



ENABLING INNOVATION

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Nanovac AB

A total solutions provider

Nanovac AB was founded on the vision of solving advanced vacuum technology problems and requirements. We have over 30 years of experience in vacuum technology, ranging from general vacuum to XHV applications.

Our core competencies include vacuum system design, vacuum system automation, and upgrades of existing vacuum equipment.

We manufacture a range of turn-key solutions, including thermal vacuum chambers (capable of operating under vacuum with internal temperatures between -180°C to >200°C), physical vapor deposition systems (PVD) including evaporation and sputtering solutions. We have also designed and installed general vacuum systems, including mobile pumping stations as well as industrial Helium leak test solutions for heat exchangers and radiators.

We thrive on solving our customers vacuum problems using innovative and cost effective solutions. We have extensive experience in designing vacuum systems, from the base vessel, to a complete turn key solution including pumps, gauges and the necessary automation. All delivered with CE/UL compliance.

Our team often perform work in the field, replacing existing controllers and vacuum hardware with new solutions, extending the life of your equipment, while reducing cost-of-ownership and making sure your equipment meets todays safety requirements.

We can assist in performing on-site riskanalysis to determine where your existing systems may require improvements to meet the operator safety requirements today.

of today.

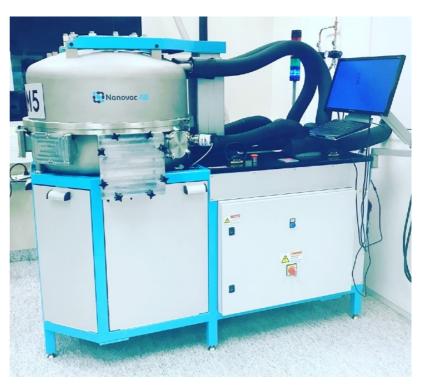
Systems

Enabling innovation

Nanovac AB manufactures a range of systems, ranging from standard thermal vacuum chambers to custom solutions, tailored to very specific needs.

Thermal vacuum chambers

Our thermal vacuum chambers include three standard solutions, the Mini-Test, the Galaxy TVC025 and Galaxy TVC225. We also manufacture our thermal vacuum chambers to customer specific



requirements, using the same control architecture as on our standard Galaxy chambers. As thermal vacuum test requirements can be very project/ customer specific, a large number of our chambers are custom solutions, built to customer specific requirements.

Physical vapor deposition

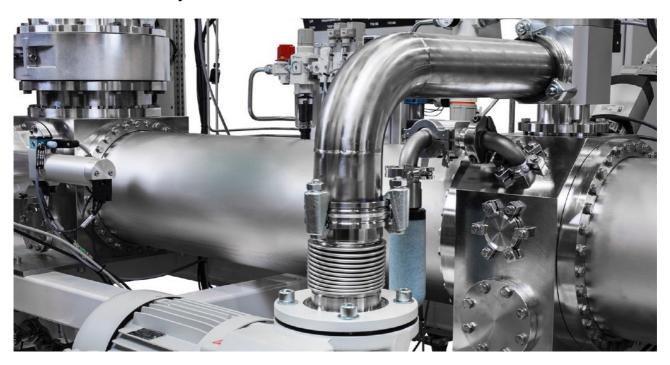
As with our thermal vacuum test chambers, we provide a range of custom solutions for physical vapor deposition systems, again, building solutions based on very specific customer requirements. We provide solutions based on resistive evaporation, e-beam evaporation as well as sputter deposition (DC and



RF). The common denominator for all our system solutions is a small footprint, competitively priced, and with low cost-of-ownership.

Industrial Helium leak detection systems

As vacuum specialists we are often called upon to aid in the design and supply of industrial Helium leak detection systems. These systems are custom designed to perform in-line Helium leak detection on various enduser products, including heat exchangers, radiators, transformers as well as fuel tanks and fuel cell systems.



Our solutions use state-of-the-art vacuum technology coupled with innovative measuring solutions and high performance mass spectrometry solutions. The systems are highly configurable and typically designed specifically for a product to be leak tested or analyzed.

General vacuum systems

We also design and commission central vacuum systems and facility installations requiring reliable vacuum performance 24 hours a day, 7 days a week, year in and year out.

Custom systems

If you have a requirement, do not hesitate to contact us for a free consultation. With our expertise and know-how, we will help you realize your vacuum system requirements.

Upgrades

Extending innovation

Upgrades have been a part of our core philosophy for the last 30 years. In so many cases, the hardware of existing systems is still performing well, but the controls/accessory systems are becoming harder to support and being crippled by obsoleted parts and general availability issues.



We perform upgrades on all types of vacuum equipment, ranging from simple vacuum chamber systems, to complex plasma equipment. Our solutions are highly flexible and built to meet the specific requirements of the system in question. We can replace controls, electronics, power supplies, transformers, vacuum pumps and gauges as well as pneumatics. It really depends on the condition of the existing system. The common factor for most of our field upgrades is that the general vacuum chamber is in good condition, and that the vacuum system performs well.

CAD/Modeling

We are here to help you design the future

We have a dedicated team of engineers ready to help you with your vacuum system design and realisation. Our capabilities include complete modeling capabilities, coupled with experienced mechanical engineers who have worked with welding and assembly of advanced vacuum chamber solutions for the last 30 years.



We can offer either just the design work, or the complete solution, from design to completion of your vacuum system. And all our vacuum system solutions are delivered with a quality certificate, and leak tested to the strictest requirements using state-of-the-art Helium leak detectors.

We are also frequently asked to model legacy or obsolted vacuum components, ranging from screws to complete electrode assemblies. Through our world wide network of partners we are also capable of sourcing the most difficult to find parts for older vacuum systems. All in an effort to make sure your equipment stays up and running.

Services

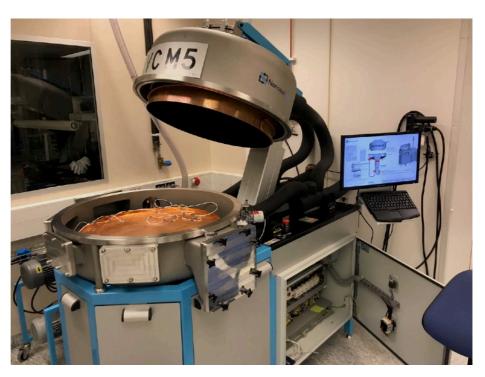
We are here to help

We stem from a long legacy of working with field service of vacuum equipment, ranging from general vacuum systems to advanced plasma equipment. Our team has decades of experience in servicing advanced vacuum equipment in the field, solving the most complex problems, including vacuum issues, as well as control issues and

process problems (which are often hardware related).

We can provide
Helium leak
detection services
in the field, either
using our own
detectors or helping
you with your
systems. We are
available with short
notice for
emergency support
should it be needed.

We offer deep technical analysis of your system, and a complete detailed report on all our findings and resolutions during our visit. We carry the most advanced diagnostic equipment for field service work, including RGA (residual gas analysis) capabilities, thermal analysis and Helium leak detection equipment. We are able to monitor/log high current/high voltage performance on evaporation systems for trouble shooting.



We carry a range of exchange pumps, including oil lubricated, dry and high vacuum pumps to allow you to get your equipment operational quickly if a pump fails. If the pump type (or model) in question is not in our warehouse in Sweden, most likely we are able to source it through one of our many partners in the world.

We also perform on-site repair/ replacement of vacuum pumps and accessories if required. We can help you solve all your vacuum related service needs.

Principals

Solutions

We have partnered with a large number of OEM (original equipment manufacturers) to allow us to offer innovative, cost effective solutions to the industry. Here are some key partners.

Plug-in®

Plug-in is a company based in France, focused on manufacturing standard and custom hermetic feedthroughs. If you have a signal that needs to be transferred in/out of your vacuum chamber, Plug-in have a solution. We offer custom solution as well as a extensive range of standard components.



Hine Automation

Hine Automation designs and manufactures vacuum, atmospheric automation systems and robotic components. Our team has been designing products for more than 30 years and serving our customers since 2009. We Specialize in semiconductor automation for silicon and compound III-V or II-VI materials, tape frames, photomask and reticles, and solar and flat panel displays.



VACGEN®

Since 1964, VG (VACGEN) has been the name synonymous with high quality ultra high vacuum products and services. From the manufacture of the first UHV valve to some of the most advanced vacuum research systems built, over 50 years in the research and scientific industry has given us an incredible grounding in the needs of our customers, how we can support new projects through the design phase, delivered product and ongoing support.



We partnered with Hanbell Vacuum several years ago, mainly as we were using their solutions on our own manufactured systems. We are representing Hanbell in the Nordics, offering robust vacuum pump solutions, including small scroll pumps as well as large industrial vacuum systems (dry pumps).

In addition to distributing the products, we also offer local service on the equipment from our headquarter in Staffanstorp, in the southern part of Sweden.

The above listed partners are our key partners, but, if you have any vacuum related solution you are looking for, we most likely can help you through our extensive worldwide network of manufacturers/ suppliers.







We are a complete solutions provider for vacuum equipment and vacuum automation.

https://nanovac.se info@nanovac.se

Please sign up for our <u>electronic newsletter</u> to ensure you stay up to date, and receive our special offers!



