



# Product Overview 2020

Innovative Vacuum Pumps,  
Systems and Components  
for Diverse Applications

# Product Overview 2020

## The entire world of vacuum

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# Product Overview 2020

## The entire world of vacuum

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# Product Overview 2020

## Oil Sealed Vacuum Pumps

### **SOGEVAC B/BI/D/DI**

Single-stage rotary vane pumps



Effective investment, long service life. No oil loss, low power consumption.

#### **Your Expectations:**

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

#### **Our Solution:**

- Pumping speed 10 to 1,200 m<sup>3</sup>/h
- Ultimate pressure  $\leq 5 \cdot 10^{-2}$  mbar
- O<sub>2</sub>-compatible versions
- Separate standard product line for the food and packaging applications
- Flexible pump design
- Quietest pumps on the market and oil loss below 1 ppm
- Certified according to ATEX directive 2014/34/EU

### **SOGEVAC NEO D**

Medium vacuum rotary vane pumps



No oil loss thanks to integrated exhaust filter. Effective investment. Maintenance free, up to 3 years in clean applications.

#### **Your Expectations:**

- Low cost medium vacuum pumps
- No oil loss at exhaust
- Longest possible maintenance intervals
- Monitoring possibilities
- Broad portfolio, also for special demands (e.g. O<sub>2</sub>, ATEX)

#### **Our Solution:**

- Pumping speed 16 to 76 m<sup>3</sup>/h, all sizes available for single or 3 phase power supply
- Ultimate pressure  $\leq 8 \times 10^{-3}$  mbar
- Integrated exhaust filtration. Oil loss below 1 ppm.
- Use of long lifetime oils and dynamic shaft seals
- O<sub>2</sub>-compatible versions
- Certified according to ATEX 2014/34/EU versions Cat 3
- Flexible pump design for accessories retrofit or dedicated customer variants

# Product Overview 2020

## Oil Sealed Vacuum Pumps Oil Sealed Vacuum Systems

### TRIVAC B, E and T

Dual-stage rotary vane pumps



A well-proven vacuum pump for long-term operation lasting for years. Broad range of accessories.

#### Your Expectations:

- Rugged vacuum generator
- High reliability
- ATEX explosion protection, optional

#### Our Solution:

- Pumping speed  
TRIVAC B: 4 to 65 m<sup>3</sup>/h  
TRIVAC E: 2.5 m<sup>3</sup>/h  
TRIVAC T: 4 to 30 m<sup>3</sup>/h
- Ultimate pressure  
TRIVAC B: 10<sup>-4</sup> mbar  
TRIVAC E: 2 x 10<sup>-3</sup> mbar  
TRIVAC T: 5 x 10<sup>-3</sup> mbar
- For medium and high vacuum applications
- Economic OEM product range (TRIVAC T)
- Certified according to ATEX directive 2014/34/EU (TRIVAC B)



### 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 Expectations:

- Industrial grade vacuum generator
- System solutions to cover varying vacuum demands
- Set point operation
- Simple operation

#### Our Solution:

- Highly efficient oil-sealed rotary screw technology
- Variable pumping speed, up to a maximum of 4980 m<sup>3</sup>/h
- Ultimate pressure of 0.35 mbar
- Integrated frequency inverter for load depending speed control
- Sustainable power saving due to on-demand vacuum generation
- Controller with intuitive menu navigation for configuration and control
- Small footprint
- Programmable operation modes
- Plug and play system set up
- Long maintenance intervals

# Product Overview 2020

## Dry Vacuum Pumps

### SCROLLVAC plus

Oil-free scroll pumps



Dry, universal solution, low operating costs.

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**Your Expectations:**

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

**Our Solution:**

- 4 speed variants SCROLLVAC 7, 10, 15 and 18 plus
  - Single phase and three phase available
  - Robust, low-maintenance design
- 

### ECODRY plus

Dry compressing multi-stage roots pumps



Compact vacuum pumps with low noise emission for clean applications.

---

**Your Expectations:**

- Noise-free and clean environment
- Easy handling
- High energy-efficiency
- Maintenance-free pump

**Our Solution:**

- Pumping speed up to 65 m<sup>3</sup>/h
  - Lowest noise level in class
  - Air-cooled pump
  - Oil and particle-free operation
- 

### VARODRY

Dry compressing screw pumps



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

---

**Your Expectations:**

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

**Our Solution:**

- Pumping speed 65, 100, 140 and 180 m<sup>3</sup>/h
  - Ultimate pressure  $\leq 1 \cdot 10^{-2}$  mbar
  - Fully air-cooled design, no need for water cooling
  - Minimum maintenance demands
  - Most robust pump design
-

# Product Overview 2020

## Dry Vacuum Pumps

### CLAWVAC

Oil free claw pumps



Compact rough vacuum pump for demanding industrial applications including handling of particle and vapor contaminated gases. Trouble-free and cost-saving.

#### Your Expectations:

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

#### Our Solution:

- Pumping speed 65 to 300 m<sup>3</sup>/h
- No oil migration into process, no oil contamination to the environment
- Extremely efficient air cooling, low heat emission. No cooling water required.
- Corrosion resistant stainless steel claws
- Simple and easy to clean on-site
- Up to 50% energy saving by operation with variable speed drive

### CLAWVAC System

Rough vacuum system



The new benchmark in rough vacuum systems. CLAWVAC systems are ideal, if the application requires a high level of redundancy and robustness controlled on a smart way.

#### Your Expectations:

- High and oil free vacuum demand, on all pressures
- Robust and redundant solution
- Long maintenance intervals

#### Our Solution:

- Varying pumping speed, up to maximally 1144 m<sup>3</sup>/h
- Ultimate pressure of 150 mbar
- Smartly and redundant controlled
- Corrosion resistant pumping chamber with stainless steel rotors
- Simple and easy to clean on-site
- No oil migration into the process, no oil contamination to the environment

# Product Overview 2020

## Dry Vacuum Pumps

### LEYVAC

Dry compressing screw pumps and systems



Rugged vacuum pumps for rough applications and high process throughputs. Simple vacuum performance upgrade with RUVAC roots pumps.

#### Your Expectations:

- Industrial vacuum generator
- Long system uptimes
- High pumping speed already at atmospheric pressure

#### Our Solution:

- Pumping speed 80 to 160 m<sup>3</sup>/h
- Ultimate pressure  $\leq 1 \cdot 10^{-2}$  mbar
- Hermetically sealed pump
- Direct connection of RUVAC Roots pumps via adapter

### SCREWLINE

Dry compressing screw pumps



Extremely robust for harshest industrial applications, simple on-site maintenance.

#### Your Expectations:

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

#### Our Solution:

- Pumping speed 250 and 630 m<sup>3</sup>/h
- Ultimate pressure  $\leq 1 \cdot 10^{-2}$  mbar
- Expandable to pump systems by adding Roots pumps
- Monitoring system
- Easy to disassemble pump chamber for rapid cleaning
- Certified according to ATEX directive 2014/34/EU

# Product Overview 2020

## Dry Vacuum Pumps

### DRYVAC

Dry compressing screw pumps and systems



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

#### Your Expectations:

- Maximum system availability
- Low cost of ownership
- Minimum footprint
- Self protection of the pump and easy communication

#### Our Solution:

- Pumping speed 200 to 9.800 m<sup>3</sup>/h
- Guarantees highest uptime by robust and proven design
- Proven in harsh applications
- Higher production yield and longterm stable pumping speed
- Benchmarking energy savings by sophisticated rotor design
- Easy installation by most compact design
- Quiet - less noise load at production
- Intelligence on board - easy control and self monitoring by integrated FC
- Dry solution for every application



### DRYVAC Energy Saver

Power saving unit for DV 450 / DV 650 and DS systems



Fast ROI (approx. 1 year) with power savings up to 50%.

#### Your Expectations:

- Cost savings through reduction of energy consumption
- Improved ultimate pressure

#### Our Solution:

- Power savings up to 50% at inlet pressures < 5 mbar
- Ultimate pressure improvements by 1 decade
- For all pumps and systems with LEYBONOL LVO 210
- To be used in applications with non-flammable gases or oxygen concentrations ≤ 21%

# Product Overview 2020

## Rough Vacuum Electronics

### **EControl**

Smart rough vacuum control



EControl creates an interconnected system of multiple pumps, ideally with Variable Speed Driven pumps but also Fix Speed or even competitor pumps could be controlled.

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#### **Your Expectations:**

- Cost optimizations via energy savings
- Cost optimizations based on reductions in maintenance
- A solution easy to use and install

#### **Our Solution:**

- Maintenance optimization mode
  - Energy saving mode
  - Or best of both
  - Plug and play set-up
- 

### **ELEC CAB**

Smart power supply and vacuum control



ELEC CAB is a complete solution to upgrade your favorite vacuum pump(s) and electrical control towards an intelligent version.

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#### **Your Expectations:**

- Cost optimizations via energy savings
- Improved uptime
- A solution easy to use and install

#### **Our Solution:**

- Complete solution, including components for the electrical control
  - Integrated Variable Speed Drive for load depending speed control
  - Sustainable power saving due to on-demand vacuum generation
  - Controller with intuitive menu navigation for configuration and control
  - Programmable operation modes
  - Plug and play system set-up
-

# Product Overview 2020

## Roots Vacuum Pumps

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

Roots blowers



Long-lasting and reliable. Easy connection to any forevacuum pump.

#### Your Expectations:

- Pumping speed increase at low pressures
- Simple to use
- Oil-free pumping of the gas
- ATEX explosion protection

#### Our Solution:

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

### RUVAC WH(U)

Roots blowers



An innovative product line, efficient and cost-effective for use in modern Process Industry applications.

#### Your Expectations:

- Flexible pumping speed through frequency converter operation
- Rapid pumpdown times
- Compact design
- Oil-free pumping of gases
- System compatibility
- Low current consumption

#### Our Solution:

- Pumping speed from 720 to 9,800 m<sup>3</sup>/h (with frequency converter)
- Excellent performance and consumption specifications
- Hermetically sealed drive motor
- Small footprint
- Innovative bypass valve
- Certified according to ATEX directive 2014/34/EU, partially also according to ATEX Cat 2i
- Direct connection of large forevacuum pumps via adapter

# Product Overview 2020

## Fluid Entrainment Pumps

### Oil Booster OB

Oil vapor jet pumps



Long maintenance intervals, wear-free. High safety standard.

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#### Your Expectations:

- High vacuum
- Very high critical backing pressure capability
- High pumping speed
- Safe and economic
- CE compliant electronics power supply

#### Our Solution:

- Pumping speed: 6,000 to 18,000 l/s
  - Operating range:  $< 10^{-1}$  to  $10^{-4}$  mbar
  - Stable pumping speed in low pressure ranges
  - No wear by revolving parts
  - Small footprint
  - Simple operation
- 

### DIP / DIJ

Oil diffusion pumps



Long maintenance intervals, wear-free, high safety standards.

---

#### Your Expectations:

- Stable high vacuum
- High critical backing pressure capability
- High pumping speed
- Safe and economic
- CE compliant electronics power supply

#### Our Solution:

- Pumping speed:
    - DIP: 3,000 to 50,000 l/s
    - DIJ: 2,800 to 28,000 l/s
  - Operating range:
    - DIP:  $< 10^{-2}$  to  $10^{-7}$  mbar
    - DIJ:  $< 10^{-2}$  to  $10^{-7}$  mbar
  - Optimum pumping speed in the pressure range  $< 10^{-4}$  mbar
  - No wear by revolving parts
  - Simple operation
  - Innovative power efficiency controller (ROI  $< 2$  years)
-

# Product Overview 2020

## Controller for Fluid Entrainment Pumps

### Power Efficiency Control

Control unit for oil diffusion pumps and OB pumps



Fast ROI (< 2 years) with power savings up to 30%.

Easy and convenient to use. Optimized power and oil consumption data.

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#### Your Expectations:

- Cost savings through reduction of energy consumption
- Simple to use
- PLC controlled

#### Our Solution:

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

# Product Overview 2020

## Turbomolecular Pumps

### TURBOVAC i/iX

Turbomolecular pumps with hybrid bearing technology



Innovative and flexible product range with outstanding performance data and integrated electronics.

#### Your Expectations:

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

#### Our Solution:

- Pumping speed up to 440 l/s
- Oil free hybrid bearings (mechanical/permanent magnetic)
- Installation in any orientation
- 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) to control and monitor the pump including connection facility for two pressure gauges available as accessory.



### TURBOVAC MAGiNTEGRA

Turbomolecular pumps, magnetically levitated



Most compact product line for industrial applications. On-board frequency converter and power supply. Easy and space-saving system integration.

#### Your Expectations:

- Clean high and ultrahigh vacuum generation
- Suitable for industrial use, like PVD and coating processes, display and glass coating
- Insensitivity to particles or deposits
- Low maintenance requirements

#### Our Solution:

- High pumping speed 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

# Product Overview 2020

## Cryo Pumps, Cold Heads

### COOLVAC

Refrigerator cryo pumps



High water vapor pumping capability, long maintenance intervals, installation in any orientation.

#### Your Expectations:

- Hydrocarbon-free vacuum
- High and ultrahigh vacuum generation

#### Our Solution:

- Pumping speed up to 60,000 l/sec
- DN ISO, CF and ANSI flange versions
- Two cryo pump versions for manual and for fully automatic system control and regeneration available
- Pump controller mounted on pump for fully automatically controlled iCL version for easy process and network system integration

### COOLPOWER

Cold heads for cooling cryo pumps/cryostats



Gas refrigerating machines for cryogenic temperature generation based on the Gifford-McMahon principle. Designed for cooling superconductors (magnets, samples) from medicine and research.

#### Your Expectations:

- High refrigerating capacity
- Small footprint
- Long maintenance-free operating time
- Low vibrations

#### Our Solution:

- Ultimate temperatures:
  - two-stage models down to 8 K
  - single-stage models down to 25 K
- High refrigerating capacity from the smallest volume:
  - 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
- Resistant to particles and deposits
- Simple operation by key-press
- No need for liquid helium and liquid nitrogen

# Product Overview 2020

## Ion Pumps

### TiTan™

#### Ion pumps



A full range of vibration-free and maintenance-free ion pumps, titanium sublimation pumps and NEG pumps to achieve best final pressures in the ultra-high vacuum.

#### Your Expectations:

- High pumping speed at ultra high vacuum
- Hydrocarbon-free vacuum
- Long operating time
- Complete solutions

#### Our Solution:

- Pumping speed 0.2 - 1,200 l/s
- Ultimate pressure  $< 1 \times 10^{-11}$  mbar
- Various TiTan™ pump elements for different requirements available:
  - TiTan™ CV with two cathodes for pumping air and reactive gases
  - TiTan™ DI with two elements for pumping air and reactive gases, noble-gas stable (titanium and tantalum)
  - TiTan™ TR - classic triode elements for higher pumping speed in high pressure ranges, noble gas stable
- TiTan™ and TSP components are bakeable up to 450 °C
- Wide range of accessories
- DIGITEL™ controller models for operation of ion pumps, TSPs and NEGs in diverse applications and configurations
- HV cables are available to connect your controller and ion pump
- Solutions of ion pumps with integrated NEG / TSP available



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# Product Overview 2020

## Vacuum Gauges, Vacuum Controllers

### Measuring Instruments

Vacuum gauges and pressure gauges



Reliable monitoring and control for all vacuum processes.

#### Your Expectations:

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

#### Our Solution:

- 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



### GRAPHIX

Vacuum controller



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

#### Your Expectations:

- Operation and control of the entire vacuum system
- Simple handling and operation (plug & play)
- Fast process data accumulation and transfer via USB to PC

#### Our Solution:

- Monitoring and control of the entire vacuum process
- Product range 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 data
- Readout selectable between mbar, Torr, Micron, Pascal, Psi
- Option to connect active vacuum gauges from various brands

# Product Overview 2020

## Leak Detectors

### PHOENIX 4

Leak detectors



The PHOENIX 4 product range sets new standards in Helium leak detection. Our product portfolio provides the perfect matching unit for every application.

#### Your Expectations:

- Non-destructive components testing for quality assurance
- Reliable technology
- Highest measurement reliability and accuracy
- Professional consulting and support

#### Our Solution:

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

### PHOENIX Cart

Mobile leak testing systems



The PHOENIX 4 carts offer a wide range of pre-designed combinations, fully assembled and leak-checked. Plug in and ready to start: Leak detection to-go.

#### Your Expectations:

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

#### Our Solution:

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

# Product Overview 2020

## 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, general gas analysis in research and industry or for environmental tracking.

#### Your Expectations:

- Most accurate residual gas analysis
- Easy operation
- Bake out possibility for high and ultra high vacuum applications

#### Our Solution:

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

### LEYSPEC Cart

Mobile residual gas analyzer system



Mobile Visibility. Fully integrated differential pumping system. Easy handling. Maximum flexibility.

#### Your Expectations:

- Mobile gas analysis system
- Complete independent pumping system
- Easily adaptable to a wide range of measurement tasks
- Operable at various pressures
- Rapid operational readiness

#### Our Solution:

- Independent pumping system with SCROLLVAC 7 plus and TURBOVAC 250i
- Integrated process control for quick and easy operation
- Easy and intuitive software for LEYSPEC RGA
- Completely integrated in an independently movable cart
- UHV needle valve for flexible operation at different pressure levels up to atmosphere

# Product Overview 2020

## Vacuum Solutions / Engineering

### Vacuum Systems

#### Engineering



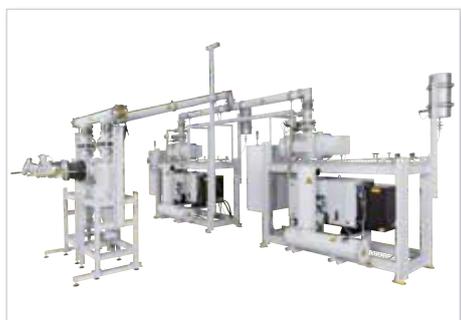
Vacuum solutions and systems of all kinds from the leading worldwide supplier. Benefit from our 170 years of experience.

#### Your Expectations:

- Comprehensive consulting service
- Customer specific application support
- Design and manufacturing of custom vacuum solutions
- High flexibility and reliability
- Efficient solutions

#### Our Solution:

- System solutions - tailor-made concepts based on customer specifications
- Integrated forevacuum and high vacuum pump systems for custom requirements
- Worldwide engineering, production and service centers
- Global project coordination
- Custom software programming and customization
- Constant product improvements and innovations
- On-site commissioning and training



### RUTA Vacuum Systems

#### Multistage forevacuum systems



Reliable process engineering solutions from over 150 years of experience in designing customized vacuum systems and custom controls.

#### Your Expectations:

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

#### Our Solution:

- Custom designed forevacuum pump systems
- Oil-sealed/dry compressing
- Pumping speed and ultimate pressures adapted to the process
- Additional high vacuum stages facilitate operating pressures down to  $10^{-7}$  mbar

# Product Overview 2020

## Central Vacuum Systems High Vacuum Pump Systems

### CVS

#### Central vacuum stations



Modular systems for improved operational reliability in frequent varying vacuum consumptions. Delivery of turnkey ready-to-operate and tested units.

#### Your Expectations:

- Industrial grade vacuum generator
- For covering demands of numerous small vacuum consumers individually and simultaneously
- Excellent vacuum performance data
- Modular design for customizing to customer specific processes

#### Our Solution:

- Typically consisting of SOGEVAC pump(s), buffer vessel, electrical cabinet with controller, all connecting components
- Pumping speed 25 to 840 m<sup>3</sup>/h
- Ultimate pressure  $\leq 0.5$  mbar
- Vessel volume 60, 160, 300, 500 or 1,000 liters
- Electric power from 0.8 to 18.9 kW
- Control type BASIC or Full Featured
- Low cost of ownership

### TURBOLAB

#### High vacuum pump systems



Plug-and-play high vacuum pump systems based on well-proven components. Different configurations available cover individual vacuum demands.

#### Your Expectations:

- High vacuum pump systems for industry and research
- Oil-sealed or dry compressing forevacuum pumps for a hydro-carbon-free vacuum possible
- Compact and user-friendly solution

#### Our Solution:

- Pumping speed 78 - 400 l/s provided by the TURBOVAC i pump range
- Ultimate vacuum down to  $10^{-10}$  mbar
- Completely preassembled units with turbomolecular pump, TPU display power unit, frequency converter and forevacuum pump
- Easy to relocate pumps out and away from the frame
- Backlight display in the innovative TPU power unit
- Covering a wide range of applications with a full range of high vacuum and dry or wet forevacuum 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

# Product Overview 2020

## High Vacuum Pump Systems Calibration Systems

### UNIVEX

Experimentation and coating systems



Easy operation and accessibility of vacuum chambers. Manual or automatic process control and documentation.

#### Your Expectations:

- Flexible laboratory systems for vacuum coating
- Systems for university and industrial research
- Results transferable to large scale systems or serial production
- High reproducibility degree

#### Our Solution:

- Multipurpose systems for the production of functional layers
- Modular system configuration, wide range of accessories
- Customized system solutions
- Variable chamber sizes

### Calibration Systems CS

Custom vacuum calibration systems



Process reliability by regular checks, adjustments and recalibration of vacuum gauges and sensors.

#### Your Expectations:

- Checking the characteristics of vacuum gauges
- Precise calibration of vacuum gauges in accordance with DAkkS (national accreditation body for the Federal Republic of Germany)
- Ensure reproducible parameters

#### Our Solution:

- Universal calibration systems with a special vacuum chamber, turbo-molecular pump system, vacuum gauges and additional components depending on the calibration pressure (heating jacket, separate pump system for admitting gas, et al.)

# Product Overview 2020

## Controllers for Vacuum Systems Online System Calculation Tool

### Controllers

Innovative pump and system management



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

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#### Your Expectations:

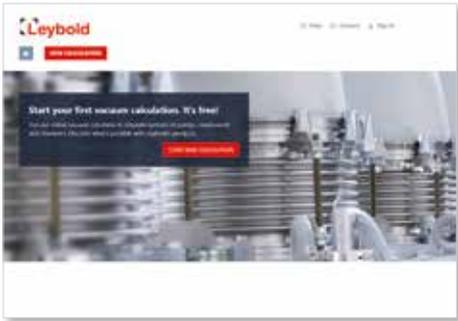
- Customer specific system interfaces
- Simple to complex visualization
- Power distribution integrated within the system
- Convenient control of all system components

#### Our Solution:

- 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)
- 

### Calculator

Smart online vacuum system calculation tool



<https://calc.leybold.com/en/>

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

---

#### Your Expectations:

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

#### Our Solution:

- 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
-

# Product Overview 2020

## Valves Fittings

### LEYCON

Valves in different design types and driving modes



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

---

#### Your Expectations:

- Reliable leak tightness
- High number of actuations
- Simple to fit and remove
- Delivery from a single source

#### Our Solution:

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

### Flange systems

Connection components



Well proven and widely used technology. Almost any connection possible.

---

#### Your Expectations:

- Simple to fit and remove
- Reliable leak tightness
- High class materials, top quality
- Delivery from a single source

#### Our Solution:

- ISO-KF style 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
-

# Product Overview 2020

## Vacuum Oils and Pump Fluids Spare Parts

### LEYBONOL

Vacuum oil, pump fluids and special lubricants



Broad product portfolio for every application in practical container sizes. Guaranteed, constant quality for a long pump lifetime.

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**Your Expectations:**

- High quality lubricant with long lifetime
- Excellent vacuum performance
- Reliable pump fluids for diffusion pumps

**Our Solution:**

- Special vacuum oil for highest demands, qualified according to proven standards
  - Mineral, Ester, PAO special synthetic and PFPE oils for exchange intervals up to 3 years in clean applications
  - Ongoing quality monitoring
  - Oil analysis services for process control and optimization
- 

### Spare Parts

Genuine wear parts and consumables



Original spare parts for long and trouble-free operation.

---

**Your Expectations:**

- Guaranteed availability
- Highest manufacturer quality
- Short delivery times

**Our Solution:**

- Range for all commonly requested spare and wearing parts, widely available in practice-oriented parts kits
  - Spare parts are subject to the same rigorous quality requirements which apply to our pumps
-

# Product Overview 2020

## Global Support After Sales Support

### Leybold

Consulting, sales and service



Your partner for vacuum engineering. Benefit from our worldwide support.

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#### Your Expectations:

- First-class consulting
- Excellent product quality at optimized price-to-performance ratio

#### Our Solution:

- Worldwide sales and service network
  - Highly qualified and committed staff
  - Comprehensive consulting services
  - Customer specific application support
  - Highly reliable, top quality solutions
  - Competitive pricing
  - Certified in accordance with DIN ISO 9001/9002
  - After sales, application and production support
- 

### Leybold Service

Expert and reliable partner



Maintaining your uptime and reducing the risk of production downtime is critical. Wherever you are, Leybold is there to support you as your vacuum service partner. Our Field Service team and our fully equipped Service Technology Centers are at your disposal.

---

#### Your Expectations:

- Continuously running production
- Reliable vacuum performance
- Longer lifetime for your vacuum pumps

#### Our Solution:

- Complete portfolio of service products to ensure your vacuum pumps are regularly maintained
  - Long lasting partnership solutions to track and care for your vacuum systems
  - Unrivalled vacuum expertise by highly trained vacuum specialists
  - Professionally equipped Service Technology Centers which are able to handle even pumps from contaminated processes
  - Laboratories that can perform gauges calibration and measurement instruments with the highest accuracy and precision
-

# Product Overview 2020

## Online Shop VTS Academy

### Online Shop

[www.leyboldproducts.com](http://www.leyboldproducts.com)



Shop vacuum technology online. Available in more than 12 countries worldwide.

---

#### Your Expectations:

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

#### Our Solution:

- Purchase vacuum components which do not require consulting, such as fittings, measuring instruments, pumps, spare parts, vacuum oils, lubricants
  - Delivery with invoice, credit card or pre-payment
  - Order 24 hours online
- 

### VTS Academy

Vacuum technology seminars



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

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#### Your Expectations:

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

#### Our Solution:

- 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
-

# Leybold Services.

Easy, competent, reliable.



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