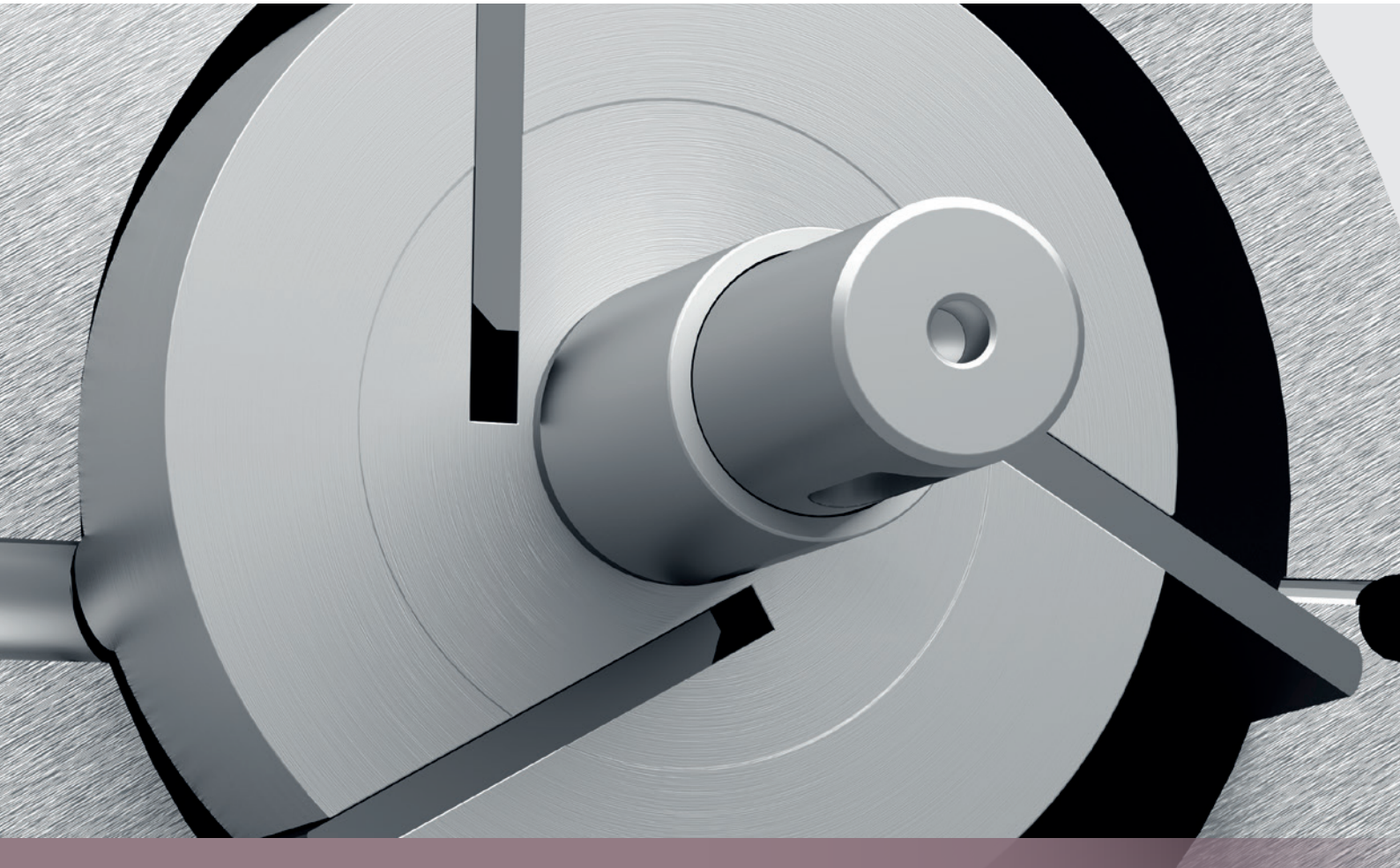


R 5 RA

Rotary Vane Vacuum Pumps

the Industry Standard for Countless Vacuum Applications



Rotary Vane Vacuum Technology by Busch





The Standard Solution for Industrial Vacuum Applications – Reliable, Flexible, Proven

› **Reliable:**

robust construction, reliable operation, proven performance, over 3 million pumps in operation

› **High Performance:**

high pumping speed and low ultimate pressure, designed for continuous operation

› **Flexible:**

application-oriented, various design options available, easy adaption to individual customer requirements and processes

› **Low Operating Costs:**

energy-efficient, optimum cost-benefit ratio

› **Easy Servicing:**

easy service routine

RA series vacuum pumps belong to the Busch product family of proven R 5 rotary vane vacuum pumps. They have been designed for a wide range of applications, such as vacuum packaging, food processing, pneumatic conveying and many more.

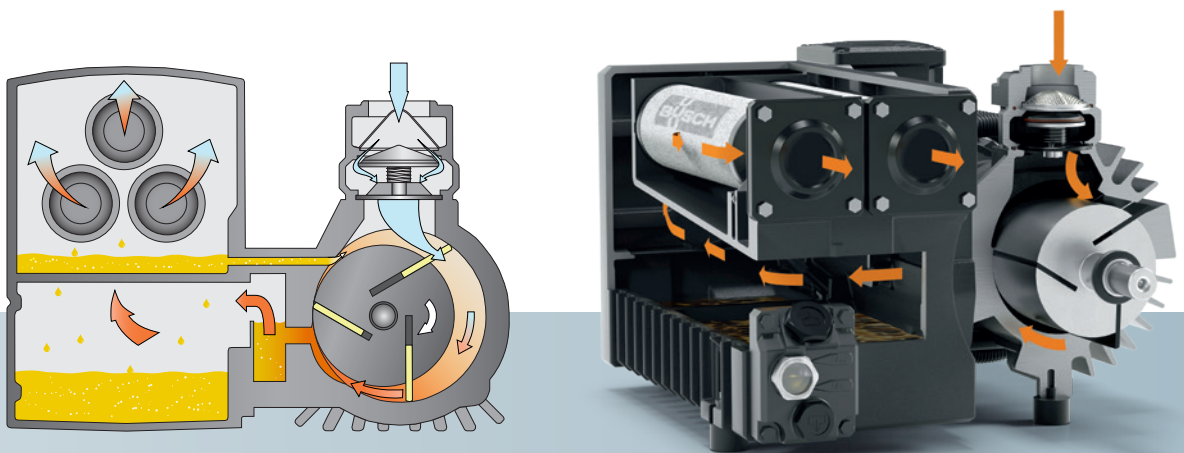
Robustness and reliability of operation are the outstanding qualities of R 5 rotary vane vacuum pumps. These are just some of the reasons why proven Busch rotary vane technology has long established itself as the industry standard. Over 3 million R 5 rotary vane vacuum pumps are in operation worldwide in industry every day.

Rotary vane technology has been continuously developed and optimized by Busch in the course of over 50 years, always with a strong focus on economy and reliability of operation. High efficiency is the benefit of this continual development.

R 5 rotary vane vacuum pumps are characterized by high pumping speeds even in low pressure ranges and therefore rapid evacuation times. They feature highly durable specially designed Busch vanes as standard, ensuring optimum performance together with long service life. The specially designed exhaust filters provide excellent oil separation.

Maintenance can easily be carried out by the operator. Apart from changing oil and filters at regular service intervals, no further maintenance is required.

R 5 rotary vane vacuum pumps stand for advanced and energy-efficient vacuum generation in a wide variety of applications in industry throughout the world. You can always rely on the R 5 – whether used intermittently or around the clock.



Technical specifications

Rotary vane technology is synonymous with a robust, functional construction. In a cylindrical housing a rotor with three vanes is mounted eccentrically. Due to centrifugal force the vanes slide out and form chambers between themselves and the housing. The pumped medium is trapped inside these three chambers. During further rotation, their volume is reduced constantly, thereby compressing the pumped medium and transporting it to the outlet. Recirculating oil-sealing guarantees outstanding running qualities and excellent sealing of the chambers. A sophisticated downstream oil separator segregates sealing oil and pumped air, ensuring efficient reuse of oil. When the vacuum pump is fitted with a gas-ballast valve, even large quantities of vapour can be extracted. A non-return valve in the inlet flange prevents the pumped medium from flowing back into the vacuum process after the vacuum pump is switched off.

Product Overview

R 5 RA Series Type



> R 5 RA 0010/0016 C

50 Hz Ultimate pressure: 0.5 hPa (mbar)
Nominal pumping speed: 10–16 m³/h

60 Hz Ultimate pressure: 0.5 hPa (mbar)
Nominal pumping speed: 12–19 m³/h



> R 5 RA 0025/0040 F

50 Hz Ultimate pressure: 0.1 hPa (mbar)
Nominal pumping speed: 25–40 m³/h

60 Hz Ultimate pressure: 0.1 hPa (mbar)
Nominal pumping speed: 30–48 m³/h



> R 5 RA 0063/0100 F

50 Hz Ultimate pressure: 0.1 hPa (mbar)
Nominal pumping speed: 63–100 m³/h

60 Hz Ultimate pressure: 0.1 hPa (mbar)
Nominal pumping speed: 76–120 m³/h



> R 5 RA 0155–0305, 0160–0302 D

50 Hz Ultimate pressure: 0.1 hPa (mbar)
Nominal pumping speed: 150–300 m³/h

60 Hz Ultimate pressure: 0.1 hPa (mbar)
Nominal pumping speed: 175–360 m³/h



> R 5 RA 0400–0750 C/A

50 Hz Ultimate pressure: 0.1 hPa (mbar)*
Nominal pumping speed: 410–750 m³/h

60 Hz Ultimate pressure: 0.1 hPa (mbar)*
Nominal pumping speed: 480–750 m³/h

*R 5 RA 0750 A: 0.08 hPa (mbar)



> R 5 RA 1000/1600 B

50 Hz Ultimate pressure: 0.3 hPa (mbar)
Nominal pumping speed: 1000–1600 m³/h

60 Hz Ultimate pressure: 0.3 hPa (mbar)
Nominal pumping speed: 1200–1800 m³/h

> R 5 – proven and reliable.
Over 3 million pumps
in operation worldwide.



Technical Features

R 5 RA

1 Excellent performance

Proven rotary vane technology

- High pumping speeds even in low pressure ranges
- Perfectly synchronized components and materials
- Resilient composite vanes

2 Robust

Durable construction

- Functional modular design
- Effective air cooling
- High water vapour tolerance

3 Efficient

IE3 standard motor

- Only two motor references to cover the entire world
- Low energy consumption
- Low cost of ownership, optimum cost-benefit ratio

4 Oil-sealed

Recirculating oil-lubrication

- Advanced oil separator, best-in-class highly efficient exhaust filter
- No additional oil circulation pump
- Ultimate pressure proof
- Protection against corrosion

5 Continuous operation

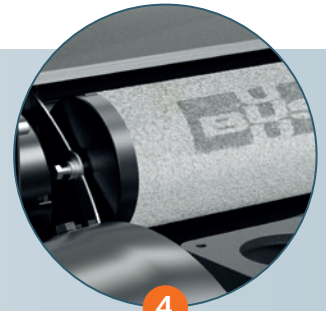
No shut down necessary

- Oil is sucked back during operation
- Integrated float valve controls oil suck back depending on oil level
- No impact on ultimate pressure

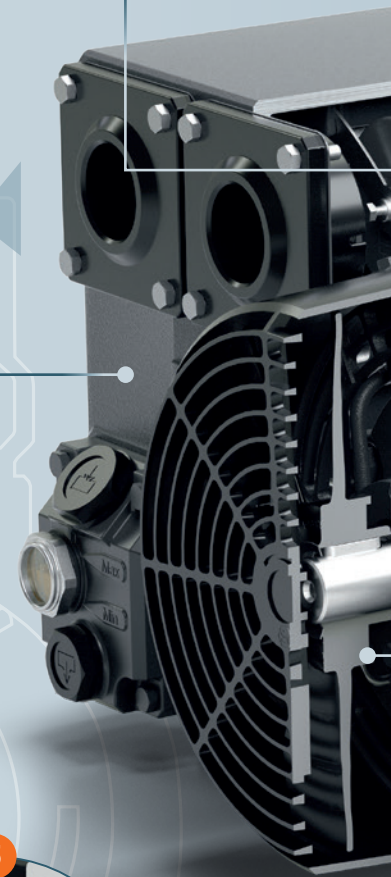
6 Sophisticated non-return valve

Oil-back prevention

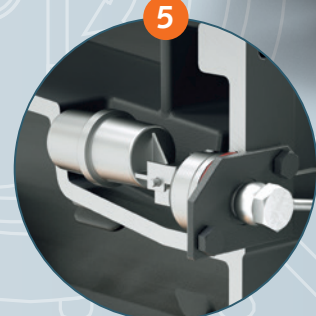
- Maintaining vacuum in the system
- Avoiding oil back-flow in the vacuum process

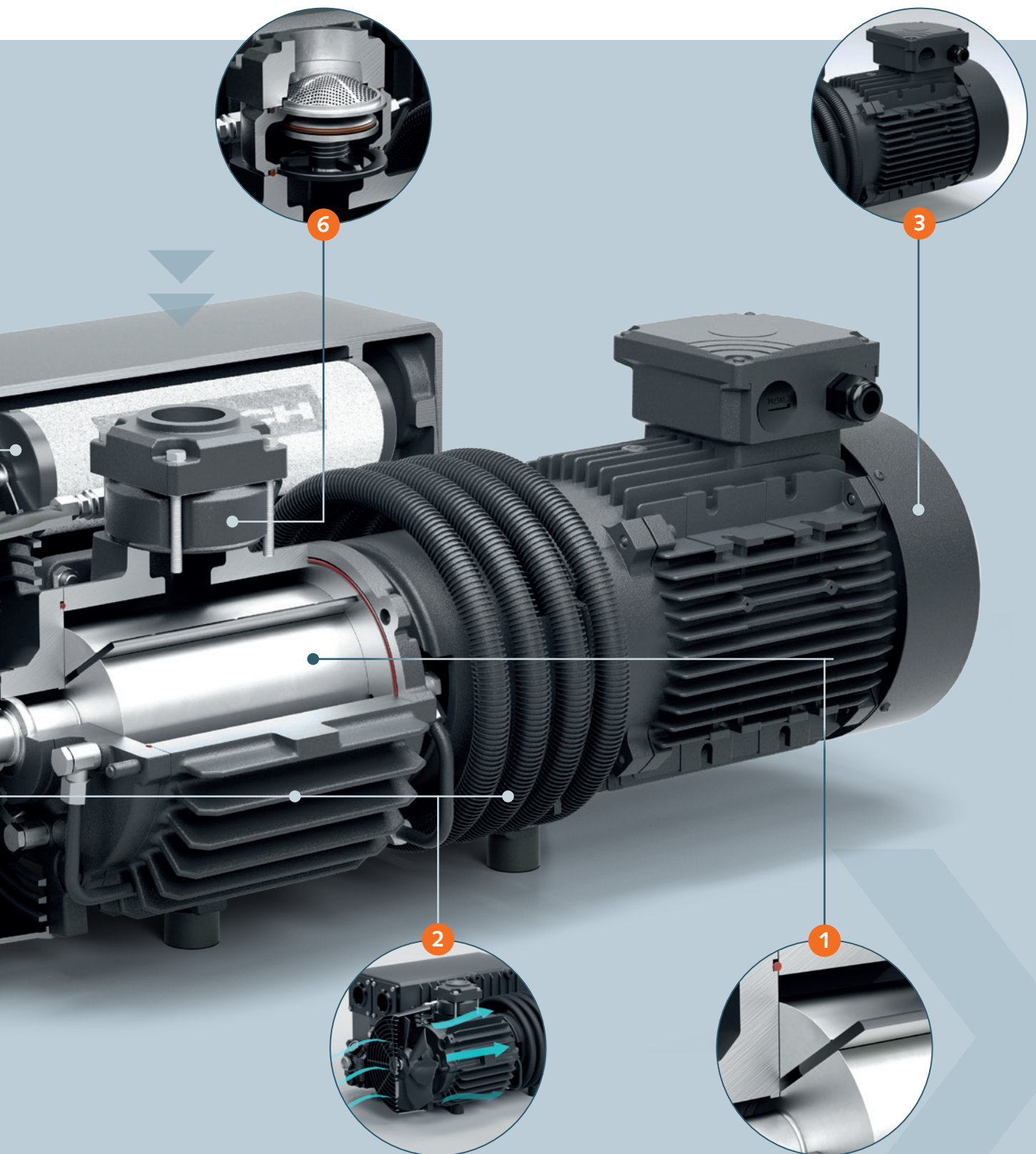


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5







Reliable Vacuum for a Wide Range of Applications Even Under Harsh Conditions

Vacuum packaging

R 5 vacuum pumps are renowned throughout the world as the vacuum packaging pumps par excellence. Vacuum packaging helps to extend shelf life of fresh food considerably and has therefore become indispensable today. In particular, the extraction of oxygen plays a decisive role. This method prevents oxidation processes, preserving not only quality, texture and flavour of the packaged product but also its nutrients, vitamins and taste. Furthermore, aerobic bacteria multiply only very slowly or not at all. Dry foods can be protected against moisture by means of vacuum packaging. MAP (modified atmosphere packaging) is mainly used for fresh meat, fish or convenience food. Atmosphere in the packaging is replaced by a gas mixture to maintain optical appearance, freshness and flavour.

Plastics processing

Due to their robustness and reliability R 5 RA rotary vane vacuum pumps are used in practically all sectors of plastics processing. In addition to pneumatic conveying, important application areas for R 5 RA rotary

vane technology include plastic degassing in extruders, evacuating injection moulds, and plastic sheet thermoforming.

Hospitals and healthcare facilities

R 5 RA rotary vane vacuum pumps provide vacuum to the treatment rooms of hospitals and other healthcare facilities. They are mostly installed centrally, and supply vacuum to medical appliances via a pipe network. The high availability of R 5 RA vacuum pumps contributes to improved safety in this sensitive sector.

Meat processing

R 5 RA rotary vane vacuum pumps are well-established in all meat processing applications like vacuum fillers, mixers, cutters and tumblers. They evacuate air from fresh meat products and avoid that they come into contact with oxygen, thus increasing shelf life and improving food quality.

Handling and lifting

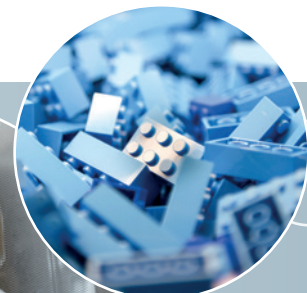
For decades, R 5 RA rotary vane vacuum pumps have been in operation in many handling and lifting applications – from simple lifting devices to pick-and-place

systems and robots. They are used for safe and reliable moving of all sorts of materials, such as cartons, barrels, planks of wood, steel, glass or plastic. With R 5 RA vacuum pumps even objects with delicate, rough and irregular surfaces can be transported carefully and reliably.

Central vacuum systems

R 5 RA rotary vane vacuum pumps are the perfect individual vacuum modules in a centralized vacuum supply. Providing central vacuum systems is an area in which Busch has gained worldwide experience over many decades. Thanks to the accumulated know-how from thousands of installations Busch can always provide the best vacuum solution meeting the specific requirements of each customer.

... and many more!



Design Options R 5 RA

ATEX certification

R 5 RA rotary vane vacuum pumps are available in versions conforming to the EU guidelines for explosion hazard areas (ATEX). The R 5 RA ATEX series can handle category 2 explosive gases.

Aqua version

The Aqua version may be ordered for applications transporting high quantities of moist gases or condensable vapours. The water vapour tolerance of R 5 RA Aqua vacuum pumps is three times higher than of a standard R 5 RA vacuum pump due to their special design.

Oxygen version

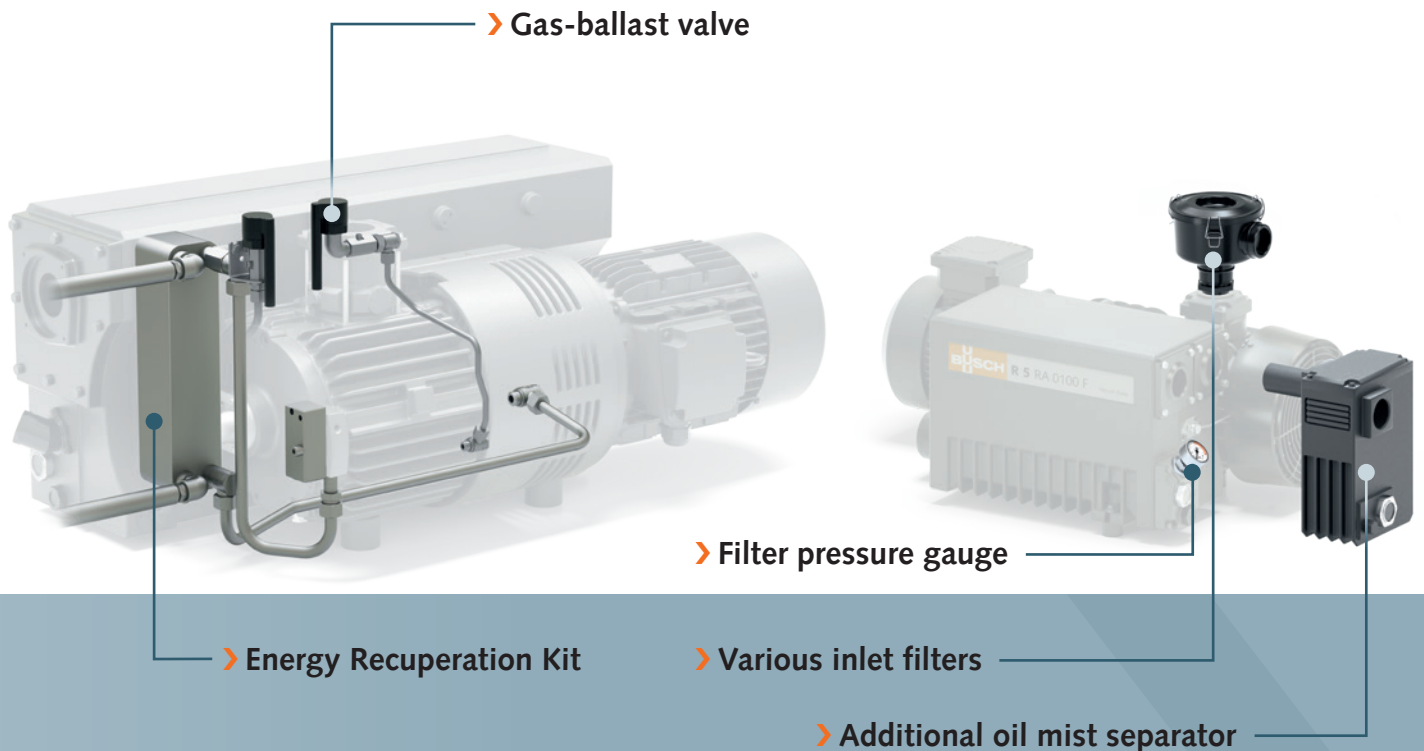
The oxygen version is available for transporting gas mixtures with an oxygen content of over 21% and up to 100%. This version conforms to all safety requirements to permit safe extraction of gases with elevated oxygen content.

Energy Recuperation Kit

In case of high ambient temperatures ($\geq 40^{\circ}\text{C}$) or in order to recuperate up to 60% of the consumed energy an Energy Recuperation Kit is available.

Accessories and Spare Parts

- › Standard motors meeting IEC or NEMA criteria, IE3
- › Multi-voltage, multi-frequency motors
- › Gas-ballast valve (single, double, controllable via solenoid valve)
- › Various inlet filters
- › Adapter flange for vacuum booster
- › Filter pressure gauge
- › Temperature sensors
- › Oil level switch
- › Starter units
- › Additional oil mist separator
- › Vacuum pump oils for all applications



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Technical data is subject to change. Created in Germany. MG STB R5RA Len 08/2018 8Aa