

VAKUUM SERVIS

Vakuum servis s.r.o.

- Design and construction of vacuum pumping stations, vacuum furnaces, helium leak detection systems, vacuum coating systems
- Refurbishment and upgrade of vacuum production systems
- Assembly of vacuum systems as key-turn customized solutions according to individual needs
- Authorised Pfeiffer Vacuum service center



Plasma cleaning device with RGA Analysis



Vacuum drying system



Vacuum system for E-beam high heat thermal loading

RGA 160 testing system

Main characteristics

- Multipurpose testing device for RGA analysis of UHV components.
- Quantitative outgassing analysis for hydrocarbons, water vapour and other specific chemicals, based on customer needs.
- Measurement method based on ASML standard GSA 07 2221
- Dedicated control software with fully automated measurement cycle with final acceptance protocol in pdf form.
- Possibility of final plasma cleaning and vacuum bakeout of vacuum components before measurement.



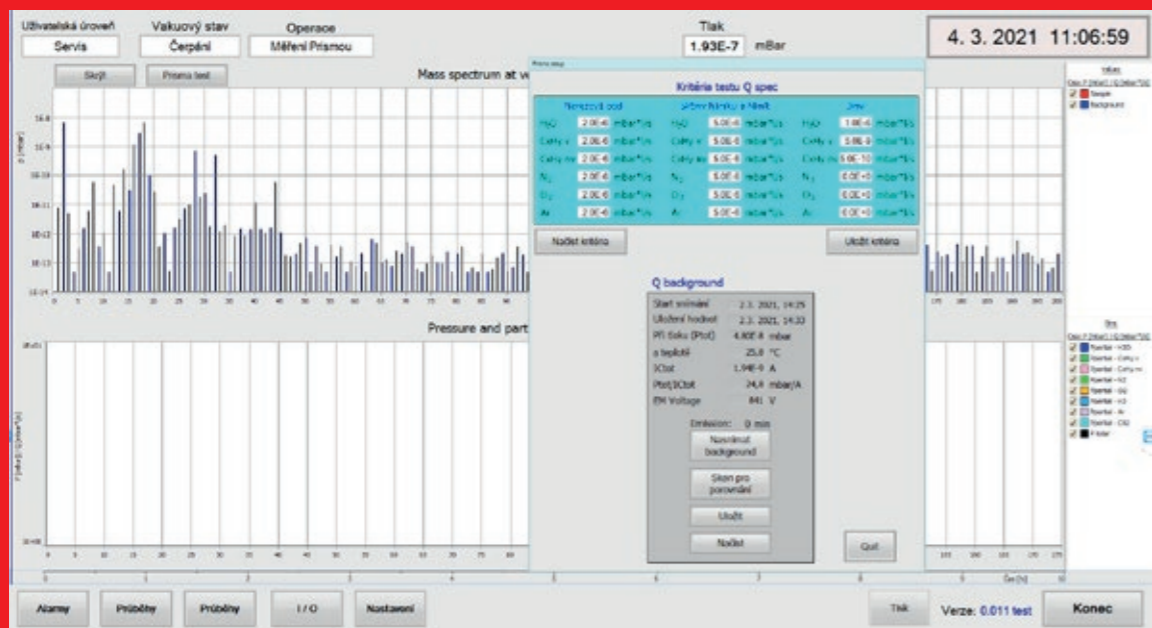
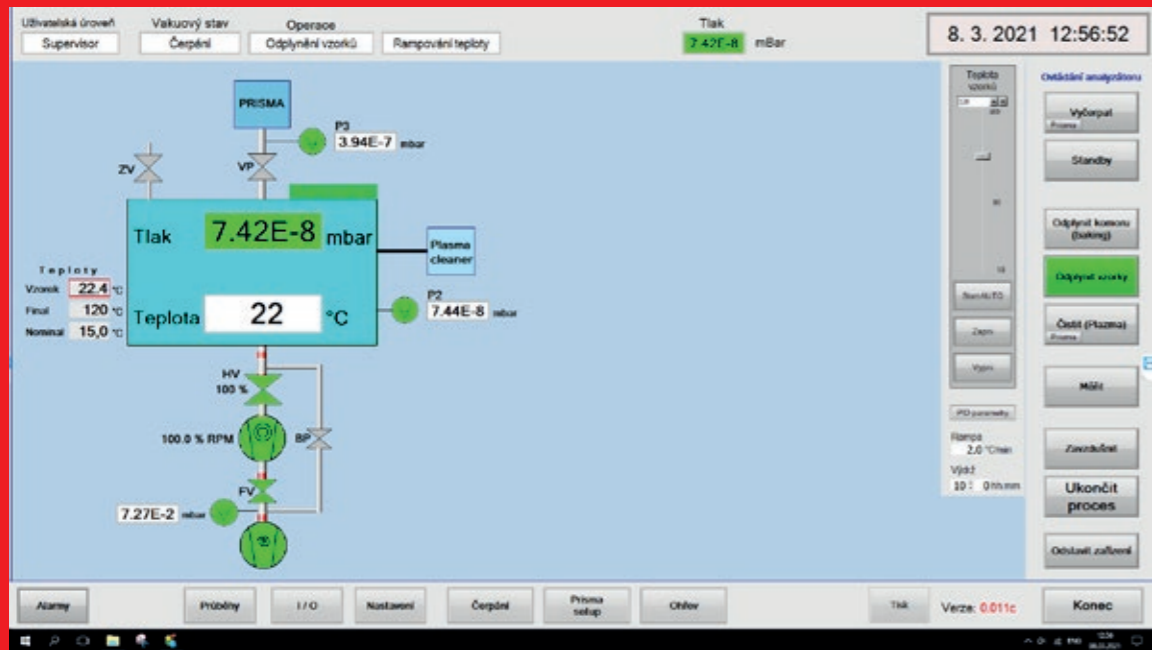
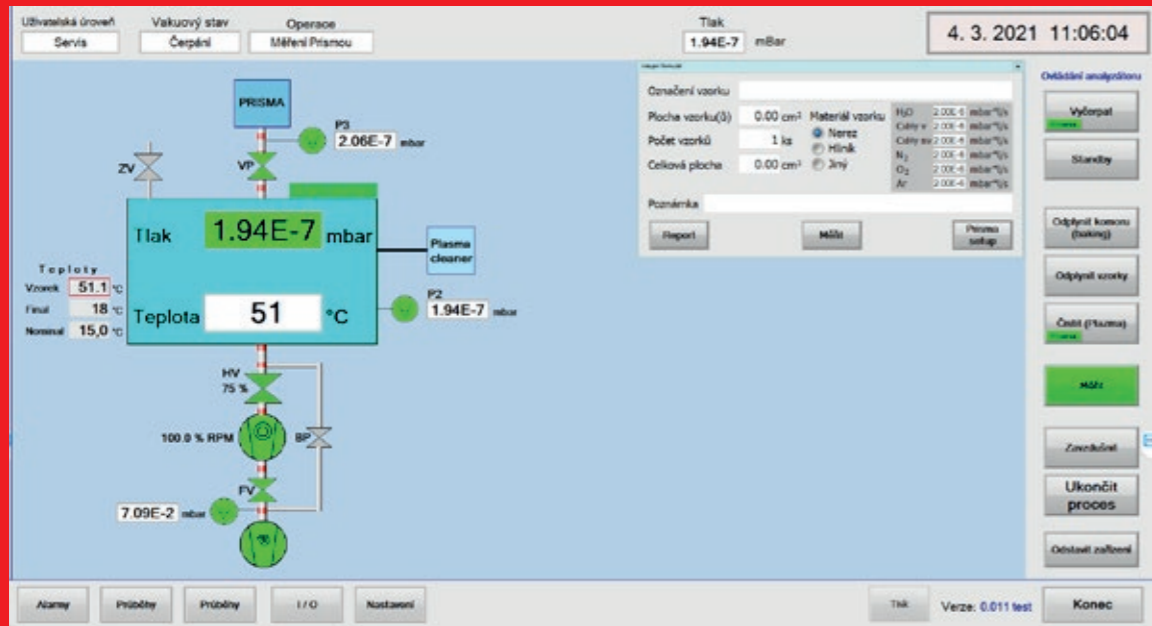
Technical details – standard version

- Oil-free vacuum pumping system with turbomolecular pump and primary scroll pump
- UHV DN160 CF cubical chamber with internal volume of 7 litres
- All-metal vacuum valves
- Quadrupole mass spectrometer Pfeiffer Prisma Pro, mass range 0-200 amu, Faraday +C-SEM detector, open type ion source with Y2O3 iridium filaments
- Calibration gas mixture included
- Integrated heating for automated system bakeout, (temperature can be adjusted up to 130°C)
- Ultimate pressure up to $< 5e-9$ mbar (for empty chamber, after 24 hrs bakeout)
- Minimal detectable leakrate $< 5e-7$ mbar.l.s⁻¹ for H₂O; $< 5e-10$ mbar.l.s⁻¹ for C_xH_y
- Footprint 850x750 mm

Customization possibilities:

- Enlargement of a specimen chamber up to 40 liters
- Dedicated pumping system for quadrupole analyzer – better stability of measurement performance
- Plasma cleaning unit – helps to keep the system in pristine condition free from hydrocarbons





RGA200 29. 4. 2022 0:19:30
VAKUUM SERVIS

Batch information

Marked as: Test vak
 Note: pred testem peaky pritomne, perioda cca 50min
 Quantity: 1 pcs
 Surface 1 pc: 0 cm²
 Total Surface: 0.00 cm²

Device information

QMG 250 PRISMA PRO
 Serial number of Electronics: 44529302
 Serial number of Sensor: 44529276
 Pump speed: 95 l/s

RESULT SUMMARY

Sample(s) analyze
 Start Pump: 27.4.2022, 9:28
 Start RGA time: 28.4.2022, 14:23
 Qualification time: 29.4.2022, 0:19 (9:55)
 Report: Test vak peaku_prazd-2022_04_28-14:23

ICtot: 1.52E-8 A
 Ptot: 4.46E-8 mBar
 Ptot / ICtot: 2.9 mBar/A
 EM Voltage: 1320 V
 Temperature: 25.5 °C

Background information

Start Pump: 2.3.2022, 6:45
 Start RGA time: 2.3.2022, 7:00
 Qualification time: 2.3.2022, 16:58 (9:57)

ICtot: 1.99E-8 A
 Ptot: 3.44E-8 mBar
 Ptot / ICtot: 1.7 mBar/A
 EM Voltage: 1320 V
 Temperature: 25.6 °C

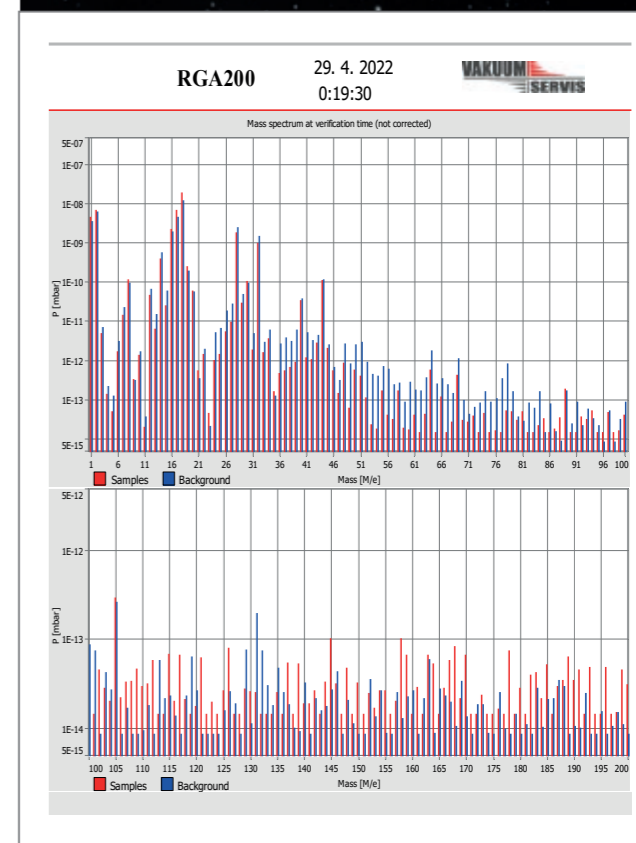
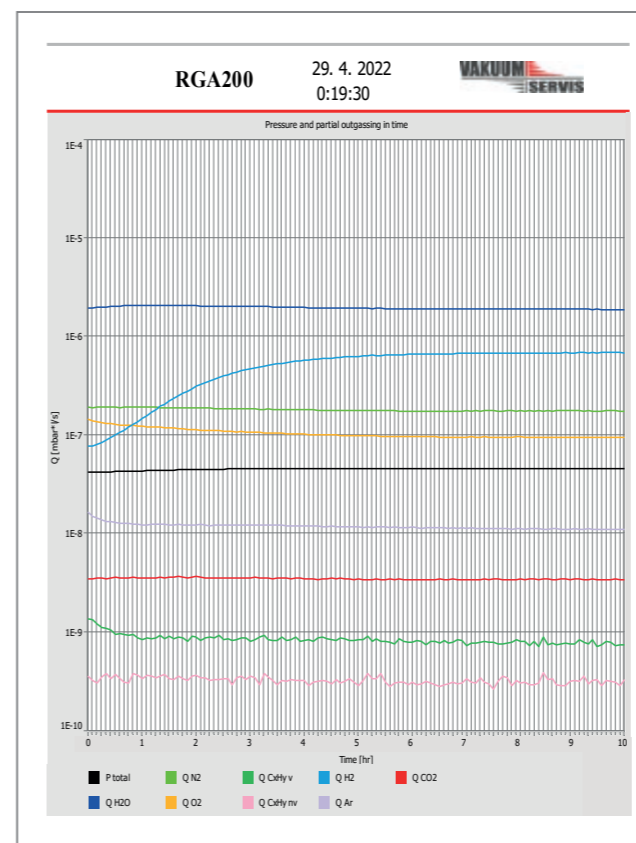
RGA200 29. 4. 2022 0:19:30
VAKUUM SERVIS

Outgas Values

	Qmeasured [mbar ^l /s]	Qbackground [mbar ^l /s]	Qbatch [mbar ^l /s]	Qspec [mbar ^l /s]	Acceptance factor *	Qbatch/A [mbar ^l /(s*cm ²)]	t spec [h:mm]	t LDL [h:mm]
H₂O	1.85E-6	1.18E-6	1.18E-6	2.00E-6	0.59	Inf	31:28	29:09
CxHy v	7.32E-10	2.31E-9	2.31E-9	< 2.00E-6	< 0.01	Inf	29:09	29:09
CxHy nv	3.28E-10	2.32E-10	2.32E-10	0.00E+0	****	Inf	-	29:09
N₂	1.72E-7	2.35E-7	2.35E-7	2.00E-6	0.12	Inf	29:09	29:09
O₂	9.35E-8	1.45E-7	1.45E-7	0.00E+0	****	Inf	-	29:09
Ar	1.08E-8	1.09E-8	1.09E-8	0.00E+0	****	Inf	-	29:09

A factor 2 out of specification is accepted to avoid 'false Negative' conclusions

ICtot: Sum of Ion Current in the RGA
 Ptot: Total Pressure within the Chamber
 EM: Electron Multiplier
 Q: Outgas rate
 t spec: The time between the start of the pump down and the third outgas value in a row lower then the specification value
 t LDL: The time between the start of the pump down and the third outgas value in a row lower then the LDL value
 LDL: Low Detection Limit is two times of background level



Industrial UHV degassing furnace VSF450

Professional heat treatment of materials for semiconductor industry

- High quality UHV degassing system developed for Pfeiffer Vacuum Austria
- Ultra purity of your materials after degassing
- Suitable for heat treatment of different materials in UHV up to 1300°C (degassing, vacuum soldering, annealing, etc.)
- Ultimate vacuum in heated chamber dia 450×600 mm better than $8 \cdot 10^{-8}$ mbar
- Pfeiffer Vacuum Oil-free pumping system with Scroll and Turbomolecular pump
- Molybdenum heating system designed by Plansee
- Achieved temperature setpoint precision 2°C
- Configurable up to 3 heating zones
- Siemens Simatic control system with touch screen
- Fully configurable system (dimensions, parameters, etc.)



UHV degassing furnace VSF450



Achieved vacuum



Temperature gradient



Model of system



UHV furnace model HVF 4560

Vakuu Servis VSS Classic series

- Universal Customized High Vacuum Evaporation and Sputtering System with flexible technology for Production Research and Development
- Continuous development of proven Pfeiffer Vacuum Classic system series



VSS Classic 580

- Multi-purpose coating system for general vacuum experiments in the development field, and small-series production
- Heatable Stainless steel chambers with volumes from 35 to 1300 l, inner diameter 250 to 600 mm (other on request), bell jar also possible
- Evaporation and Sputtering from both sides (tilting of sample)
- Various pumping stations available (Turbo-, cryo- or oil diffusion pumps)
- Final pressures $< 5 \cdot 10^{-7}$ mbar Integral leak rate $< 1 \cdot 10^{-5}$ mbar l/s

Available Sources:

- Resistance evaporators (2 – 6 kVA)
- Electron beam evaporators (3 – 15 kW) with single- or multi-pocket crucible
- Ion beam sources (IAD)
- RF and DC sputter cathodes (0.3 – 10 kW) 2" or 4"



Chamber inside



Sources view



Classic 570L

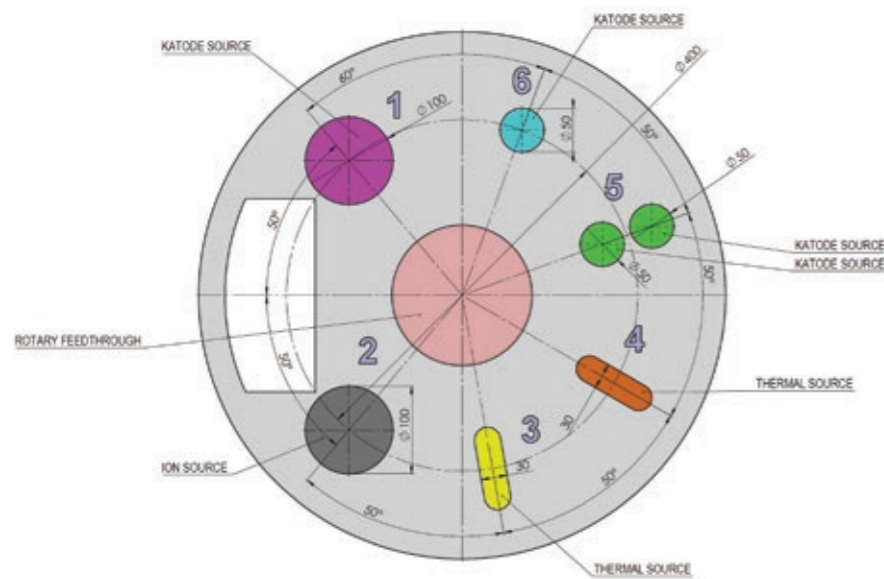
Evaporation:

Anti-reflective process, Scratch resistant process, Laser mirrors, Contact metalization, Deposition of alloys (Co-evaporation)

Sputtering:

Suitable for layers: Metal layers (Au, Cu, Al, Cr, ...) Dielectric layers (SiO₂, Al₂O₃, ...) Transparent, conductive layers (ITO) Magnetic layers Deposition of alloys (co-sputtering)

Various pumping stations available (Turbo-, cryo- or oil diffusion pumps) Vacuum chambers coolable and heatable Final pressures $5 \cdot 10^{-7}$ mbar Integral leak rate $1 \cdot 10^{-5}$ mbar l/s



Example of sources configuration

Control system:

- PLC and industrial PC with visualisation under Windows, Remote acces, Connection to MES
- Fully automatic process control with imple management of recipes
- Detailed data logging (alarm and process archive + trending)

Helium Leak Detection Systems by Vakuu Servis

- State-of-the-art HLDS for automotive and HVAC customers.
- 30 years of experience with HLDS
- High sensitivity in detecting of smallest leaks
- Equipped with Pfeiffer Vacuum Leak detectors ASM 340, ASI35, ASM 306 etc.
- Fully or semi automated solution, production line integration, high cycle time
- Integral vacuum test, Bombing test, Sniffing test



HLDS* for high pressure AC components



Visualisation and chamber inside



Side view



Parallel HLDS configuration for Valve leak testing



Backside view

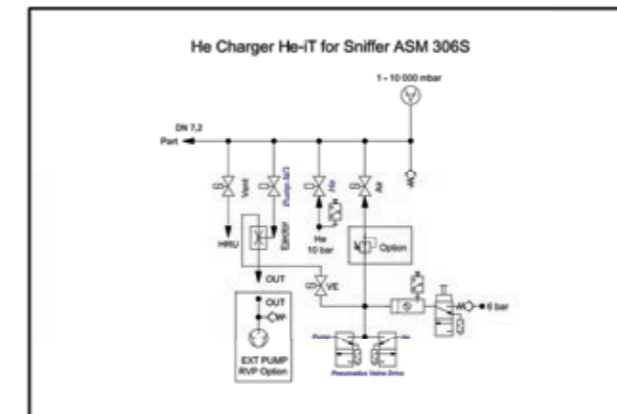


SMIFFING SET - ASM 306S & He CHARGER He-IT

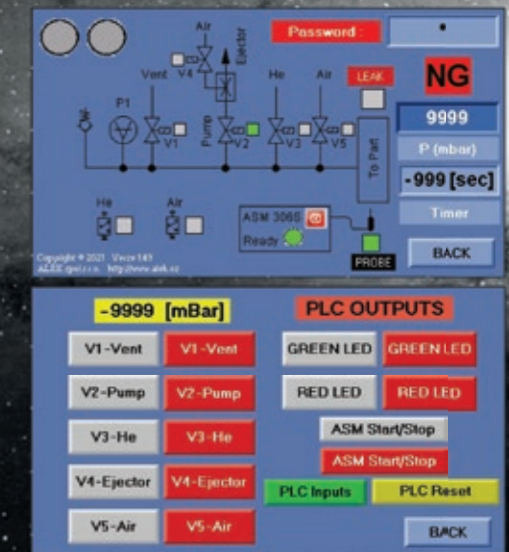
He-It Helium charger

Helium charger for Pfeiffer Vacuum ASM 306S helium leak detector...

He CHARGER He-IT - Smart and Easy Solution for He Sniffing Automatic Helium charging and discharging of the part / ASM monitoring.



START/STOP Button & 4,3" HMI Touch Panel



Examples of HMI panel software menu

Parameters:

- ASM Monitoring: State /Leak / Warning / Error
- Sniffer Probe Monitoring
- Gross-Leak Test
- Adjustable Testing time/Leak delay

He-it Video



Integration into Robotic line

Typical applications:

airbag detonators testing, air conditioning and fuel system components, valves, etc.

- Selected customers: Hanon, Kayaku Safety system, Bosch, Honeywell, Danfoss, TI Automotive, Carrier, Kendrion, Stant



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