

# Product overview 2024



Innovative vacuum pumps,  
systems and components  
for diverse applications



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## Oil-sealed vacuum pumps

### SOGEVAC

Single-stage rotary vane pumps

- ✓ **Effective investment, long service life**
- ✓ **No oil loss, low power consumption**

**Your needs:**

- Industrial rough vacuum generator
- Favorable price-to-performance ratio
- High reliability
- Analytical backing pumps
- ATEX or O<sub>2</sub> applications
- Low noise and clean operation

**Our solutions:**

- Pumping speeds of 10 to 840 m<sup>3</sup>/h
- Ultimate pressure  $\leq 5 \times 10^{-2}$  mbar
- O<sub>2</sub>-compatible versions
- Separate standard product line for food and packaging applications
- Flexible pump design
- Quietest pumps on the market with oil loss of less than 1 ppm
- ATEX directive 2014/34/EU certification
- Direct connection of RUVAC Roots pumps via an adapter
- Compatible with GENIUS Instant Insights



### NEO D

Medium vacuum rotary vane pumps

- ✓ **No oil loss with integrated exhaust filter**
- ✓ **Best vapor pumping with no condensation**
- ✓ **Maintenance free up to three years in clean applications**

**Your needs:**

- Medium vacuum pumps at affordable prices
- No oil loss at exhaust
- Longest possible maintenance intervals
- Monitoring options
- Broad portfolio, can also accommodate special requests

**Our solutions:**

- Pumping speeds of 16 to 76 m<sup>3</sup>/h, all sizes available for single or three-phase power supply
- Ultimate pressure  $\leq 8 \times 10^{-3}$  mbar
- Integrated exhaust filtration and oil return with oil loss below 1 ppm
- Use of long-life oils and dynamic shaft seals
- Flexible pump design for retrofitting accessories or custom-made variants
- Compatible with GENIUS Instant Insights





## TRIVAC

Dual-stage rotary vane pumps



- ✓ **A well-proven vacuum pump for long-term operation**
- ✓ **Extensive line of accessories**

### Your needs:

- Rugged vacuum generator
- High reliability
- Optional ATEX explosion protection

### Our solutions:

- Pumping speeds
  - TRIVAC B: 4 to 65 m<sup>3</sup>/h
  - TRIVAC E: 2.5 m<sup>3</sup>/h
  - TRIVAC L: 42 to 79 m<sup>3</sup>/h
  - TRIVAC T: 4 to 30 m<sup>3</sup>/h
- Ultimate total pressure
  - TRIVAC B:  $2 \times 10^{-3}$  mbar
  - TRIVAC E:  $2 \times 10^{-3}$  mbar
  - TRIVAC L:  $3 \times 10^{-3}$  mbar
  - TRIVAC T:  $5 \times 10^{-3}$  mbar
- For medium vacuum applications
- Economic OEM product range (TRIVAC T)
- ATEX directive 2014/34/EU certification (TRIVAC B, L)
- Direct connection of RUVAC Roots pumps via an adapter
- Compatible with GENIUS Instant Insights



## VACUBE

Complete rough vacuum solution with Oil-sealed screw pumps



- ✓ **Compact systems for vacuum generation on demand in industrial rough vacuum applications**
- ✓ **Efficient and productive with long maintenance intervals**

### Your needs:

- Plug-and-go installation
- Suitable for high water vapor applications
- Potential energy savings of 50% or more

### Our solutions:

- Highly-efficient oil-sealed rotary screw technology
- Variable pumping speeds of up to 4,980 m<sup>3</sup>/h
- Ultimate pressure of 0.35 mbar
- Integrated frequency converter for load-dependent speed control
- Controller with configurable interface and automated insights & updates
- Long maintenance intervals
- Ideally to be combined with our Multi VAControl (see page 16)
- Compatible with GENIUS Instant Insights



## Dry-compressing vacuum pumps

### ECODRY plus

Dry-compressing multistage roots pumps

#### ECODRY 25 and 35 plus

- ✓ **High-performance compact vacuum pumps for clean applications**

##### Your needs:

- Small – Compact, light weight design for easy handling
- Fast – High speed from high pressure down to low ultimate
- Smart – Gauge and valve control
- Green – Low energy consumption, especially with eco-mode
- Maintenance-free pump

##### Our solutions:

- Each pump in the platform comes with the same compact dimensions and a low weight of less than 30kg
- Pumping speeds of 25/35 m<sup>3</sup>/h with high pumping speed at atmospheric pressure
- Adaptive speed control via a Leybold vacuum gauge
- Air-cooled pump
- Oil- and particle-free operation



#### ECODRY 40 and 65 plus

- ✓ **Vacuum pumps with low noise emissions for clean applications**

##### Your needs:

- Clean and quiet environment
- Easy handling
- High energy-efficiency
- Maintenance-free pump
- Application expertise in challenging R&D applications

##### Our solutions:

- Two pumping speed variants with ECODRY 40 and 65 plus
- Lowest noise levels in class
- Excellent pumping performance for light gas applications
- Best-in-class water vapor tolerance
- Remote operation with external drive option
- Air-cooled pump
- Oil and particle-free operation

## CLAWVAC

### Oil free claw pumps

- ✓ **Compact rough vacuum pump for demanding industrial applications including handling of particle and vapor contaminated gases**
- ✓ **Trouble-free and inexpensive**

#### Your needs:

- Robust, oil-free vacuum pump for rough vacuum generation
- Long maintenance intervals

#### Our solutions:

- Pumping speeds of 65–1000 m<sup>3</sup>/h
- No oil migration into process, no environmental oil contamination
- Extremely efficient air cooling, low heat emissions, non water-cooled
- Corrosion-resistant pump chamber and claws (stainless steel claws for sizes 65 to 300)
- Easy onsite cleanup
- Up to 50% energy savings via operation with variable speed drive



## CLAWVAC System

### Rough vacuum systems

- ✓ **The new benchmark in rough vacuum systems**
- ✓ **CLAWVAC systems are ideal for applications requiring a high level of redundancy and increased connectivity with the new VAControl**

#### Your needs:

- High, oil-free vacuum demand for all pressures
- A robust and redundant solution
- Long maintenance intervals

#### Our solutions:

- Varying pumping speeds of up to 1500 m<sup>3</sup>/h
- Ultimate pressure of 150 mbar
- Redundant smart controls
- Corrosion-resistant pumping chamber with stainless steel claws
- Simple and easy onsite cleaning
- No oil migration into the process, no environmental oil contamination

Coming soon





## Dry-compressing vacuum pumps

### VARODRY

Dry-compressing screw pumps

- ✓ **Compact, rugged oil-free vacuum pumps for general industrial applications**

#### Your needs:

- Industrial vacuum generator
- Low investment and operating costs
- High reliability with extended system uptimes

#### Our solutions:

- Pumping speeds of 65, 100, 160 and 200 m<sup>3</sup>/h
- Ultimate pressure  $\leq 1 \times 10^{-2}$  mbar
- Fully air-cooled design, no need for water cooling
- Minimal maintenance demands
- Most robust pump design
- HD/O<sub>2</sub> variant can handle up to 100% O<sub>2</sub> and harsher applications
- OEM variant with reduced footprint for optimal system integration



### VARODRY VDi+ System

Smart pump down systems with integrated controller

- ✓ **Intelligent pump systems with a little extra performance**
- ✓ **Easy maintenance**
- ✓ **Smart control**

#### Your needs:

- Adaptivity to various process needs
- Low total cost of ownership and small footprint
- Robust, adjustable performance
- Energy efficient

#### Our solutions:

- Special software features for advanced application needs
- Low maintenance costs due to decreased need for spare parts
- Performance on demand via intelligent software functions
- Extra Roots to boost pump down
- Additional energy savings with the energy saver kit





## SCROLLVAC plus

Oil-free scroll pumps



✓ **Dry, universal solution, low operating costs**

### Your needs:

- Oil-free vacuum pump
- Quiet operation with low vibration
- Long maintenance intervals

### Our solutions:

- Five speed variants with the SCROLLVAC 3, 7, 10, 15 and 18 plus
- Single and triple phase available
- Robust, low-maintenance design
- Compatible with GENIUS Instant Insights



## LEYVAC

Dry-compressing screw pumps

✓ **Rugged vacuum pumps for industrial applications and high process throughputs**

✓ **Hermetically-sealed design for safe handling of hazardous gases**

### Your needs:

- Industrial vacuum generator
- Extended system uptimes
- High pumping speeds at atmospheric pressure

### Our solutions:

- Pumping speeds of 80 to 145 m<sup>3</sup>/h
- Ultimate pressure  $\leq 1 \times 10^{-2}$  mbar
- Hermetically-sealed pump
- Direct connection of RUVAC Roots pumps via an adapter



## Dry-compressing vacuum pumps

### SCREWLINE

Dry-compressing screw pumps



- ✓ **Extremely robust for the harshest industrial applications, simple on-site maintenance**
- ✓ **Simple on-site maintenance**

**Your needs:**

- High pumping speeds
- Easy to clean
- Air cooling
- ATEX explosion protection (Cat. 2i)

**Our solutions:**

- Pumping speeds of 630 m<sup>3</sup>/h
- Ultimate pressure  $\leq 1 \times 10^{-2}$  mbar
- Expandable to pump systems through the addition of Roots pumps
- Monitoring system
- Easy to disassemble pump chamber for quick cleaning
- ATEX directive 2014/34/EU certification
- Direct connection of RUVAC Roots pumps via an adapter
- Compatible with GENIUS Instant Insights



### DRYVAC

Dry-compressing screw pumps



- ✓ **Rugged, compact vacuum solutions with smart monitoring and control system for coating, photovoltaic and process industry applications**

**Your needs:**

- Maximum system availability
- Low cost of ownership
- Minimal footprint
- Protected pump and easy communication

**Our solutions:**

- Pumping speeds from 200 to 1,600 m<sup>3</sup>/h
- Guaranteed highest uptimes through a robust and high-performance design
- Proven track record in harsh applications
- Higher production yields and long-term stable pumping speeds
- Benchmarking energy savings via a sophisticated rotor design
- Easy installation with compact design
- Quiet - less noise loads at production
- Onboard intelligence - easy-to-use controls and self monitoring via an integrated FC
- A dry solution for every application
- Direct connection of RUVAC Roots pumps via an adapter
- Compatible with GENIUS Instant Insights



## DRYVAC Energy Saver

Power saving unit for DRYVAC and DRYVAC Systems

- ✓ **Quick ROI (approximately one year) with energy savings of up to 50%**

### Your needs:

- Cost savings through reduced energy consumption
- Improved ultimate pressures

### Our solutions:

- Power savings up to 50% at inlet pressures of < 5 mbar
- Ultimate pressure improvements by one decade
- For all pumps and systems with LEYBONOL LVO 210
- To be used in applications with non-flammable gases or oxygen concentrations of  $\leq 21\%$
- Compatible with GENIUS Instant Insights



## DRYVAC FP-r wash down version

Dry-compressing screw pumps for food & packaging applications



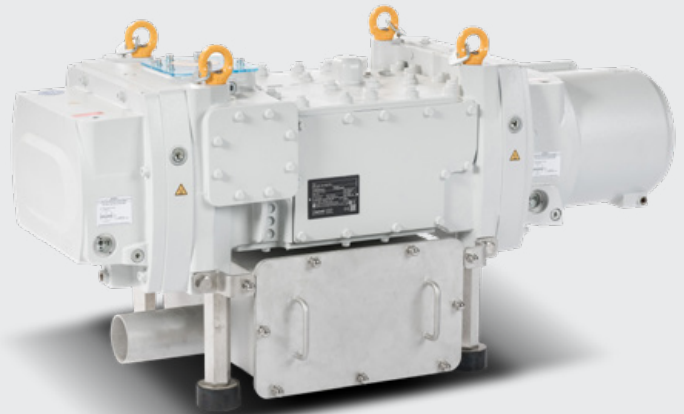
- ✓ **The hygienic pump can be installed in proximity of your production line, increasing your packaging and bottling performance. DV 650/800 FP-r pumps can be washed down with your other production equipment.**

### Your needs:

- High and long-term stable pumping speeds
- Low energy consumption
- Low heat dissipation to the food area
- Reduced footprint
- Daily wash down ready

### Our solutions:

- A compact, water-cooled and silent dry screw pump
- Pumping speeds of 650 and 800 m<sup>3</sup>/h
- PFPE versions for MAP of red meat with oxygen
- External frequency converter for easy networking and control
- Optional integrated, easy-to-clean stainless steel silencer
- Optional energy saver allows up to 50% energy savings at low pressure
- Three inlet ports available, allowing for flexible installation and connection
- Compatible with GENIUS Instant Insights



## Dry-compressing vacuum pumps

### NOVADRY

#### Dry-compressing screw pumps

- ✓ **Robust, 100% oil-free, air-cooled design with easy on-site maintenance**
- ✓ **Specially designed for use in sensitive applications, such as food processing and packaging**

#### Your needs:

- Zero oil emissions to avoid oil contamination of products
- Lowest maintenance requirements
- Simple plug-and-go installation with no complicated controls or need for utilities
- Lowest cost of ownership
- No need for expensive PFPE

#### Our solutions:

- 100% oil-free design
- Fully air-cooled design based on hygienic principles
- Standard pump released for "Modified Atmosphere Packaging" (MAP) with O<sub>2</sub>
- Maximum robustness and extended uptimes
- Low noise levels
- Low operating cost



### NOVADRY NDi System

#### Smart central vacuum systems with integrated controllers

- ✓ **Intelligent pump systems with vacuum on demand**
- ✓ **Easy maintenance**
- ✓ **Smart control**

#### Your needs:

- 100% oil free for clean exhaust
- Robust dry screw – at any working pressure
- Plug & Pump – air cooled and ready-to-go

#### Our solutions:

- Proven performance down to 1 mbar ultimate pressure
- Low maintenance - no oil changes or oil filter changes
- High performance at any working pressure
- Gas ballast & self-draining design
- Smart control via our VAControl software





## Accessories and electronics

### Hygienic Enclosure

Enables wash-down cleaning of pumps installed inside food processing areas

- ✓ **Protects pumps from contamination (e.g., during food processing) or aggressive wash-down agents**
- ✓ **Standardized design, available for all NOVADRY pumps**

#### Your needs:

- 100% hygienic operation of vacuum pumps within the food processing area
- No pump corrosion with aggressive cleaning agents
- Cost-effective solution that avoids pumping speed losses over long pips
- No pump overheating due to inappropriate enclosure design
- Easy integration

#### Our solutions:

- Corrosion-resistant stainless-steel materials - resistant against aggressive wash-down cleaning agents
- Hygienic design with slanted surfaces – no accumulation of wash down liquids
- No contact of pump surfaces with food or wash-down cleaning agents
- Special design prevents pump overheating by enclosure
- Fast & easy onsite assembly



### Multi-VAControl

Smart rough vacuum control



- ✓ **Multi-VAControl creates an interconnected system of multiple pumps, ideally with variable speed driven pumps, but also with fixed speed or even competitors' pumps**

#### Your needs:

- Cost optimizations via energy savings
- An intelligent pump control with extensive communication features
- A solution that's easy to use and install

#### Our solutions:

- Modes for optimizing energy usage, maintenance intervals (or the best of both)
- Direct communication via various methods, including I/O and field busses
- Plug-and-go set-up
- Compatible with GENIUS Instant Insights



## Accessories

### LEYTRONIC

#### Frequency converters

- ✓ **Frequency converters for WA(U) 1001, WA(U) 2001, WS(U) 1001, WS(U) 2001**

##### Your needs:

- Save energy
- Increase pump performance
- Pump protection

##### Our solutions:

- Plug-and-go system
- Pre-parameterized drives



### Liquid separators

#### LF 550 and LF 1800

- ✓ **High performing liquid separators for all high-humidity applications**

##### Your needs:

- Pump protection
- Reduced corrosion
- Reduced maintenance cost

##### Our solutions:

- Liquid separation
- Demister for pre-filtration
- Polyester cartridge 5microns
- For 200 to 1,800 m³/hr pumping speed
- Adjustable feet
- Optional auto drain system



## Roots pumps

### RUVAC WA(U)/WS(U)

#### Roots blowers

- ✓ **Long-lasting and reliable**
- ✓ **Easy connection to any fore vacuum pump**

##### Your needs:

- Increased pumping speeds at low pressures
- Easy to use
- Oil-free gas pumping
- ATEX explosion protection

##### Our solutions:

- Pumping speed ranges from 250 to 4,000 m<sup>3</sup>/h
- Reliable and robust
- Available with flanged motor or hermetically-sealed drive motor
- Suitable for 100% O<sub>2</sub> applications
- ATEX directive 2014/34/EU certification



### RUVAC WH(U)

#### Roots blowers

- ✓ **An innovative, efficient and cost-effective product line for use in modern process industry applications**

##### Your needs:

- Flexible pumping speeds with frequency converter
- Rapid pump down times
- Compact design
- Oil-free pumping of gases
- System compatibility
- Low current consumption

##### Our solutions:

- Pumping speeds from 720 to 9,800 m<sup>3</sup>/h (with frequency converter)
- Excellent performance and energy consumption specifications
- Hermetically-sealed drive motor
- Small footprint
- Innovative bypass valve
- ATEX directive 2014/34/EU certification and partial certification for ATEX Cat 2i
- Direct connection of large fore vacuum pumps via an adapter
- Compatible with GENIUS Instant Insights



## Fluid entrainment pumps

### DIFFVAC OB

Oil vapor booster pumps

- ✓ **Robust oil booster pumps with high pumping speeds and gas throughput for harsh-process industrial applications**

**Your needs:**

- High vacuum
- Extremely high critical backing pressure capabilities
- High pumping speeds and throughput
- Safe and economic design
- High energy efficiency requirements

**Our solutions:**

- Pumping speeds of 6,000 l/s to 12,000 l/s
- Operating range:  $<10^{-1}$  to  $10^{-4}$  mbar
- High gas-throughput
- Stable pumping speeds in low pressure ranges
- Small footprint
- Reduced CO<sub>2</sub> footprint and energy savings via our innovative Energy Efficiency Controller



### DIFFVAC DP

Oil diffusion pumps

- ✓ **High-performance oil diffusion pumps for high vacuum applications in which high pumping speeds are required**

**Your needs:**

- Stable high vacuum
- High pumping speeds
- Safe and economic design
- Increased reliability in industrial high vacuum applications

**Our solutions:**

- Pumping speeds of 20,000 l/s (with helium), further pump sizes will be released soon
- Operating range:  $<10^{-3}$  to  $10^{-7}$  mbar
- Innovative direct heater concept for improved warmup times
- Reduction of CO<sub>2</sub> footprint and energy savings via our innovative Energy Efficiency Controller





## Big valve

Stainless steel valve for high vacuum

✓ **Long product life, easy service and maintenance**

### Your needs:

- Membrane-sealed
- Low leak level

### Our solutions:

- Long-lasting, high cycle rates (> 50,000)
- High conduction
- Bypass and measurement flange included
- FPM o-ring sealed
- Single plug, position indicators and connected pilot valve



## Energy Efficiency Control (EEC)

Control unit for DIFFVAC pumps

✓ **Quick ROI (< 2 years) with energy savings of up to 30%**

✓ **Easy and convenient to use**

✓ **Optimized power and oil-based power consumption**

### Your needs:

- Cost savings through reduced energy consumption
- Easy to use
- PLC-controlled

### Our solutions:

- Energy savings of up to 30%
- Improved service life for the oil and heating cartridges
- Simple visual monitoring of parameters through a graphical user interface
- Equipped with USB interface and Ethernet



## Turbomolecular pumps

### **TURBOVAC i/iX**

Turbomolecular pumps with hybrid bearing technology

- ✓ **Innovative and flexible product line with outstanding performance data and integrated electronics**

#### **Your needs:**

- Clean, high and ultra-high vacuum generation
- Extended service life
- Ease of installation and operation
- Reliable usage under the most varied applications and operation conditions

#### **Our solutions:**

- Pumping speeds of up to 1.450 l/s
- Oil free hybrid bearings (mechanical/permanent magnetic)
- Installation in any direction
- Integrated electronics, including a variety of options for communication and control of accessory components
- TURBO.CONTROL i display unit (optionally as rack version or benchtop unit) for controlling and monitoring the pump, including connection facility for two pressure gauges available as accessories

### **TURBOVAC iR**

Turbomolecular pumps with remote drive

- ✓ **Specially designed for challenging R&D applications**

#### **Your needs:**

- Remote electronics
- Radiation resistance

#### **Our solutions:**

- Oil-free, robust turbomolecular pump
- Installation in any direction
- Remote electronics, including a variety of options for communication



## **TURBOVAC i/iX MI**

Turbomolecular pump multi-inlet line

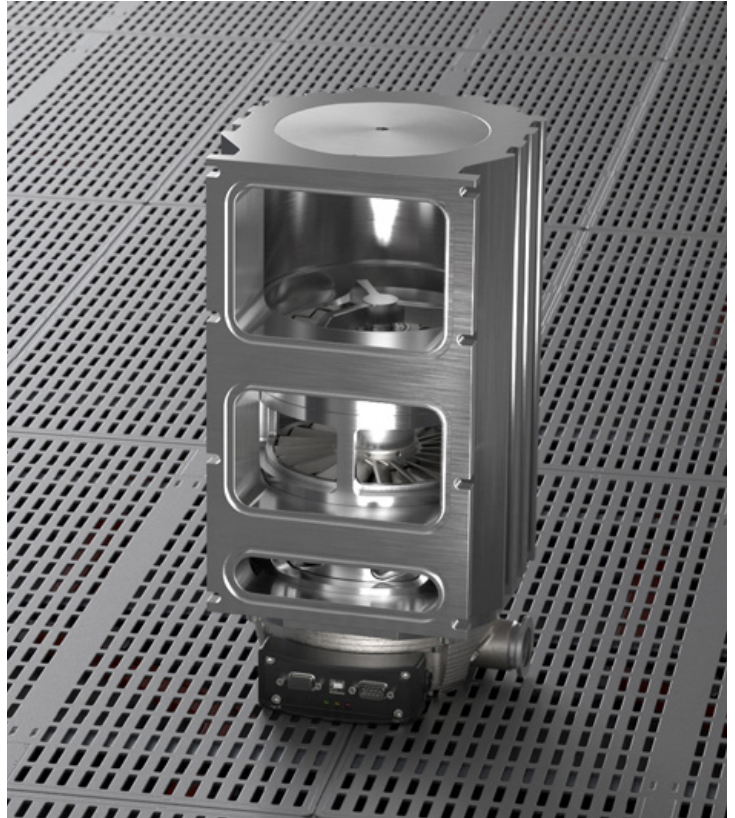
- ✓ **Flexible custom, turn-key vacuum solution**
- ✓ **Highest productivity and system uptimes at lowest CoO**

### **Your needs:**

- Clean, high and ultra-high vacuum generation
- Suitable for analytical applications
- Small footprint
- Lower cost
- Ease of installation and operation
- Long service life

### **Our solutions:**

- Pumping speeds of up to 1.450 l/s
- Flexible design to satisfy customer's instrument requirements
- Integrated with more than two inlets in one pump system to reduce total footprint and costs
- Hassle-free installation and maintenance
- Oil-free hybrid bearings (mechanical/permanent magnetic)
- Integrated electronics including a variety of options for communication and control of accessory components



## **TURBOVAC MAGiTEGRA**

Turbomolecular pumps, magnetically levitated

- ✓ **Our most compact product line for industrial applications**
- ✓ **On-board frequency converter and power supply**
- ✓ **Easy, space-saving system integration**

### **Your needs:**

- Clean, high and ultra-high vacuum generation
- Suitable for industrial uses such as PVD and coating processes and display and glass coating
- Impervious to particles or deposits
- Low maintenance requirements

### **Our solutions:**

- Pumping speeds of up to 2,200 l/s
- High pumping speeds and high compression ratios for all gases
- Holweck stage incorporated
- Resistant to particles and deposits
- Insensitive to shock-venting
- Monitoring and self-protection functions
- Maintenance-free in most applications





## Cryogenic systems

### COOLVAC cryo pump COOLPAK helium compressor

Cryogenic systems

- ✓ High water vapor pumping capabilities
- ✓ Long maintenance direction
- ✓ Installation in any orientation
- ✓ Boost (fast cool down), customized or economical mode

#### Your needs:

- Hydrocarbon-free vacuum
- High and ultra-high vacuum generation

#### Our solutions:

- Pumping speeds of up to 60,000 l/sec
- DN ISO-K, ISO-F, CF and ANSI flange variants with vertical or horizontal orientation
- Two variants for manual and for fully-automatic system control and regeneration available
- Pump controller mounted on pump for 100% automatically-controlled iSL version allows for easy process and network system integration



### COOLPOWER refrigerator

Cooling systems

- ✓ Gas refrigerating machines for cryogenic temperature generation based on the Gifford-McMahon principle
- ✓ Designed for cooling superconductors (magnets, samples and sensors) for medical applications and research

#### Your needs:

- High refrigeration capacity
- Small footprint
- Long, maintenance-free operation
- Reduced vibration

#### Our solutions:

- Ultimate temperatures: two-stage models down to 8 K  
single-stage models down to 25 K
- High refrigeration capacity from the smallest volumes:
  - up to 18 W @ 20 K and up to 110 W @ 80 K for double-stage coolers
  - up to 250 W @ 80 K for single-stage coolers possible
- Impervious to particles and deposits
- Easy key-press operation
- High reliability





## Ion pumps

### HyTan NEG-Ion Pump, TiTan ion pump, NEG pump and TSP's

Pump systems for ultra-high vacuum

- ✓ **A full line of vibration-free and maintenance-free UHV pumps, achieving ultimate pressures in ultra-high vacuum ranges**

#### Your needs:

- High pumping speeds at ultra-high vacuum
- Hydrocarbon-free vacuum
- Long operating times
- Complete solutions

#### Our solutions:

- Pumping speeds from 0.2 to 1,200 l/s
- Ultimate pressure  $< 1 \times 10^{-11}$  mbar
- Various TiTan pump elements for various requirements:
  - TiTan CV with titanium cathodes for pumping air and reactive gases
  - TiTan DI for pumping air and reactive gases, noble-gas stabilization (titanium and tantalum cathodes)
  - TiTan TR - classic triode for higher pumping speeds in high pressure ranges, noble gas stable
  - A broad variety of NEG pumps and TSPs for separate use or for integration with TiTan ion pumps
- TiTan, NEG and TSP components can withstand temperatures of up to 450 °C
- HyTan NEG-Ion Pump — highly versatile with exchangeable NEG and ion pump modules, suitable for noble and chemically-active gases. Offers a wide range of pumping speeds (up to 500 l/s) in a compact, stable, and reliable design.
- Wide range of accessories
- DIGITEL controller models for operation of ion pumps, TSPs and NEGs in various applications and configurations
- HV cables for connecting your controller and ion pump



## Vacuum gauges, vacuum controllers

### Measuring instruments

#### Vacuum pressure gauges

- ✓ **Reliable monitoring and control for all vacuum processes**

##### Your needs:

- Gauge systems for every application
- Precise pressure measurement of gases and vapors
- Reproducibility across a wide range of pressures

##### Our solutions:

- Measurement with active and passive sensors in a pressure range from  $10^{-12}$  to 2,000 mbar for every application
- Intuitive operation and flexible data retrieval
- Pressure switches and pressure control instruments
- Handheld versions for easy and reliable pressure measurements
- DAKkS or factory calibration of vacuum gauges in the pressure range from  $10^{-8}$  to 1,000 mbar system integration



### GRAPHIX

#### Vacuum controllers

- ✓ **Universal controllers for the connection of active vacuum sensors for direct pressure measurements from  $10^{-10}$  mbar to 2,000 mbar**

##### Your needs:

- Operation and control of the entire vacuum system
- Easy handling and plug-and-go operation
- Quick data collection and transfer via USB to PC

##### Our solutions:

- Monitoring and control of the entire vacuum process
- Product line with 1, 2 or 3 measurement channels
- 3.5" TFT touchscreen display with intuitive user interface
- Easy-to-read curve or bar graph display
- Internal and external data-logging (USB port on the front) for configuration and real-time measurement of data
- Displays mbar, Torr, Micron, Pascal or Psi
- Option to connect active vacuum gauges from other brands



## Leak detectors

### PHOENIX 4

#### Leak detectors

- ✓ **The PHOENIX 4 product line sets new standards in helium leak detection**
- ✓ **Our product portfolio provides the perfect matching unit for every application**

##### Your needs:

- Non-destructive components to test for quality assurance
- Reliable technology
- Highest reliability and accuracy of measurements
- Professional consulting and support

##### Our solutions:

- Suitable for mobile or stationary vacuum and sniffer operations
- Quick start-up, high measurement accuracy
- Internal data logging through the leak detector itself with simple external data acquisition via USB and full, external control and data logging through Leybold LeyAssist software
- Intuitive HMI with simple controls, menu structure and user-friendly multicolored touchscreen
- Integrated webserver featuring easy login via Wi-Fi for remote control via any internet-enabled smartphone or tablet



### PHOENIX Cart

#### Mobile leak testing systems

- ✓ **PHOENIX 4 carts offer a wide range of pre-designed combinations that are fully assembled and leak checked**
- ✓ **Plug in, and they're ready: leak detection to go!**

##### Your needs:

- Mobile leak detection
- Ready-to-go solution
- Find leaks in the worst conditions
- Safety and performance

##### Our solutions:

- Pre-assembled system
- Fully customizable
- Best performance
- High reliability

### PHOENIX MOBILIS ULTRA

- ✓ **Handheld multiple gas leak detectors**

##### Your needs:

- Fast, accurate and highly-sensitive leak detection
- Flexibility and ease of use
- Reliability
- Durability

##### Our solution:

Ideal for standard industrial environments, quick laboratory checks, and magnetic field environments.

- Multiple gas leak detector
- Portable and handheld
- Light weight
- Magnetic protection
- Peace of mind: two-year warranty



## Residual gas analyzers

### LEYSPEC

#### Residual gas analyzers

- ✓ **All-in-one devices with integrated control and display for demanding test procedures and residual gas analysis in high vacuum systems and general gas analysis in research and industry or for environmental tracking**

##### Your needs:

- Highly accurate residual gas analysis
- Easy operation
- Bake out option for high and ultra-high vacuum applications

##### Our solutions:

- High sensitivity residual gas analysis allowing the detection of the smallest traces of contaminants or process gases
- Product line with solutions for 100, 200 or 300 amu
- Simple residual gas analysis is possible even without connection to a computer
- Intuitively-operated LEYSPEC software and integrated display
- Key gases can be displayed at the push of a button and a spare display channel for additional gases is available
- Preinstalled functions, such as a helium leak test, warnings and error levels for chosen gases, degassing function after starting or venting
- Compact size and mountable in any direction for enhanced flexibility
- Bake out temperatures of up to 300°C for operation in harsh environments

### LEYSPEC Cart

#### Mobile residual gas analyzer systems

- ✓ **Mobile visibility**
- ✓ **Fully integrated differential pumping system**
- ✓ **Easy handling**
- ✓ **Maximum flexibility**

##### Your needs:

- Mobile gas analysis system
- Complete standalone pumping system
- Easily adaptable to a wide range of measurements
- Operational at various pressures
- Quick startup

##### Our solutions:

- Independent pumping system with SCROLLVAC 7 plus and TURBOVAC 350i
- Integrated process controls for quick and easy operation
- Easy and intuitive software for LEYSPEC RGA
- Completely integrated in an mobile standalone cart
- UHV needle valve for flexible operation at various pressure levels up to atmospheric pressure





## Valves and components

### LEYCON

Valves in various designs and drive modes

✓ **Reliable valve technology, widely used in a broad range of applications**

#### Your needs:

- Reliable leak tightness
- A high number of actuations
- Easy to install and remove
- Single-source delivery

#### Our solutions:

- Manually actuated valves
- Valves with electromagnetic/electropneumatic drive
- Gate valves
- All-metal valves for UHV systems
- SECUVAC safety valves
- Special valves, including vacuum lock and sealing valves, venting valves, leak valves



### Flanges

Connection components

✓ **Proven and widely-used technology**

✓ **Almost any connection possible**

#### Your needs:

- Easy to install and remove
- Reliable leak tightness
- High-quality materials
- Single-source delivery

#### Our solutions:

- ISO-KF small flanges in sizes DN 10 to DN 50
- ISO-K flanges in sizes DN 63 to DN 630
- CF flanges in sizes DN 16 to DN 250



# Systems + Solutions

## Customer first – competence for tailor-made worldwide solutions

The Systems + Solutions business, unit with its **global setup, delivers tailor-made solutions** to meet the customer’s demands. Listening carefully to the customer, the core function of our business, means meeting customer expectations by identifying and **providing first-in-class vacuum concepts**. Our portfolio varies from standard to customized and specialized vacuum systems and solutions. **We address a wide range of vacuum applications and markets** including integration with specific production environments.

Working in close collaboration with sales, we support integrated application development, engineering and design. Production sites in North Americas, Europe and China ensure a close proximity to our customers with local assembly and testing capabilities as well as efficient order execution. **This makes our team a true global player and and a steadfast partner in the vacuum industry.**



## Special systems

Tailor-made vacuum solutions and systems for your applications

- ✓ **A quick look at a few applications from the leading worldwide supplier**
- ✓ **Benefit from our experience dating back to 1850**

### Your needs:

- Comprehensive consulting services
- Customer-specific application support
- Design and manufacture of custom vacuum solutions
- Flexibility and reliability
- Efficient solutions

### Our solutions:

- System solutions - tailor-made concepts based on customer specifications
- Integrated fore vacuum and high vacuum pump systems for specific requirements
- Worldwide engineering, production and service centers
- Global project coordination
- Custom software programming and customization
- Consistent product improvement and innovation
- On-site setup and training



## Systems + Solutions

### Beer bottling vacuum system

- Minimal to no water consumption
- Lower energy consumption - energy savings of more than 20% on average compared to water ring pumps
- Better and more stable bottling pressures — reduces CO<sub>2</sub> consumption and results in increased shelf life
- Reduced maintenance through a simple drive concept
- Dry compressing screw technology offers high robustness handling water vapor and liquid droplets
- Longest uptime due to no risk of cavitation and minimized need for internal cleaning due to our low rotor temperature profile
- Increased food safety through CIP of complete vacuum system including the vacuum pump



### Steel degassing

- Vacuum systems for efficient steel degassing
- Highest vacuum up-times via high redundancy
- Easy to install - on-site installation available
- Minor pressure increases only in the event that one module or one pump is off
- Users can perform their own service, and single pumps can be changed out in a short time
- Low energy consumption via optimized system design
- Minimal space requirements
- Easy expansion and extension
- In the event of a pump failure for multi-module installations, only one module is switched off, and the remaining modules finish the process!





### Hyperloop

- Three-stage pump system with a total of 12
- RUVAC WH and DRYVAC pumps entirely contained within a 12 m (40ft) shipping container
- The container has a fully-accessible long side, making it possible to install this complex system with only minor effort
- Inlet and outlet flanges are installed in the wall of the container; the customer only needs to mount the pipework to the container for operation
- Container is self-supplied with compressed air, cooling water and air-conditioning; power is the only externally supplied element
- Future implementation of several advanced solutions for easy accessibility and quick assembly



### Vacuum Housing

A vacuum pump system consisting of nine modules connected in parallel; each module includes:

- A WS 2001 FU Roots Pump with a water-cooled motor, an electronic frequency converter for speeds up to 6,000 RPM and a Roots pump adapter
- A SCREWLINE SP 630 with SP-Guard for monitoring of important operating parameters
- A DN 500 Intake Manifold
- Weather protection roof for outdoor installation
- An electrical controller with PLC for speed control
- System controls via a touch panel
- Data communication with the customer's system controller via a ProfiBus interface



### PET extruder degassing

- Modern vacuum solutions for extruder degassing
- Stable, non-fluctuating vacuum supply
- Vacuum level is independent of climate or water temperature
- Pressure at venting/degassing dome can be regulated
- Minimal maintenance and service requirements
- Maintenance is reduced to a regular cleanings in parallel with dye cleaning
- Full maintenance (incl. pump cleaning) can be performed by trained users

- Safe system design, even for expected misuse as worst-case pumps and system components build up layers
- The easy maintenance concept enables users to perform service themselves, independent of external service providers
- Flexible use, additionally for other polymers with multi-purpose extrusion systems



## Systems + Solutions

### EXTRUVAC CP

Vacuum solutions for every application

- ✓ **Vacuum pumping systems used for processing plastics must have the ability to handle solids and liquids in a reliable and efficient way, providing vacuum on demand while ensuring control and reducing environmental impact with a low cost of ownership**

#### Your needs:

- Low cost of ownership
- Vacuum solutions for controlling and reducing environmental pollution
- Safe, high-quality, reliable and cost-effective designs
- 'Plug and Go' systems with minimal setup requirements or configurable options adapted to specific chemical processes

#### Our solutions:

- Automatic and manual control options - easy integration with your system
- Proven dry technology
- Kinder to the environment: dry pumps do not generate contaminated oil or water
- Rough to high vacuum pumping technologies for corrosion-free operation with the ability to handle liquids and solids
- Increased productivity between service intervals
- Affordable systems with low cost of ownerships
- Reduced installation, operation, service and maintenance costs



### RUTA System

Multistage fore vacuum systems

- ✓ **Reliable process engineering solutions since 1850, experienced in designing custom vacuum systems and controls**

#### Your needs:

- Professional consulting
- Design and delivery of demand-oriented and optimized vacuum systems
- Reliable engineering solutions

#### Our solutions:

- Custom designed fore vacuum pump systems
- Oil-sealed/Dry-compressing
- Pumping speeds and ultimate pressures adapted to the processes
- Additional high vacuum stages facilitating operating pressures down to  $10^{-7}$  mbar



## DRYVAC System

Dry-compressing pump systems

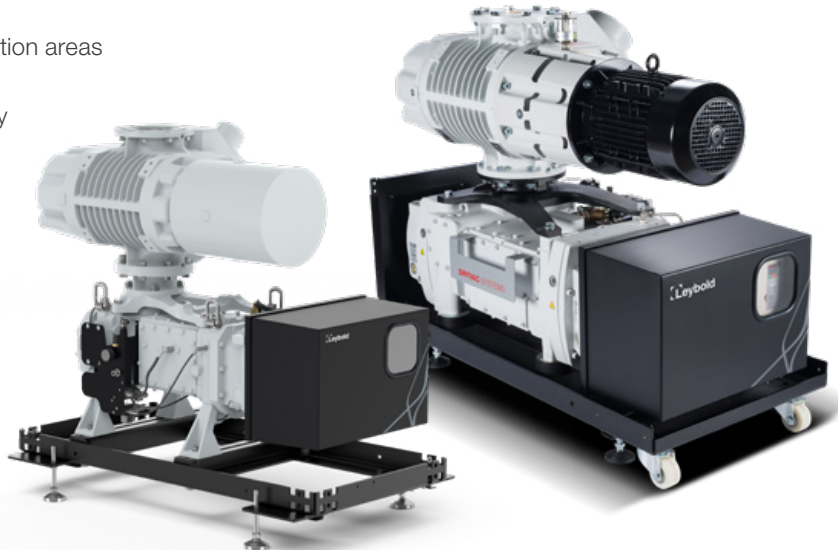
- ✓ **Leybold has refined its DRYVAC vacuum pump systems, giving them the ability to adapt to a variety of applications**
- ✓ **Basic and smart system configuration**

### Your needs:

- Maximum system availability
- Reliable engineering solutions
- Minimal footprint
- Self-protecting of the pump and easy communication

### Our solutions:

- Extremely compact design leaves more space in production areas
- Very low noise levels to improve working conditions
- Significant cost reductions through high energy efficiency
- Clean technology with no oil emissions
- Optimized for fast cycle / load lock applications
- Fastest pump down times via high throughput pump mechanisms
- High pumping speeds for dry and booster pumps
- Pumping speeds from 2,000 m<sup>3</sup>/h up to 9,800 m<sup>3</sup>/h
- Integrated smart monitoring of major parameters
- Standard Digital I/O interface and Profibus (optional) for the entire product family



## DRYVAC PowerBoost

Dry-compressing pump systems

- ✓ **Special optimized design for fast load lock pump-downs**
- ✓ **Equipped with an automatic cycle detection system**

### Your needs:

- Fast pump-down times
- High energy efficiency
- Low cost of ownership and initial investment
- Minimal footprint

### Our solutions:

- Integrated frequency converters
- Micro-controllers with touchscreens
- Digital I/O communication interfaces (DC37-P)
- Harting connections (power supply)
- Housings, castors and adjustable feet
- Water-cooling and lubrication via synthetic oil





## Systems + Solutions

### SOGEVAC / NEO D System

Oil-sealed standard vacuum systems

- ✓ **Combination of Dry-compressing roots pumps and oil-sealed rotary vane pumps**
- ✓ **Vacuum systems built with oil-sealed SOGEVAC pumps deliver an excellent cost vs. performance ratio for a wide range of industrial applications**

#### Your needs:

- Comprehensive consulting service
- Customer-specific application support
- Design and manufacture of custom vacuum solutions
- Flexibility and reliability
- Efficient solutions

#### Our solutions:

- Tailor-made concepts based on customer specifications
- Engineering, production and service centers around the world
- Global project coordination
- Continuous product improvements and innovations
- On-site setup and training



### CVS

Central vacuum stations

- ✓ **Modular systems for improved operational reliability in frequently varying vacuum consumptions**
- ✓ **Delivery of tested, turnkey and ready-to-operate units**

#### Your needs:

- Industrial grade vacuum pumps
- Individually and simultaneously meeting the demands of numerous small vacuum consumers
- Excellent vacuum performance data
- Modular design for adapting to specific processes

#### Our solutions:

- Typically consisting of SOGEVAC pump(s), a buffer vessel, an electrical cabinet with controller and all connecting components
- Pumping speeds of 25 to 840 m<sup>3</sup>/h
- Ultimate pressure ≤ 0.5 mbar
- Vessel volumes of 60, 160, 300, 500 or 1,000 liters
- Electric power from 0.8 to 18.9 kW
- Basic or full-featured controls
- Low cost of ownership





## **TURBOLAB and TURBOLAB Core**

High vacuum pump systems

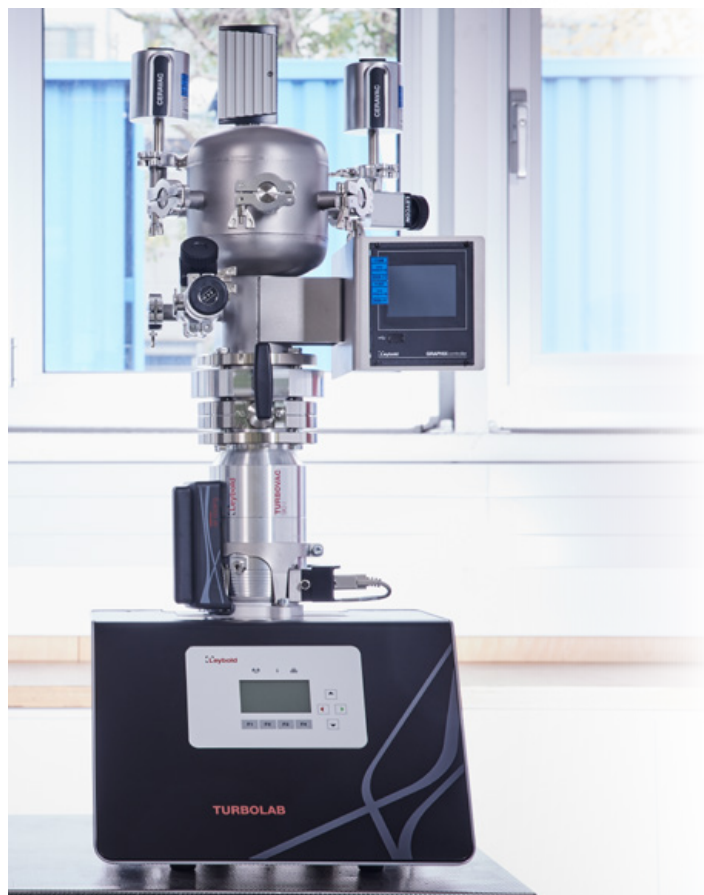
- ✓ **Plug-and-go high vacuum pump systems built with time-proven components**
- ✓ **Various configurations available to meet individual vacuum demands**

### **Your needs:**

- High vacuum pump systems for industry and research
- Choice of fore vacuum pumps; from the oil-free SCROLLVAC 3S, or oil-sealed and dry compressing hydro-carbon options available
- Compact and user-friendly solution

### **Our solutions:**

- Pumping speeds of 78 - 925 l/s provided by the TURBOVAC i pump range
- Ultimate vacuum down to  $10^{-10}$  mbar
- 100% preassembled units with turbomolecular pump, TPU display power unit, frequency converter and fore vacuum pump
- Easy to relocate pumps out and away from the frame
- Backlight display in an innovative TPU power unit
- The ability to cover many applications with a full line of high vacuum and wet or dry fore vacuum pumps
- Integrated data logger and webserver for system control, monitoring and configuration
- Connection of up to six accessories and two gauges
- Benchmark design, reliability and functionality



## **CS Calibration System**

Custom vacuum calibration systems

- ✓ **Process reliability via regular checks, adjustments and recalibration of vacuum gauges and sensors**

### **Your needs:**

- Vacuum gauge checks
- Precise calibration of vacuum gauges in accordance with DAkkS (a nationally-recognized accreditation body in the Federal Republic of Germany)
- Reproducible parameters

### **Our solutions:**

- Universal calibration systems with a special vacuum chamber, turbomolecular pump system, vacuum gauges and additional components, depending on the calibration pressure

## Systems + Solutions

### UNIVEX

Experimentation and coating systems

- ✓ **Easy operation and accessibility of vacuum chambers**
- ✓ **Manual or automatic process control and documentation**

#### Your needs:

- Flexible vacuum coating laboratory systems
- University and industrial research systems
- Results transferable to large scale systems or serial production
- A high level of reproducibility

#### Our solutions:

- Multi-purpose systems for the production of functional layers
- Modular system configurations with a wide range of accessories
- Customized system solutions
- Variable chamber sizes





## UNIVEX S

### Space simulation systems

- ✓ **Flexible solutions for various space applications**
- ✓ **Highest reliability for uninterrupted test cycles**

#### Your needs:

- Highly accurate simulation of space conditions
- Reliable equipment for uninterrupted test cycles
- A configurable/extendable equipment platform
- Universal usability in the R&D and space industries

#### Our solutions:

- An extensive portfolio for thermal cycling, ion thruster testing, MLI-blanket baking etc.
- Optimized layouts in terms of vacuum performance and temperatures
- Automatic process controls and data logging
- Platform design with wide range of accessories
- Customized configurations for intensive use





## Service





## Easy, competent, reliable

### We are where you are

With our comprehensive range of innovative service solutions, we offer excellent support for your Leybold vacuum pumps and we are committed to:

- **Providing you with a reliable, first-class service throughout your pump's life cycle, no matter where in the world it is installed**
- **Maximizing your pump's uptime and ensuring it gets the best possible service**
- **Offering you specialist support with preventive maintenance and repairs**

Read on to find out more about our complete range of vacuum pump services and how our specialists can help you. The rewards are high uptimes, low running costs and longer lifecycles.



## Service



### SERVICEPLANS

Our full range of serviceplans are designed to ensure the lower total cost of ownership of your pumps, maximizing their performance and uptime. From preventive maintenance plans to warranty extensions, we offer you customized solutions that let you focus fully on your production by providing a perfect match to your needs.



### COMMISSIONING

We are here to ensure your equipment is set up and commissioned the right way. Working with you on-site, our dedicated vacuum specialists provide the reassurance that your set-up is off to a strong start during this important step, ensuring optimal performance of your productive process.



### VACUUM GAUGE CALIBRATION

Profitability and credibility of process are two of the most important aspects of production. Accurate gauge calibration is necessary to maintain both. We offer application-specific gauge calibration that comprises three levels: Certified, Factory, and Alignment. Choose the level that suits your application and avail of a range of benefits.



### SPARE PARTS AND KITS

Our genuine spare parts fit your vacuum pump perfectly to ensure high reliability, performance, and a long service life. To ease your workflow and ensure you have everything you need for your pump, we put together spare parts kits for specific maintenance activities.



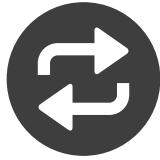
### SERVICE TECHNOLOGY CENTER

Fully equipped to handle pumps from every kind of application, even the harshest, our service technology centers are ready to service your pumps. From preventive maintenance to repair, we offer transparent fixed-price solutions and the capability to do anything your pump requires.



### FIELD SERVICE

Our team of vacuum pump experts come to your site to perform maintenance on your pumps, whether it is routine service or troubleshooting. Competent, reliable and there for you, they know what your pumps need to perform flawlessly at their best.



### EXCHANGE SERVICE

Our Exchange Service helps you achieve your service needs maintaining your operational uptime and eliminating the risk of production downtime. We provide you a fully tested refurbished functional pump that is identical to your pump which comes with 12 month comprehensive warranty at a fixed price, thus eliminating any risk and securing your production uptime.



### CERTIFIED PRODUCTS

Our wide range of certified products come with the assurance of quality, reliability and performance; plus, they cost less. They are overhauled at our fully equipped facilities, quickly delivered, and under warranty. Our professional factory-trained service technicians use genuine Leybold spare parts to refurbish all units.



### GENIUS INSTANT INSIGHTS™

Our connectivity solution offers you 24/7 remote mobile access to your vacuum pumps. Alarms on failures, service maintenance, insights on up-time and energy consumption are all transparent on the GENIUS Portal. With GENIUS you can set up real time notifications about important events coming from the vacuum system, giving you the opportunity to avoid costly downtime and production losses – it has never been so convenient and easy to have a healthy and reliable vacuum pump installation.



### LEYBONOL VACUUM PUMP OIL

LEYBONOL has been specially formulated to achieve high performance for your pump. The premium quality of LEYBONOL ensures long oil exchange intervals and reduces power consumption as well as wear and maintenance costs. Our certified oils keep your production running and extend your pump life expectancy.

**You can find the correct oil for your pump using the Oil finder:**





## Service

### HealthCheck PRO

Our approach to keep your vacuum pumps always in best shape. With HealthCheck PRO, we perform regular assessment to the pumps, it consists of non-invasive inspection of parts, connections, damages and vibration measurement, HealthCheck PRO allows customers to identify early deviations on pumps condition that could lead to major failure and jeopardize production output, moreover, customer will get detailed report with all recommendations needed to act preventively.



**For effectiveness, HealthCheck PRO visits should take place twice per year, during normal service intervals.**

More scenarios where you can benefit from HealthCheck PRO:

- **Pumps with long interval between maintenances**
- **Pumps running in harsh applications**
- **After long standstill period**
- **Back up pumps**
- **When looking for condition-based maintenance**





## Vacuum academy

Vacuum technology seminars

- ✓ **Qualified training of your staff through practical knowledge transfer**
- ✓ **Provides best possible performance and equipment uptime**

### Your needs:

- Understand vacuum technology
- Get practical and hands-on training

### Our solutions:

- Systematic training covering the entire spectrum of vacuum technology
- Vacuum basic seminar for technicians and engineers
- Leak detection – Basic and Advanced seminars
- Practical seminars on request
- Customer specific seminars – tailored to your individual needs





## Controllers and calculation tools

### Controllers

Innovative pump and system management

- ✓ **Tailor-made controllers and control systems adapted to customer and process requirements for optimum performance and user convenience**

#### Your needs:

- Customer specific system interfaces
- Simple to complex visualization
- Power distribution integrated within the system
- Convenient control of all system components

#### Our solutions:

- Control and data acquisition of system parameters via digital I/O interfaces or bus systems, Ethernet, Profibus, RS 232, WiFi, GSM, for example
- Implementation of custom software programming
- Simple digital display via touch panel up to visualization on mobile devices (via apps)



### LEYCALC

Smart online vacuum system calculation tool

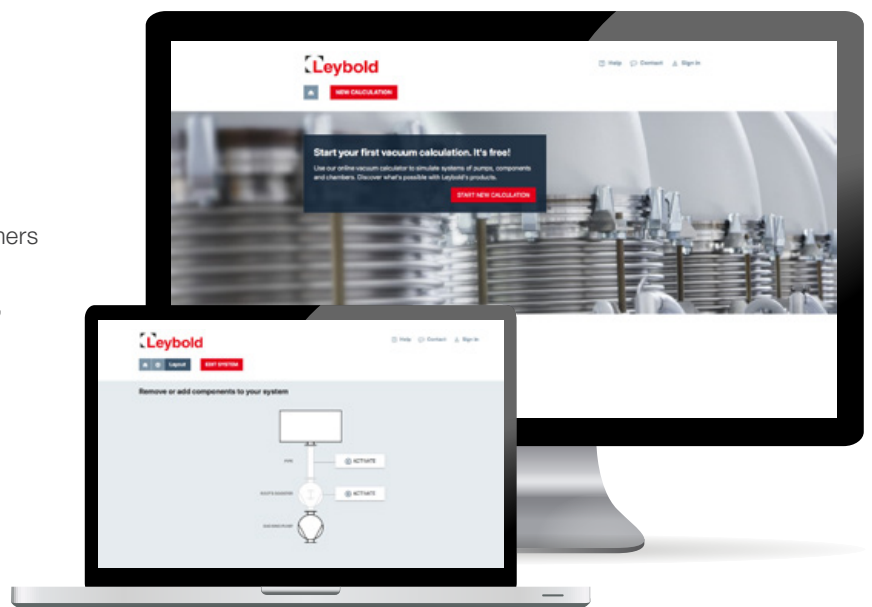
- ✓ **New online tool to help with modeling vacuum systems for various applications, selection and implementation of vacuum pumps and measurement equipment**
- ✓ **With this new web-based tool, users can select and compile their vacuum solutions online**

#### Your needs:

- Vacuum system calculation tool able to simulate typical vacuum installations
- Easy to use
- Trustworthy results as basis for decision making

#### Our solutions:

- We make our expert tools available for our customers
- Simple handling, intuitive navigation
- Further access to our expert network on demand, e.g for simulation of complex systems
- Proven calculation results, based on Leybold's long time practical experience





## Belt-Tuner app

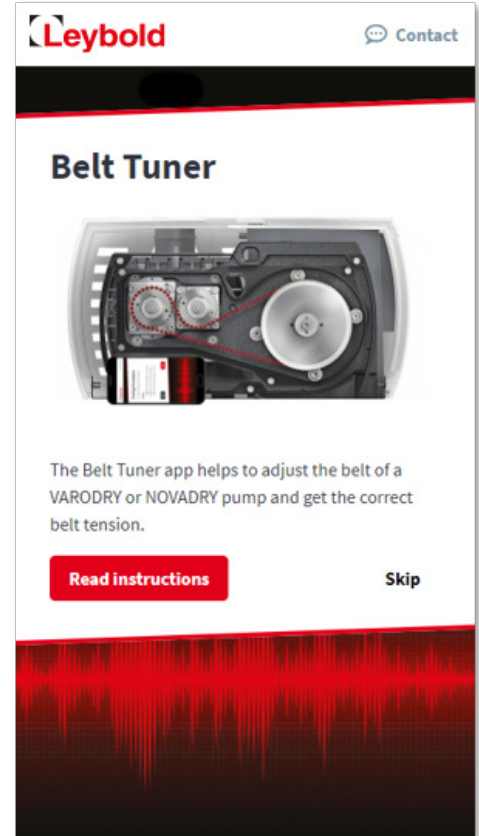
A smart tool that helps you to adjust the belt of your VARODRY & NOVADRY

- ✓ **Smart belt tuning of the innovative VARODRY & NOVADRY belt drive**
- ✓ **Offline & Online belt tuning with additional maintenance details**

### Our solutions:

- Easy maintenance: the app can be used offline and online and provides all info needed for easy belt tuning
- Cost effective: the belt tuner is free of charge
- Smart control: further insights like detailed instructions and data for further improvements

Learn more and  
check your pump  
within seconds on:  
[sound.Leybold.com](https://sound.leybold.com)



## Sound analyzer app

Immediate feedback on your pump's status

- ✓ **Lay back and analyze your pump's status with a simple sound file**
- ✓ **Check out our new sound analyzer app for our NOVADRY and VARODRY pumps**

### Our solutions:

- No downloads or installations required
- Perform the sound analysis with five clicks at [sound.leybold.com](https://sound.leybold.com)
- Condition of the bearings, gears and hence the belt can be recorded
- Results available within ten seconds
- Direct contact to our service & support team



## Online shop

### leyboldproducts.com

- ✓ Shop vacuum technology online
- ✓ Available in more than 12 countries worldwide

#### Your needs:

- Easy order process
- Secure payment options
- Large product range, fast delivery

#### Our solutions:

- Purchase low-consultation vacuum components like fittings, measuring instruments, pumps, spare parts, vacuum oils, lubricants.
- Payment by invoice, credit card or pre-payment
- Order online 24 hours a day

