Elmo Rietschle

V-Series

Dry Running Rotary Vane

The Innovation leader

Dry running rotary vane vacuum pumps, compressors and pressure-vacuum pumps

V-VTE

V-VTN

V-VTA

V-VTR

Dry running rotary vane vacuum pumps

V-DTE

V-DTN

V-DTA

V-DTR

Dry running rotary vane compressors

V-KTN

V-KTA

V-KTR

Dry running rotary vane pressure-vacuum pumps

Compact V-VTE vacuum pumps and V-DTE compressors are each available in four sizes. Low noise and reliability make this series an ideal choice for many OEM applications.

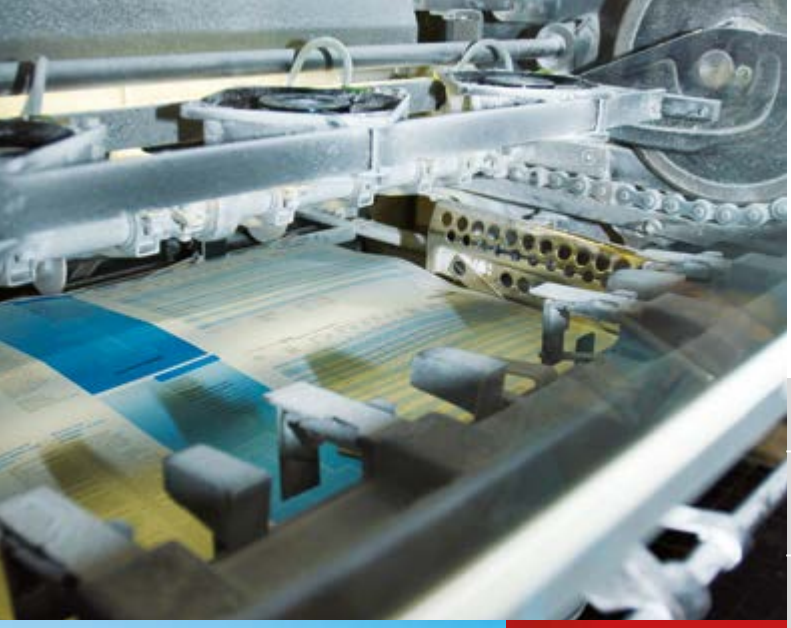
Our medium size dry pumps are available in vacuum (V-VTN), pressure (V-DTN) and combination models (V-KTN). Design features of these include maximized cooling air pathways, heat resistant materials, sound reduction covers and relief valves.

The next largest group of dry rotary vane pumps also offers all operation types – vacuum (V-VTA), pressure (V-DTA) and combination models (V-KTA). Developed as continuous duty pumps for printing and paper handling machines, this series is now used widely in many industrial applications.

A new range of rotary vane pumps is available as vacuum (V-VTR), compressor (V-DTR) and as combined pressure-vacuum version (V-KTR). The benefits of the new range are visible at a glance: maintenance and control panel are placed on one side only for easy access to filters and valves. Additional features include heat reduction through large cooling air pathways and vents. Design features such as the solid ribs, optimised cooling air circulation, thermal separation of suction and compression chambers within the filter housing, as well as a minimum number of connected heat transferring parts reduce machine temperatures.

Advantages at a glance

- Low noise level
- Easy to operate
- Dry running, environmentally friendly
- Process safe and reliable
- Robust and economical
- Many accessories
- Worldwide service
- Maintenance friendly



Applications

Environmental engineering

- Aeration

Industrial applications

- Lifting and holding
- Pick and Place

Packaging industry

- Packaging machines

Printing industry

- Post-press applications
- Printing presses

Woodworking industry

- Vacuum hold down

Product overview

Dry running rotary vane vacuum pumps

V-VTE

Capacities from 3.5 to 12 m³/h, ultimate vacuum of 150 mbar (abs.). Compact, easy to install. Very low noise level. Corrosion resistant rotors. Hose connection and exhaust silencer as standard.

V-VTN

Capacities from 17.0 to 50.4 m³/h, ultimate vacuum of 150 mbar (abs.). Sound cover reduces noise level, enhances cooling and protects operator from touching hot surfaces. Comes with built-in suction filter and vacuum valves. Flexible connections. Low vibration, easy to operate, service and install.

V-VTA

Capacities from 55 to 92 m³/h, ultimate vacuum of 150 mbar (abs.). Bearings on both sides of the rotor. Flange mounted motor with bolt coupling. High efficiency and silent operation. Sound cover allows a ducted cooling air outlet either from one side only or from both front and back. Easy to operate and service.

V-VTR

Capacities from 100 to 155 m³/h, ultimate vacuum of 150 mbar (abs.). Bearings on both sides of the rotor. Flange mounted motor with torsionally flexible coupling. High efficiency and silent operation. Sound cover allows a ducted cooling air outlet. Easy to operate and service.

Dry running rotary vane compressors

V-DTE

Capacities from 3.5 to 12 m³/h, pressure up to 1 bar. Compact design, easy to build into machines, very low noise level. Hose connector, inlet silencer and pressure relief valve fitted as standard.

V-DTN

Capacities from 17.0 to 52.2 m³/h, pressure up to 1 bar. Fitted with integral suction air filter. Sound cover produces low noise level and intensive cooling and protects from touching hot surfaces. Flexible connections possible, vibration free, easy to install, operate and maintain. Can be fitted with a compressed air after-cooler if required.

V-DTA

Capacities from 58 to 88 m³/h, pressure up to 1.5 bar for continuous operation and up to 2.2 bar for intermittent operation. Bearings on both sides of the rotor. Flange mounted motor with bolt coupling. High efficiency and silent operation. Sound cover allows a ducted cooling air outlet, from one side only or from both front and back. Easy to operate and service.

V-DTR

Capacities from 100 to 155 m³/h, pressure up to 1.5 bar for continuous operation and up to 2.2 bar for intermittent operation. Bearings on both sides of the rotor. Flange motor with torsionally flexible coupling. High efficiency and silent operation. Sound cover allows a ducted cooling air outlet. Easy to operate and service.

Dry running rotary vane pressure-vacuum pumps

V-KTN

Capacities from 15.7 to 51 m³/h, vacuum / pressure up to ± 0.6 bar. Integral suction and compressed air filters. Sound cover provides a low noise level, optimal cooling and protects from touching hot surfaces. Low vibration, easy to install, operate and service. Flexible connection possible. With compressed air after-cooler.

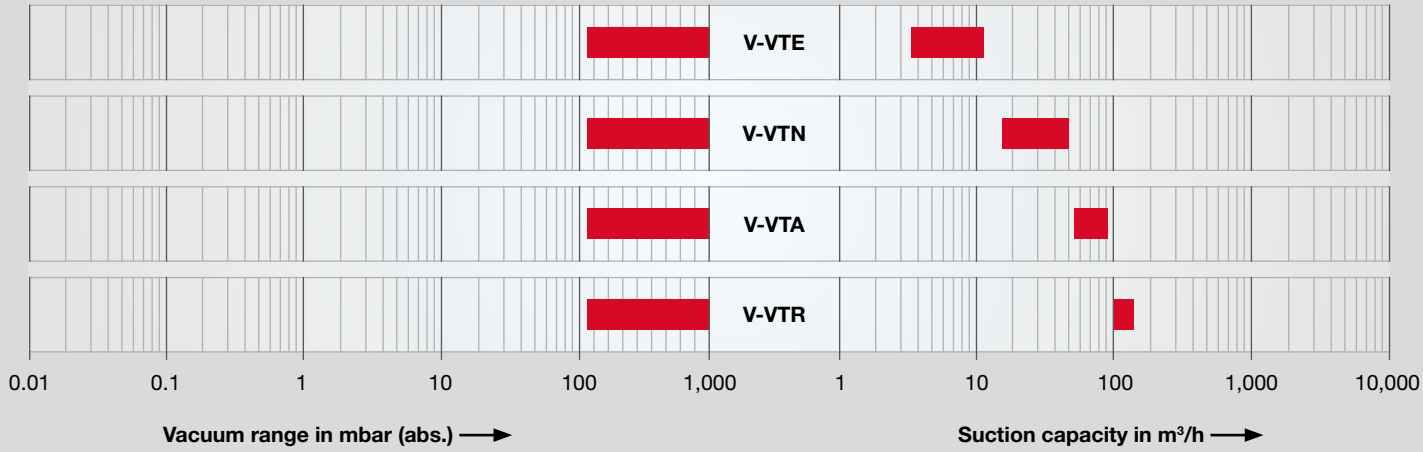
V-KTA

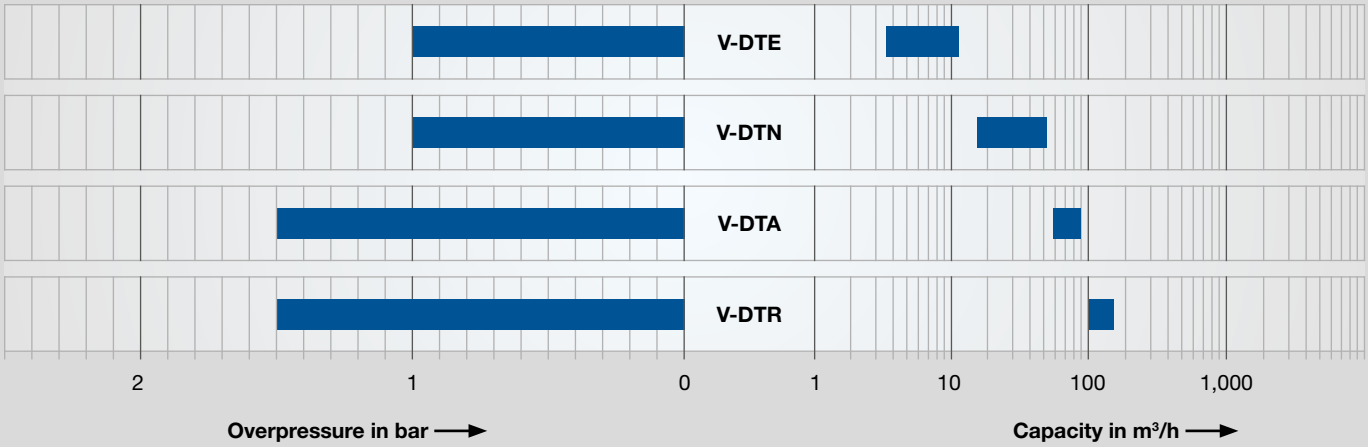
Capacities from 55 to 90 m³/h, vacuum up to -0.6 bar, pressure up to 0.7 bar. Flexibility to alter vacuum and compressed air capacities to suit individual applications. High efficiency and low noise level. Sound cover allows a ducted cooling air outlet (choice of one or two outlets). Easy to operate and service.

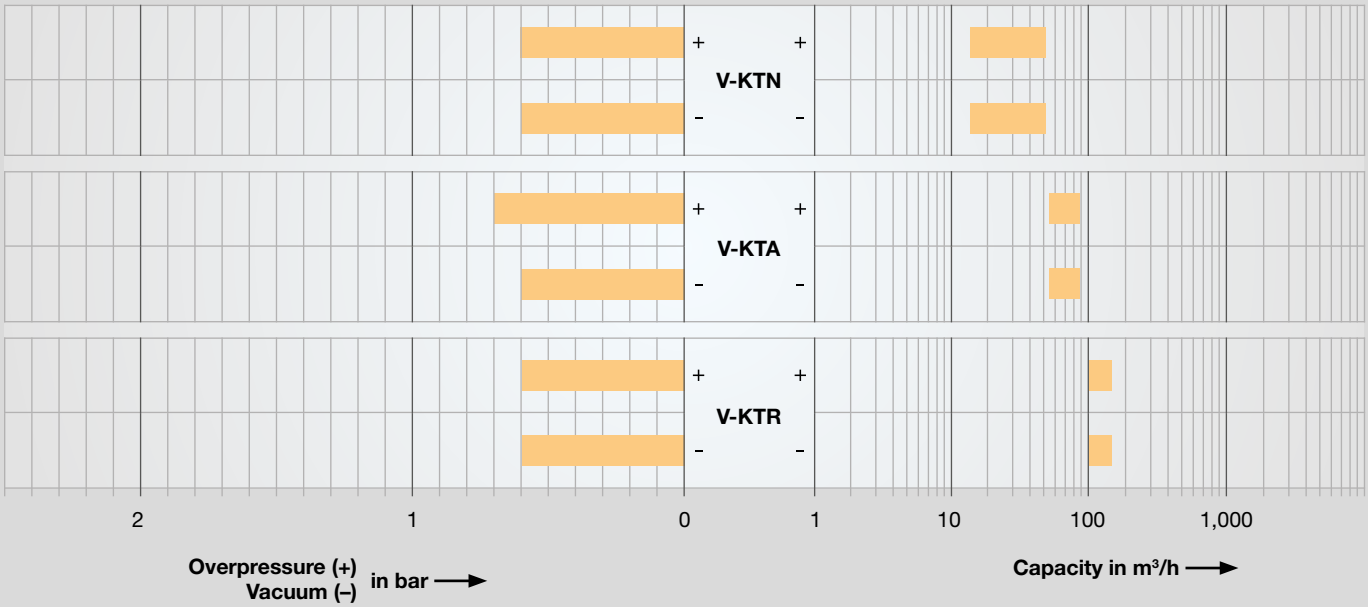
V-KTR

Capacities from 100 to 160 m³/h, vacuum up to -0.6 bar and pressure up to 0.6 bar. Bearings on both sides of the rotor. Flange motor with torsionally flexible coupling. High efficiency and silent operation. Sound cover allows a ducted cooling air outlet. Easy to operate and service.

Technical specifications







Operating principle

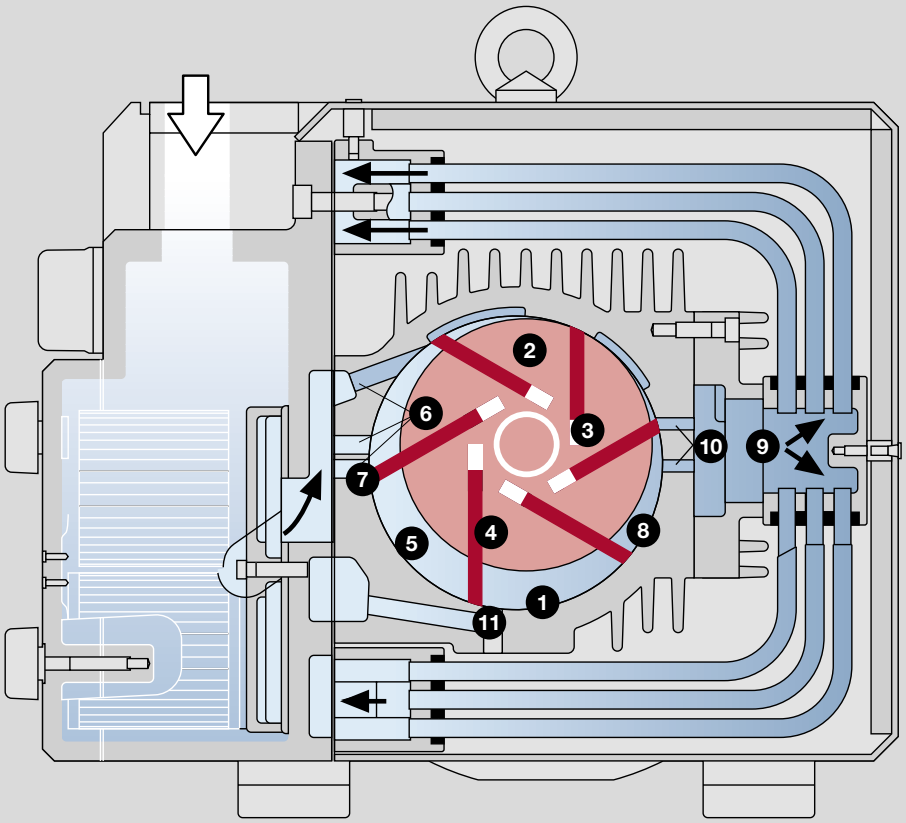
Pressure increase by volume reduction is the principle behind rotary vane operation. This design offers excellent service in pressure, vacuum or a combination of both.

In a cylindrical housing **(1)** a rotor **(2)** is positioned eccentrically so that it is on the top almost touching the cylinder. Rotor blades or vanes **(4)** as they are called, are positioned inside rotor slots **(3)**. When the rotor starts turning, due to centrifugal force the blades are thrown out and slide against the internal surface of the cylinder. In this way a cell **(5)** is formed between two blades with a volume that changes constantly during rotation. Air enters from the inlet port **(6)** into a cell until the rear blade reaches the far end of the inlet port **(7)**. At this point the cell **(5)** has achieved its maximum air volume. As the cell then moves away from the port its volume becomes smaller and smaller, the air is thus compressed and the pressure rises.

This continues until the pressure in the cell **(8)** exceeds that in the pressure chamber **(9)** and the compressed air then exits through the outlet port **(10)**.

Some models are fitted with exhaust valves which stop the backflow of this discharged air if the maximum pressure has been reached. In a vacuum pump the process is similar, but the cell **(8)** gives decreasing pressure, and the chamber **(9)** is at atmospheric pressure.

With pressure-vacuum pumps the lower end of the inlet port(s) **(6)** for the vacuum is moved forward. The cell can now be filled through second inlet **(11)**. To avoid impairing the vacuum, this second inlet port is located about one cell segment away from the main suction port. The ratio between vacuum and pressure capacities can be influenced by the choice of inlet port **(6 and/or 11)**.



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