



## Rotary vane pumps and chemistry-HYBRID pumps

Powerful vacuum pumps down to  $10^{-3}$  mbar.  
Oil-sealed rotary vane pumps with large usable oil volumes.  
Chemistry-HYBRID pump as a combination of an oil-sealed  
rotary vane pump and a chemistry diaphragm pump for  
improved corrosion resistance.



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# Rotary vane pumps and chemistry-HYBRID pumps



## Vacuum for the laboratory

- VACUUBRAND® quality
- Ease of maintenance due to telescopic design
- Fine vacuum control packages
- Corrosion-optimized version

Our rotary vane pumps and chemistry-HYBRID pumps with comprehensive accessories are widely used in the fine vacuum range (1 -  $10^{-3}$  mbar). They are optimally designed for use in chemistry and physics, e.g. for lyophilization, distillations with Schlenk Lines or residual drying in drying ovens.

VACUUBRAND rotary vane pumps are suitable for use wherever a pressure range of a few mbar to  $10^{-1}$  (single-stage) or  $10^{-3}$  mbar (two-stage) needs be reliably achieved. The variety of models available enables the optimum vacuum pump to be selected in a practical and economical manner. The selection is based on the pumping speed and ultimate vacuum requirements of the particular application.

# Technical highlights

## Powerful and compact

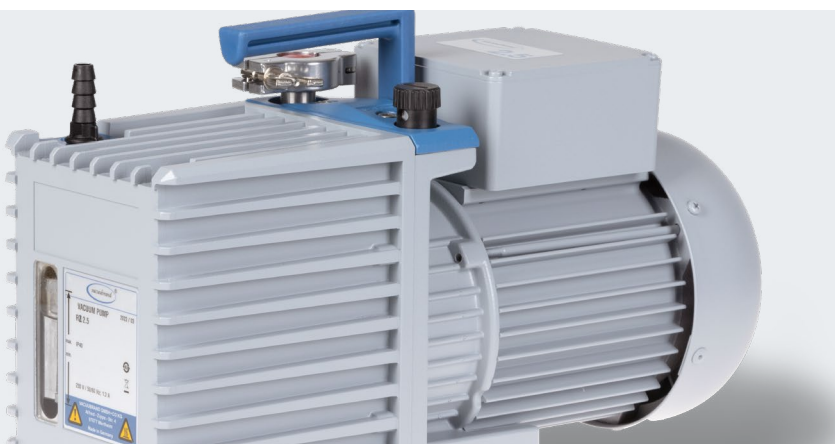
Powerful and compact – these are characteristics of our rotary vane pumps for a process vacuum of down to  $10^{-3}$  mbar. The special feature: Even when the gas ballast is open, they achieve a high vapor compatibility with a very good ultimate vacuum. You also benefit from extended oil change and maintenance intervals thanks to optimized circulating lubrication and a large usable oil volume.

## Measure and control

For vacuum measurement and control in the range down to  $10^{-3}$  mbar, we offer you first-class products and services to perfectly match with your rotary vane pump.

## HYBRID technology

Do you work with aggressive media? In this case, our chemistry-HYBRID pump offers a unique combination of rotary vane pump and chemical diaphragm pump for optimized corrosion resistance. The diaphragm pump permanently evacuates the oil reservoir to remove the corrosive vapors and condensate.



## Typical applications

- Lyophilization
- Distillation
- Schlenk Line
- Residual drying
- Vacuum concentrators
- Fore vacuum for high vacuum pumps

# Powerful and compact

What are the characteristics of rotary vane pumps from VACUUBRAND?  
They are both powerful and compact. The efficient gas ballast feature with a large gas ballast volume also provides high vapor tolerance for water and solvents. Even if the gas ballast is open, our rotary vane pumps provide a very good ultimate vacuum. They also provide optimized recirculating lubrication and a large usable oil volume.  
Your advantage: extended oil change and maintenance intervals.



## Performance features of rotary vane pumps and chemistry-HYBRID pump

- Wide bore vapor pathway allows high volume flow rates, even when close to the ultimate vacuum
- Quiet running and excellent ultimate vacuum, even with gas ballast
- Integrated anti-suckback valve prevents oil from returning when the system is at a standstill under vacuum
- Lubrication circuit, and large usable oil volume provides extended oil change and service intervals
- Ease of maintenance due to telescopic build design

# Measurement and control down to $10^{-3}$ mbar

For vacuum measurement and control in the range down to  $10^{-3}$  mbar, we offer you first-class products and services to match your rotary vane pump.

Our vacuum gauge VACUU-VIEW extended covers the extended measuring range from 1100 to  $10^{-3}$  mbar. The fine vacuum control packages include our versatile VACUU-SELECT vacuum controller and all the components you need for controlling your process in the fine vacuum range down to  $10^{-3}$  mbar.

## VACUU-SELECT

- Preconfigured control packages with all required components and connection parts
- Graphical user interface simplifies laboratory work
- Predefined applications for quick and guarantee reproducible results
- Application editor allows easy customization

## VACUU-VIEW extended

- Precision with chemical resistance in an exceptionally wide range from atmosphere down to  $10^{-3}$  mbar, one combined device for both rough and fine vacuum
- Compact design with integrated sensors for easy use and setup in laboratory and process applications
- The chemically resistant combination of ceramic diaphragm sensor and ceramic encapsulated Pirani sensor ensures a long, stable product life even with aggressive chemicals
- Illuminated display, easy to read
- Display with easy to use menu e.g. for unit settings



## DAkkS

VACUUBRAND operates a measurement laboratory accredited by DAkkS (Deutsche Akkreditierungsstelle GmbH) as a calibration laboratory for vacuum measuring instruments. It is authorised to perform calibrations for vacuum measuring instruments in the range of 1300 to  $10^{-3}$  mbar (abs.) and issue calibrating certificates..

VACUUBRAND's service offers DAkkS calibrations primarily for own products, but products from other manufacturers can also be calibrated.

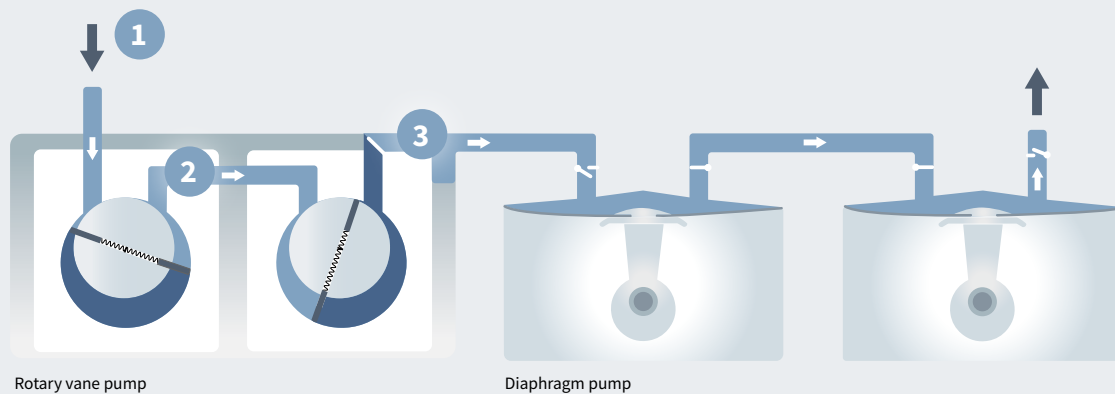
# HYBRID technology with optimized corrosion resistance

Do you work with aggressive media? Our RC 6 chemistry-HYBRID pump stands out due to its optimized corrosion resistance made possible from the unique combination of a two-stage rotary vane pump and a chemistry diaphragm pump. The diaphragm pump continuously maintains the oil reservoir under vacuum, thereby freeing it from corrosive vapors and preventing condensation.

The difference with conventional rotary vane pumps: condensate can form in the oil-sealed area of the pump. If the oil is diluted or chemically contaminated, it affects the functionality of the pump. Additionally, there is a risk of corrosion to the metal parts of the pump assembly.

## Performance characteristics of rotary vane pumps and chemistry-HYBRID pumps

- Wide bore vapor pathway allows high volume flow rates, even when close to the ultimate vacuum
- Quiet running and excellent ultimate vacuum, even with gas ballast
- Very high vapor tolerance due to continuous evacuation of the oil reservoir and optional gas ballast
- Integrated anti-suckback valve prevents oil from returning when the system is at a standstill under vacuum
- Lubrication circuit, and large usable oil volume provides extended oil change and service intervals
- Ease of maintenance due to telescopic design



- 1** Vapor is sucked in at low pressure and room temperature.
- 2** Vapor is heated to approximately 60°C through heat exchange and compression in the pump.
- 3** Chemistry-HYBRID pump: The diaphragm pump evacuates the vapors from the oil reservoir of the rotary vane pump. Condensation within the oil-free diaphragm pump is much less problematic in this case. In the oil-sealed part – especially in the oil reservoir – no condensation occurs under corresponding pressure and temperature conditions. Less condensate means less corrosion and longer oil life. Even with acidic vapors, corrosion in the oil reservoir is reduced.

# Variants

## Rotary vane pumps: Basic model

Oil-sealed rotary vane pumps with large usable oil volumes for applications in the fine vacuum range (1 to  $10^{-3}$  mbar).



## Rotary vane pumps: Models with accessories

Take advantage of our large selection of accessories: FO filters separate nearly 100% of oil mist at the ultimate vacuum of the pump. VS 16 valves are space-saving butterfly-type valves with high conductance. Our vacuum gauge VACUU·VIEW extended covers the extended measuring range 1100 to  $10^{-3}$  mbar. Packages for fine vacuum control include our versatile VACUU·SELECT vacuum controller and all the components you need for control in the fine vacuum range down to  $10^{-3}$  mbar.



## Chemistry-HYBRID pump: Basic model

Combination of oil-sealed rotary vane pump and chemistry diaphragm pump for improved corrosion resistance. The diaphragm pump permanently evacuates the oil and thus frees it from corrosive gases and vapors.



## Our latest technology: VACUU·PURE® screw pump

The most suitable pump for working with aggressive chemicals in the fine vacuum range down to  $10^{-3}$  mbar is the VACUU·PURE 10C screw pump. It is not only chemically resistant but also operates oil-free. For working with non-corrosive media, there is the specially designed VACUU·PURE 10 version.



Find the right vacuum pump with the Vacuum Pump Selection Guide!

[www.vacuubrand.com/vpsg](http://www.vacuubrand.com/vpsg)



# Rotary vane pumps: Basic model



Our oil-sealed rotary vane pumps are characterized by large usable oil volumes. The single-stage RE 2.5, RE 6, as well as the two-stage RZ 2.5 and RZ 6, are powerful rotary vane pumps, which are ideal for laboratory and industrial applications where a very good ultimate vacuum with moderate to high gas throughput needs to be achieved.

The single-stage RE 9 and the two-stage RZ 9 are powerful medium sized rotary vane pumps. They are ideal for laboratory and industrial applications requiring higher flow rates.

- High flow rates, even when close to the ultimate vacuum
- Very good ultimate vacuum even with gas ballast
- Vacuum-tight shut-off without in-line nozzle valve
- Long oil change intervals due to large usable oil volume
- Ease of maintenance due to telescopic design

Product name	Technical data
RE 2.5	3 x 10 <sup>-1</sup> mbar   2.3 m <sup>3</sup> /h
RE 6	1 x 10 <sup>-1</sup> mbar   5.7 m <sup>3</sup> /h
RE 9	1 x 10 <sup>-1</sup> mbar   8.9 m <sup>3</sup> /h

Product name	Technical data
RZ 2.5	2 x 10 <sup>-3</sup> mbar   2.3 m <sup>3</sup> /h
RZ 6	2 x 10 <sup>-3</sup> mbar   5.7 m <sup>3</sup> /h
RZ 9	2 x 10 <sup>-3</sup> mbar   8.9 m <sup>3</sup> /h



# Rotary vane pumps: Variants with accessories

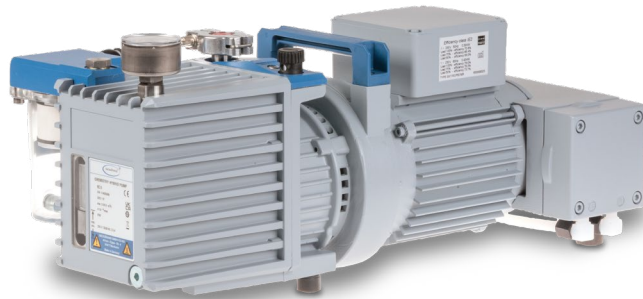


The RZ 2.5 and RZ 6 rotary vane pumps are available as useful packages with FO filter for oil mist separation (with integrated pressure relief valve) and manual in-line solenoid valve to reliably warm up the pump. A package with additional vacuum gauge VACUU-VIEW extended for fine vacuum is also an option.

- All the advantages of the basic model
- FO filters separate nearly 100% of oil mist at the ultimate vacuum of the pump
- VS 16 valves are space-saving butterfly-type in-line valves with high conductance
- Vacuum gauge VACUU-VIEW extended for fine vacuum enables reliable vacuum measurements across the entire range from atmospheric pressure to  $10^{-3}$  mbar
- Packages for fine vacuum control include our versatile VACUU-SELECT vacuum controller and all components necessary for fine vacuum control down to  $10^{-3}$  mbar

Product name	Technical data
RZ 2.5 +FO +VS 16	$2 \times 10^{-3}$ mbar   2.3 m <sup>3</sup> /h
RZ 6 +FO +VS 16	$2 \times 10^{-3}$ mbar   5.7 m <sup>3</sup> /h
RZ 6 +FO +VS 16 + VACUU-VIEW extended	$2 \times 10^{-3}$ mbar   5.7 m <sup>3</sup> /h

# Chemistry-HYBRID pump: Basic model



The RC 6 chemistry-HYBRID pump is the optimized corrosion resistant combination of a two-stage rotary vane pump and a chemistry diaphragm pump. The diaphragm pump continuously maintains the oil reservoir of the rotary vane pump under vacuum and prevents condensation in the oil-sealed part under corresponding pressure and temperature conditions.

Typical applications include lyophilization, distillation, vacuum drying ovens, and concentrators.

- Significantly reduced corrosion when working with aggressive vapors
- Considerably reduced waste oil generation due to extended oil change and maintenance intervals
- Ease of maintenance due to telescopic build design
- Most economical solution: in practical operation a cold trap is often no longer necessary

Product name	Technical data
RC 6	2 x 10 <sup>-3</sup> mbar   5.9 m <sup>3</sup> /h

# Screw pump: The oil-free and chemically resistant alternative

In rotary vane pumps, many parts are made of metal and can therefore corrode upon contact with chemicals. Additionally, the pumped gases come into contact with the pump oil. Oil vapors disrupt sensitive processes, and at the same time, the oil is diluted or chemically degraded by the pumped substances. When aggressive media are pumped, it is therefore advisable to always use a cold trap upstream to protect the pump from solvent vapors.

However, rotary vane pumps are not the optimal choice in such cases. An alternative is the previously described chemistry-HYBRID pump. It is the corrosion-optimized combination of a two-stage rotary vane pump and a chemistry diaphragm pump.

The most suitable pump for working with aggressive chemicals in the vacuum range down to  $10^{-3}$  mbar is the VACUU·PURE 10C screw pump. We recommend this pump because it is not only chemically resistant but also operates completely oil-free.

The screw pump VACUU·PURE® reliably delivers the benefits of oil-free vacuum technology down to  $10^{-3}$  mbar.

We listened to you: you asked for contamination-free vacuum that lets your clean processes run efficiently. Our team of experts developed VACUU·PURE for precisely these applications. Our dry screw pumps meet challenges where other technologies fall short.

For working with aggressive gases and vapors, the chemical-resistant version VACUU·PURE 10C is available.

For work with non-corrosive gases and vapors, there is the specially designed model VACUU·PURE 10.



[Learn more](#)

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**VACUUBRAND®**

VACUUBRAND is part of the Brand group, a manufacturer of high-quality and innovative laboratory equipment and vacuum technology with a global team of approx. 1,000 employees.

With highly motivated and qualified employees, we manufacture the world's most comprehensive product family for vacuum generation, measurement and control for the rough and fine vacuum range in the laboratory.

**All with one goal:**

Enabling our customers to run reliable, safe and efficient processes. This is why we commit ourselves to continuous innovation, first-class performance, and outstanding quality.

Engineering excellence is central to our ability to deliver products and solutions renowned for their quality, durability, and reliability. Innovative technology, high quality materials and extensive testing deliver unmatched performance - engineered and manufactured in Germany.

Together with you, our experts will find the best solution for your application and provide you with first-class service along the way.

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