



# The power of innovative collaborations

## How our work with NTG is setting new standards

We sat down with Thomas Franz (CEO), and Martin Silberhorn (Project Manager), from NTG to learn more about what they are working on now, and all things vacuum.

### In the greater Frankfurt area, nestled within a landscape of pioneering technological advancements stands NTG Neue Technologien GmbH & Co KG.

Since 1968 NTG has been an industry frontrunner in plant engineering, specialized mechanical solutions, and their journey exemplifies a pioneering spirit of innovation and excellence. NTG's core focus spans areas such as particle accelerators, beam diagnostic systems, vacuum technology, specialist machine construction, and Ion Beam Technologies (IBT), and with impressive growth predicted there is a sense in the air that this uplift represents more of a general trend.

### New direction, new purpose, new mission

Reflecting on the company's evolution, Thomas Franz recalls: "For over two decades NTG solely focused on nuclear technology. However, after the market downturn, post-Chernobyl, we needed a new direction. Vacuum technology emerged as a natural progression from our expertise in nuclear technology". The vacuum sector in general has witnessed significant expansion over the recent decades as it has cemented its

place as an enabler of science and innovation, and as with most forms of innovation, collaboration is key. With 100 machines already on the market, and 31 under construction across a spectrum of projects, their ever expanding customer base, which includes institutions such as Desy, GSI, CERN, Rossendorf, Fraunhofer and ELI, demonstrates the diverse nature of their work.

### NTG's choice to collaborate with Leybold isn't merely by chance

Strategic collaborations are key in delivering 'next generation' solutions, as they go beyond the customer-supplier relationship and rely on all parties having a deep understanding of the science that underlines the outcomes they are trying to achieve. The reliability and efficiency of our technology have proven invaluable in NTG's projects, and this can be seen in the diverse range of products we supply covering the full vacuum spectrum from fore-vacuum to high-vacuum ranges, as well as supporting infrastructure. Some of the Leybold product ranges that have been used in their projects include:

- ECODRY, VARODRY, LEYVAC, TRIVAC and RUVAC fore-vacuum pumps

- Magnetic bearing MAGiNTEGRA and TURBOVAC i turbomolecular pumps (TMP's)
- Measurement systems such as LEYCON valves, LEYSPEC residual gas analyzers, PHOENIX QUADRO He leak detection systems, as well as hardware and fittings

### Teamwork in action

This has seen our technology used in groundbreaking projects such as the National Centre for Tumor Diseases in Heidelberg who use our fore-vacuum pumps and MAGiNTEGRA turbo pumps in their accelerators to treat cancerous tumours, with an impressive 90% cure-rate.

Our products also support one of the world's most powerful lasers in the field of laser-driven nuclear physics in partnership with ELI-NP, Romania. This emerging technology falls into two major groups, the Lasers Systems Department (LSD) and the Gamma system Department (GSD), where they also use our MAGiNTEGRA Turbomolecular pumps as well as control software, LEYCON valves, hardware and fittings.

This project had already made history when on the 7th March, 2019, their Laser Beam Transport System (LBTS)

delivered its first pulses, peaking at a power of 10 petawatts, the first time such results had been reported. As mentioned, Ion Beam Technology (IBF) continues to be a core focus. Products such as binoculars and lenses, work they carry out for companies such as Zeiss, are polished down to the nanometre range using ion beams. Mr. Franz likened this to: "Levelling a hill to the height of 1 metre, and measuring it's accuracy between here and the moon".

This process spans a range of our products from the oil-sealed rotary vane TRIVAC L Series, DRYVAC, and ECODRY fore-vacuum pumps including the VARODRY pump which as well being completely oil-free has a tooth-belt drive making ideal for these applications.

For the high-vacuum range we supply our TURBOVAC i series turbomolecular pumps, including some from the MAGINTEGRA range which are magnetically levitated turbopumps.

### Opportunities in innovation

Another example of collaboration is in the space industry.

NTG build vacuum chambers, which along with our technology, simulate space-like conditions allowing a range of critical tests to be carried out pre-launch.

The solutions we provide in this area can cover the primary, high-vacuum (HV) and ultra-high vacuum (UHV) ranges including cryogenic technology. With worldwide investment predicted by many institutions to reach \$1trillion by 2040 this is seen as an area of great opportunity for all who work in this sector.

And with new areas in development in the fields of astro-optics, metal-optics, diamond turned/milled and NTG-Motion – an internal project bringing motion systems to market – our collaborative work is living proof that technology never stands still.

### Ambition you can trust, innovation you can rely on

When asked about what it was like working with Leybold, Mr. Franz said: "Quality and service are important factors for us when choosing a dealer. On the whole, we are very satisfied with the quality of Leybold pumps. The cooperation is very pleasant, and the sales staff can only be praised".

The key values in our working relationship with NTG bears the same hallmarks as it does with many of our innovative partnerships.



Left: Thomas Franz (Managing Director, NTG) - Right: Philipp Meissner (Regional Sales Manager, Leybold)

Expertise, organization, and competitive pricing are important, but it is the open and transparent communication that is key. This allows projects to be pushed forward with purpose, fairness, and ambition, and of course it helps that we all get along too.

This proactive, but warm, relationship spans across consultants, project leaders, as well as our proposal engineers (from our systems and solutions department) who build bespoke vacuum systems for them, and in turn this makes space for a solution-orientated approach.

The partnership between NTG and Leybold represents a synergy of excellence, innovation, and a shared commitment to advancing science, all through a shared expertise in vacuum.

More about NTG @ [www.ntg.de](http://www.ntg.de)



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