- HP AFM
- STM
- LEED / AES
- RIXS
- MOKE
- TPD
- HP TPD
- others

10 **GLOVE** BOX

8 **ELECTRONICS**

6 **STORAGE** CHAMBER

2 **DEPOSITION** SYSTEMS

- MBE
- PLD
- HP PLD
- Sputtering deposition
- Thermal evaporation
- Ion beam etching
- Spin coating

9 **SOFTWARE**

5 **SAMPLE** HOLDERS

3 **TRANSFERRING** TUNNEL

3 **LINEAR** TRANSFER

1 **FTIR** SYSTEM

3 **TRANSPORT** BOX

3 **REORIENTATION**

6 **HIGH PRESSURE** REACTOR

6 **LOAD LOCK** CHAMBER

3 **RADIAL DISTRIBUTION** CHAMBER

4 **MANIPULATOR**

6 **PREPARATION** CHAMBER

1 **AFM/STM** SYSTEM

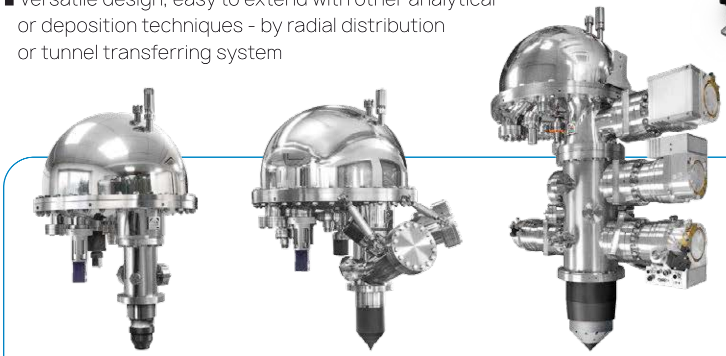
9 **HMI** DEVICE

1 ANALYTICAL SYSTEMS

PHOTOELECTRON SPECTROSCOPY

Systems dedicated for PES experiments in pressure range 10^{-10} mbar - 50 mbar with controllable sample temperature.

- From UHV up to ambient pressure conditions
- Standard solutions or customized design
- User-friendly operations
- Full automation of the experimental procedures
- HPXPS/APXPS technique I HP
- XPS/UPS/ARPES/AES/ISS/LEIPS technique I UHV
- Vertical or horizontal sample orientation
- High flux X-ray and UV source
- Wide temperature range
- Customizable gas handling systems
- Laser heating option
- Versatile design, easy to extend with other analytical or deposition techniques - by radial distribution or tunnel transferring system



Hemispherical energy analysers for high-resolution PES measurements

EA15
UHV environments

EA15-HP5
from UHV up to **5 mbar**

EA15-HP50
from UHV up to **50 mbar**

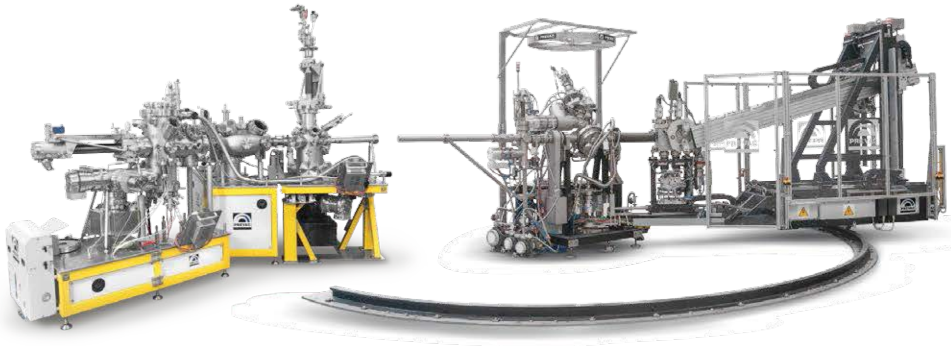
RUDI- EA2
Modular high voltage power supply.
High stable and low noise.

SPECTRUM
Progressive software tool
for data acquisition and control

SYNCHROTRON END STATIONS

Analytical platforms for beamlines, integrating different surface analysis methods.

PEAXIS endstation system is a combination of XAS, RIXS and AdXPS techniques.



FTIR SPECTROSCOPY UHV-HP

UHV system for Fourier-transform infrared spectroscopy both in reflection and transmission mode (DRIFT, ATR, RAIRS options).

AFM UHV-HP

Unique analysis system for AFM working in a wide pressure range for frontier research on gas-solid interfaces.

MOKE

UHV system for the in-situ real-time magneto-optical Kerr effect studies of ultra-thin magnetic films and multilayers.

TRIBOMETER

Module for the study of tribological and mechanical properties between two surfaces in a wide range of temperatures and pressures.

TPD/TDS

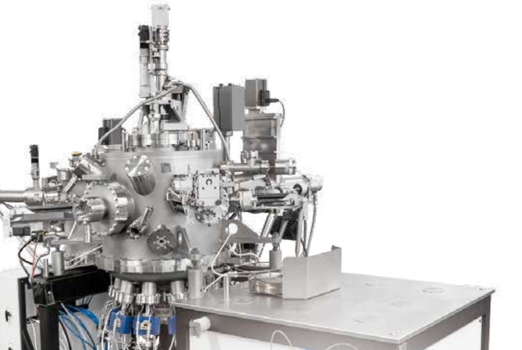
Stand-alone UHV unit for temperature programmed desorption spectroscopy in a wide range of temperatures and pressures.

2 DEPOSITION SYSTEMS

Advanced UHV systems dedicated to accurate and reproducible thin film layer deposition.

MAGNETRON SPUTTERING

- For depositing metal and dielectric thin films in both, sputter-up and sputter-down arrangement.
  Operated in DC, RF and pulsed-DC modes, HIPIMS/HPPMS technique possible
- A modular, user-friendly approach to the system design means that the entire system can be easily reconfigured by changing the universal mounting flanges
- A wide range of substrate holders size and shape
- Intro chamber for fast & easy loading of the substrate holder.



MS MAGNETRON SOURCE

For applying thin layers with high homogeneity, contains an in-situ tilt system

M600DC-PS POWER SUPPLY

Power 600 W - easy extendable to 2400W, switch mode for 3 magnetron sources

032 PRIMS

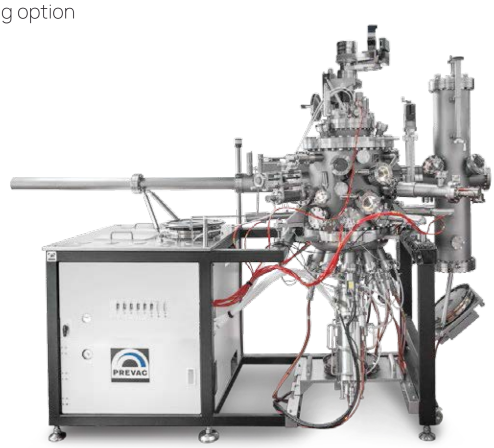
Simple and fully functional sputter deposition system
with ports for up to 3 sources. Substrate stage for up to 2-inch diameter samples, with heating & rotation option.

PULSED LASER DEPOSITION

- Insitu target exchange system
- Based on EXCIMER or YAG lasers
- Laser beam driving system
- Fully automated process driven recipes to combine highly flexible laser optics and operating pressure ranges
- Vertical or horizontal PLD process geometry
- The innovative transfer system features a six-position target manipulator which allows transfer of both target and substrate holders for simple and efficient operation
- Ion beam cleaning & assisting option

MOLECULAR BEAM EPITAXY

- Suited for growth of elements from groups III/V, II/VI as well as other heterostructures.
- Standard manipulator with stable, long-life heater element made of solid SiC and receiving station to achieve high temperatures up to 1200°C.
- Different standard sizes of process chamber are available:
  Ø 300, Ø 450 and Ø 570 mm (other sizes on request), depending on the type and number of evaporation sources and on the substrate size.
- Different substrate holders size: from 10×10 mm to 8 inches.
- RHEED, quartz balances, residual gas analyser, beam flux monitor, heated viewports, LN2 cooling shroud, internal liner/shield and many options more.



THERMAL EVAPORATION

A family of deposition units with the flexibility of combining several techniques in one process chamber. Can be configured for thermal evaporation boats, effusion cells, etc.

ION BEAM ETCHING

UHV system for sample surface ion etching (ion milling) with high homogeneity. Recommended for sample preparation for characterisation techniques (e.g. TEM).

SPIN COATER

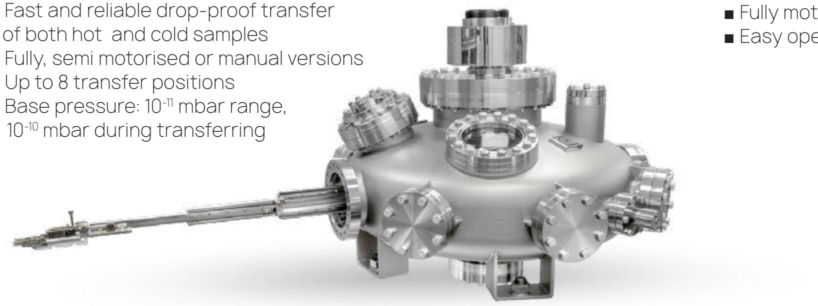
Depositing metal thin films, polymer coating, organic thin films and others by dripping heated solution on the rotating substrate.

3 TRANSFERRING SYSTEM

Easy, smooth and fast sample transferring in several directions.

RADIAL DISTRIBUTION CHAMBERS

- Standard or telescopic transferring arm
- Chamber body diameters from 550 to 1200 mm
- Max. transfer length: 395 - 904 mm
- Fast and reliable drop-proof transfer of both hot and cold samples
- Fully, semi motorised or manual versions
- Up to 8 transfer positions
- Base pressure: 10^{-11} mbar range, 10^{-10} mbar during transferring



TRANSFERRING TUNNELS

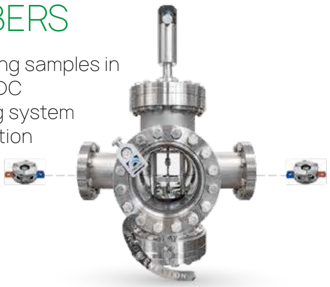
- Unlimited number of sections
- Wide range of sample holders (e.g. PTS, flag style, plate style)
- Base pressure: 10^{-11} mbar range
- Fully motorised or manual versions
- Easy operation

LINEAR TRANSFERS

- Standard or telescopic transferring arm
- Max. transfer length: 320 - 1600 mm
- One or two-sided versions
- Fully motorised or manual version
- Rotation

REORIENTATION CHAMBERS

- Reorientating samples in e.g. multi-RDC transferring system
- Storage option



TRANSPORT BOXES

- Transporting samples between different vacuum systems while maintaining UHV conditions
- Pressure range down to $1{\times}10^{-10}$ mbar

4 MANIPULATORS & GONIOMETERS

Precise sample positioning in multiple axes, with heating, cooling and many other options.

SPECTROSCOPY MANIPULATORS

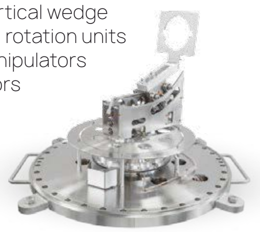
- Multi-axes manipulators - up to 6 axes
- LHe (open & closed cycle) or LN_2 cooling possibility
- DIR, RES, EB or laser heating option
- Motorisation or manual version
- A wide range of sample holder types
- Multi-stage receiving stations for sample holders

DEPOSITION MANIPULATORS

- Multi-axes manipulators - up to 5 axes
- LN_2 or H_20 cooling possibility
- DIR, RES, EB or laser heating possibility
- Motorisation for all modules
- Double stage receiving station option
- Integrated shutter
- 6-position target manipulator for PLD

GONIOMETERS & SPECIAL MANIPULATORS

- Goniometers
- Beamline manipulators e.g. manipulators for mirror chamber, slit units, vertical wedge stages, high precision rotation units
- High-pressure cell manipulators
- Tribometer manipulators
- Manipulators for liquid experiments
- many others

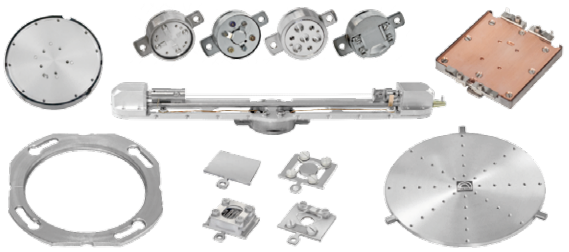


LINEAR SHIFTS, WOBBLE STICKS & OTHERS

- Linear shifts
- XY stage, Z slide, Z chain slide or R2/R3 tilt modules
- Differentially pumped rotary feedthroughs
- Wobble sticks

5 SAMPLE HOLDERS

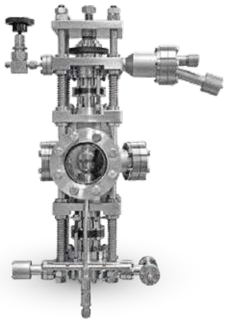
- Various types of PTS, FLAG style sample holders and PLATE style substrate holders - up to 8" size. Approximately 200 individual designs of sample holders have been manufactured to date
- RES, DIR, EB or laser beam heating possibilities
- LHe or LN_2 cooling possibilities
- Many special designs e.g. for: high-pressure reactors, powder materials, IR spectroscopy, reactive gases; with integrated quartz balance or Faraday cup etc.
- PTS and PLATE style adapters for e.g. FLAG holders



6 CHAMBERS

- Analysis 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



7 INSTRUMENTS

- UHV-HP hemispherical energy analysers
- X-ray sources; dual anode or with monochromator
- Ion sources; Wien filter option
- UV, electron, flood sources
- Thermal desorption spectrometers
- Magnetron sources
- Effusion cells
- Electron beam evaporators
- Quartz balances

8 ELECTRONICS

- Power supplies for analytical instruments: UV, X-ray, ion, electron & flood sources
- High voltage electronics
- Power supplies for deposition instruments: magnetron, EBV sources
- Thickness/rate controllers
- Deposition process controllers
- Heating power supplies
- Vacuum gauge & control devices
- Bakeout control devices
- Stepping motor control drivers

9 AUTOMATION & CONTROL

synthesium

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

TANGO

spectrium

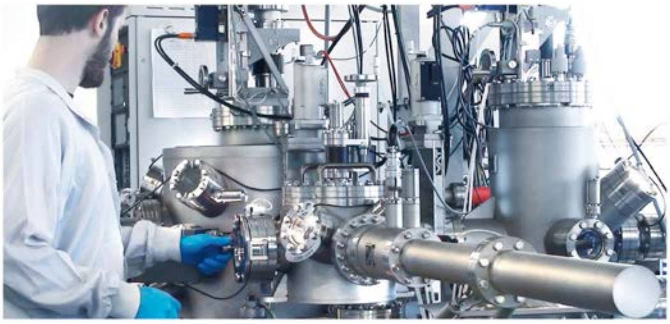
Spectrium is a control and data acquisition software dedicated to EA15 class analysers. It is a progressive and optimized software tool in regard of handling and a very intuitive graphical interface.

10 OTHERS

- Gas leak detectors
- Gloveboxes
- Titanium sublimation pumps & liquid nitrogen shields
- Gas dosing systems
- Water cooling devices
- Bakeout equipment
- Shutters, wedge shutters, masks
- Viewports, heated viewports

OUR GOAL IS TO HELP YOU ACHIEVE YOUR GOAL

PREVAC is well known for its flexibility in developing innovative solutions as individual as each customer's research activity. PREVAC supplied equipment is almost always tailor-made, which gives it the character of innovation. Scientific ideas and hypotheses are unique and driven by a fundamental search for new knowledge combined with the needs of industry and business and the realisation of these needs requires unique technological solutions.



EVERYTHING STARTS WITH IDEA

We create unique solutions for many research and development units around the world. Our projects are characterized by precision of execution. We constantly improve the quality of our products to meet the requirements of the most demanding customers.

The crowning achievement of quality care and improvement of business processes was the award of the Certificate of TÜV Rheinland compliance with quality management system ISO 9001:2015.

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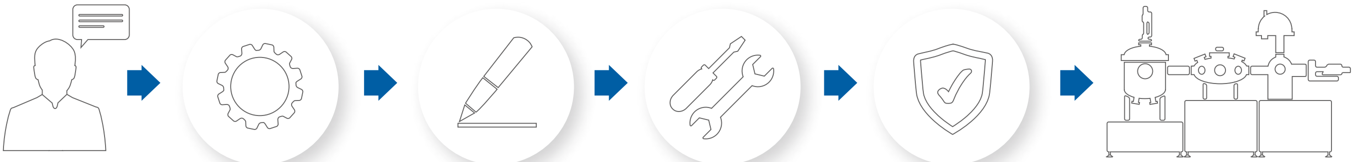


YOUR IDEA

Technical
& sales

Projects
& designing

Production
& assembly

Quality control

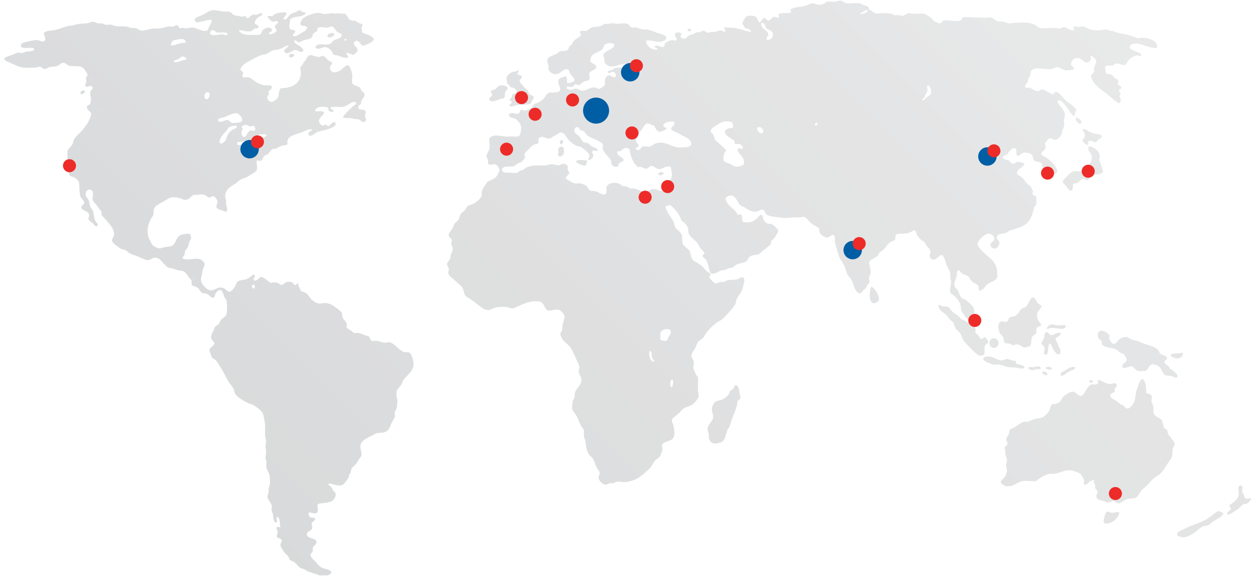
YOUR PRODUCT

WE SUPPORT YOU

PREVAC offers a range of vacuum related services, such as:

- Warranty & after warranty service
- Experts visits & consultations
- On-site consulting
- Improving functionality
- Spare parts
- Certification and training courses
- Repair & calibration

Worldwide **Partners** & **Services** locations



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