

Precision and Vacuum Technology



## XPS/UPS/ARPES SYSTEMS

Versatile surface analysis tools for researchers



The **surface analysis systems** product line from PREVAC is based on highly flexible analysis tool optimised for XPS (ESCA), UPS, ISS and AES measurements. The energy resolution of the hemispherical analyser is  $< 3$  meV (FWHM at 2 eV pass energy). Additional to the spectrometer a versatile control software is delivered which stores the data in an open-standard format (JSON) and allows exporting the data into various other formats (hdf5, ini, txt), which are used by different standalone XPS evaluation programs.

### ANALYSIS MODULE

The **analysis chamber** is the heart of the system and is made of  $\mu$ -metal. It is equipped with different standard UHV flanges, which allows connecting various equipment, e.g.

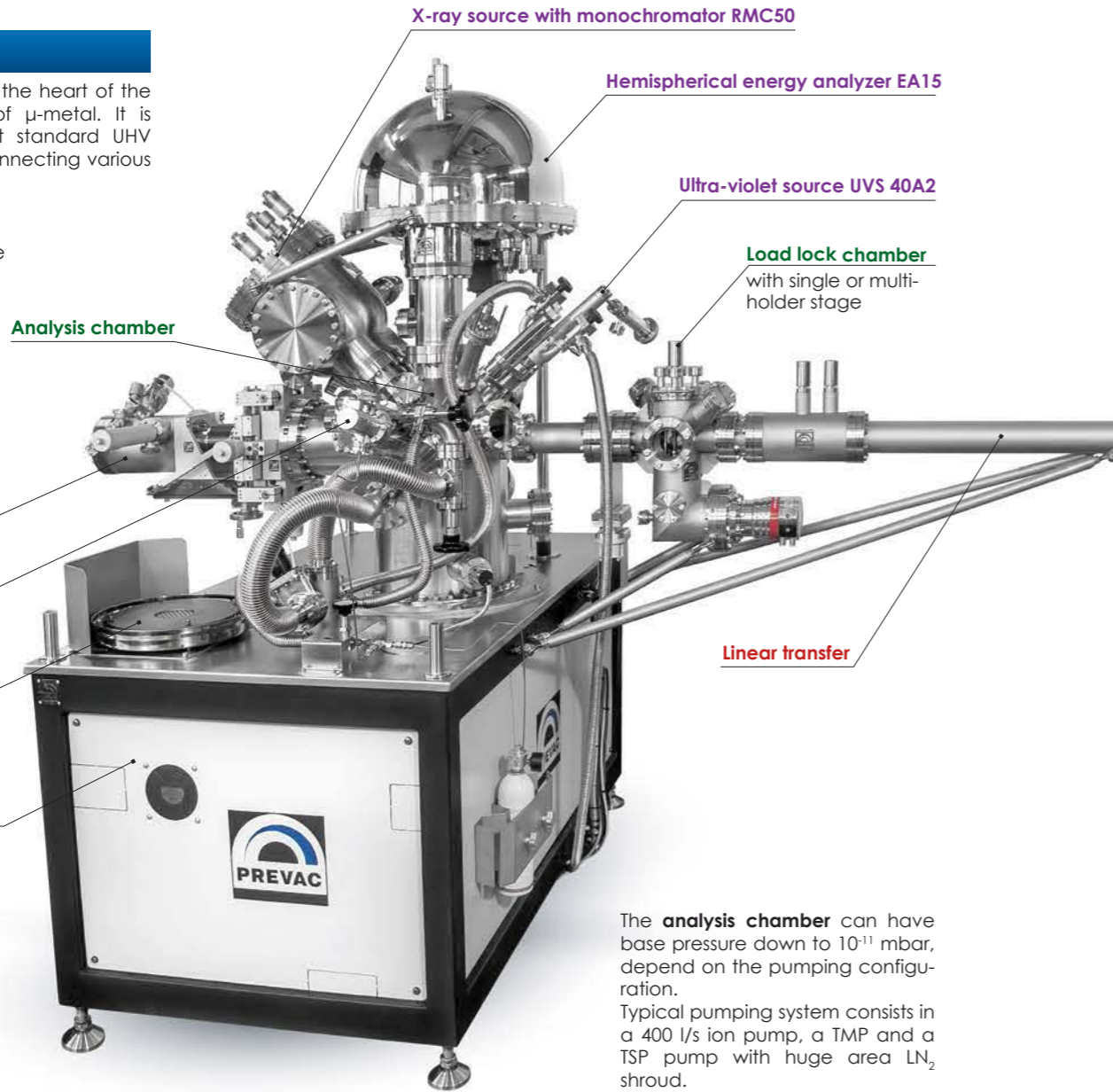
- energy analyser
- X-ray mono source
- X-ray twin anode source
- UV mono source
- UV source
- flood source
- electron source
- ion source
- LEED optics
- and many others

**4/5/6-axes manipulator** with heating and cooling possibility

**Ion source IS 40E1**

**Built-in heater** for bakeout process

**Modular frame** prepared for extension



**X-ray source with monochromator RMC50**

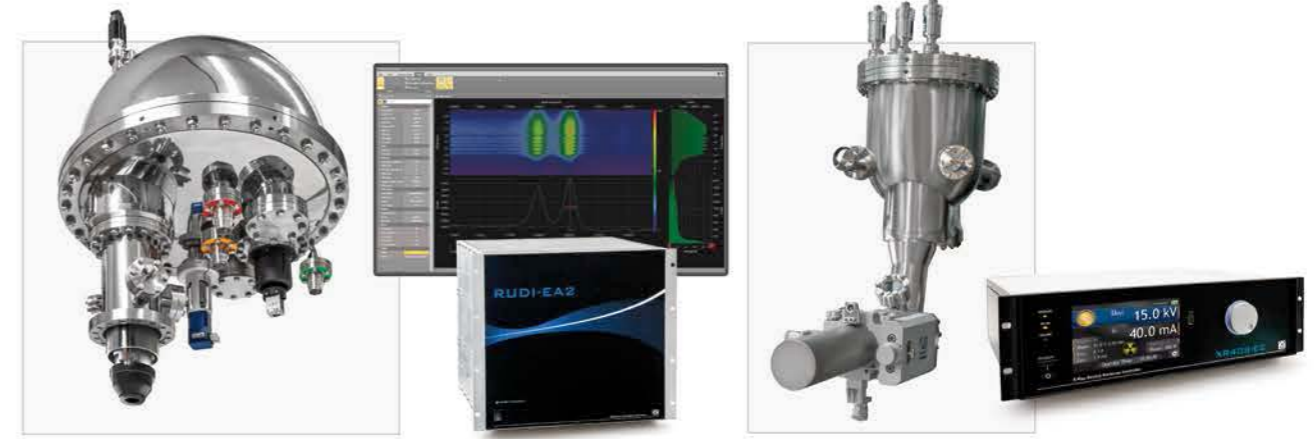
**Hemispherical energy analyzer EA15**

**Ultra-violet source UVS 40A2**

**Load lock chamber** with single or multi-holder stage

**Linear transfer**

The **analysis chamber** can have base pressure down to  $10^{-11}$  mbar, depend on the pumping configuration. Typical pumping system consists in a 400 l/s ion pump, a TMP and a TSP pump with huge area  $LN_2$  shroud.



### PREVAC EA15 ANALYSER

The EA15 hemispherical energy analyser has a 150mm mean radius and is intended to provide high-resolution PES measurements. The analyser, which is equipped with a total number of 11 customizable slits, offers the possibility to choose between best energy resolution and best intensity. Different detector configuration e.g. CCD-MCD, DLD, Channeltron are supported.

### X-RAY SOURCE with MONOCHROMATOR

The RMC50 X-ray monochromator source is based on a single ellipsoidal quartz crystal. The two anode types (Al/Ag) radiation can be monochromized with one single crystal.

- Excellent energy resolution (line width  $< 0.25$  eV)
- High photon intensity
- Two spot sizes
- Satellites and ghosts peaks are eliminated



### LOAD LOCK

Fast intro chamber with single or multi-holder stage. Can be equipped with preliminary halogen heating.



### MANIPULATOR - ANALYSIS CHAMBER

Depending on the application, the manipulator in the analysis chamber can offered as 4, 5, 6 axis.

- High precision manipulation in all directions
- Wide range of temperatures (depend on application), e.g. - cooling down to 4.8 K (LHe), 90 K ( $LN_2$ ) - heating up to 2000 °C (EB), 1000 °C (resitive)
- Fully motorised or manual
- Fully software controlled

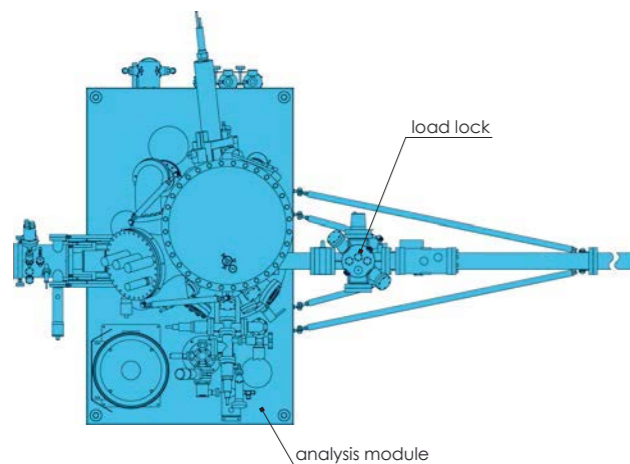
### SAMPLE HOLDERS

Wide range of sample holders available (over 200 types) e.g. for quartz balance, Faraday cup, high pressure cells, powder materials and many, many other.

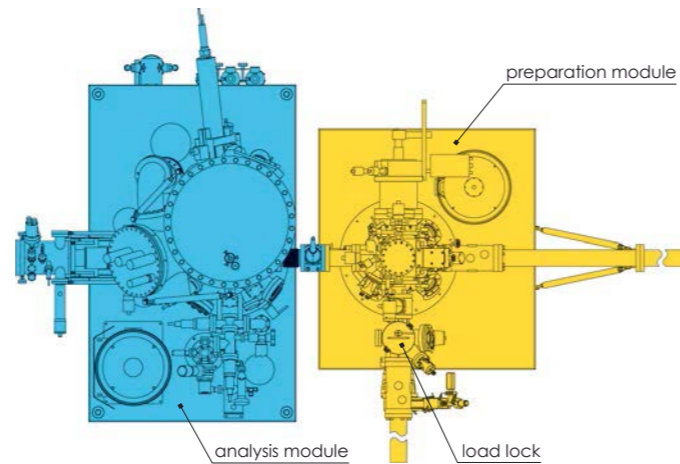


### SYSTEM MODULARITY

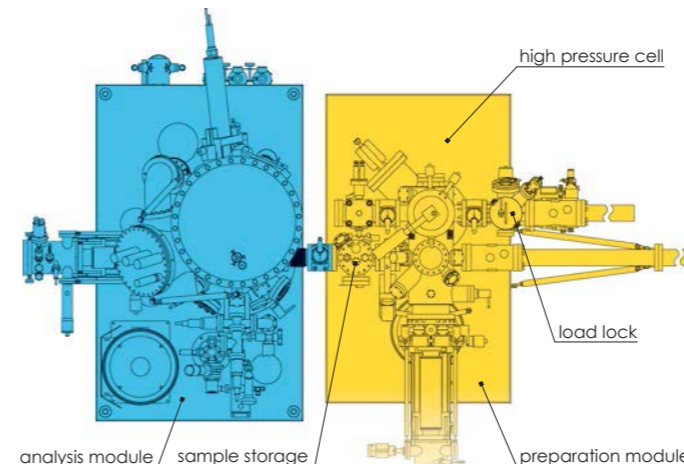
#### BASIC CONFIGURATION



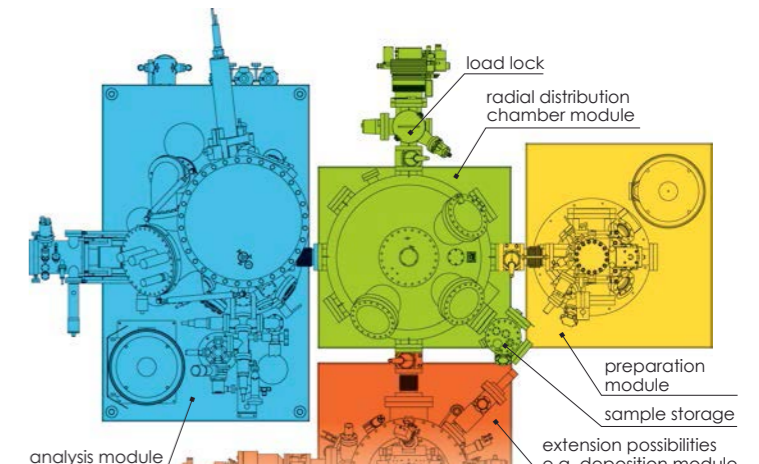
#### CONFIGURATION WITH SIMPLE PREPARATION MODULE, WITH LINEAR TRANSFERS



#### CONFIGURATION WITH EXTENDED PREPARATION MODULE, WITH LINEAR TRANSFER



#### CONFIGURATION WITH RADIAL DISTRIBUTION CHAMBER





## PREPARATION MODULE

As very helpful, the surface analysis systems can be equipped with an universal preparation chamber. Its base pressure is in  $10^{-10}$  mbar range and offers ports for:

- LEED/ AES measurements
- TDS/TPD
- deposition sources different types, K-cells, EBV, etc
- ion source
- mechanical scraping tool
- and many others

## MANIPULATOR - PREPARATION CHAMBER

The manipulator of preparation chamber, usually with  $LN_2$  cooling can be provided as 4 or 5 axes depending on the application. Each manipulator is equipped with all heating possibilities e.g. resistive, EB or direct.

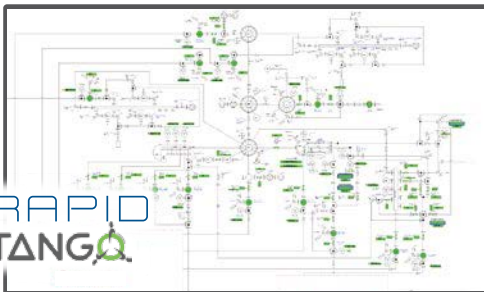


## RADIAL DISTRIBUTION CHAMBER

For customers with higher demands and thinking about future extension possibilities we propose a configuration with a RDC (Radial Distribution Chamber). It allows to extend system by SPM, MBE, PLD etc. Fast and reliable drop-proof transfer of hot and cold samples (time to transfer between two chambers below 45 seconds).

## STORAGE CHAMBER

As useful option, the system can be equipped with storage chamber, with cleaving option.



## SOFTWARE CONTROL

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



XPS / UPS / ARPES



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

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