



**V-Series**  
Oil Lubricated Rotary Vane



**Elmo  
Rietschle**  
*A Gardner Denver Product*



# Oil lubricated rotary vane vacuum pumps



V-GA / V-GC



V-GD



V-VCB



V-VCA / V-VCE



V-VC

Oil lubricated rotary vane vacuum pumps

## Oil lubricated / oil flooded

### V-GA, V-GC, V-GD, V-VCB, V-VCA, V-VCE and V-VC

Our oil lubricated rotary vane vacuum pumps are used in a wide variety of industrial applications. We offer the largest range of oil flooded vacuum pumps for industrial vacuum operation.

#### Advantages at a glance

- Long vane life
- Low noise level
- Easy to service
- High water vapor tolerance
- Long service intervals
- For many industrial applications
- Oxygen conveying pumps available

## Once through oil lubricated

### V-VL, V-VLB, V-VLV-2, V-VWZ

Our latest generation of once through oil lubricated vacuum pumps provide a cost-effective way to handle process streams containing aggressive gases, high vapor loads and sticky residue. This reliable design offers excellent flexibility, control and low temperature operation. Pump designs are modular, making them easy to service. Air or water cooling options are offered, depending on one's application. Fully packaged systems are engineered to meet exact process and control requirements.

#### Advantages at a glance

- Process safe (no reverse contamination)
- Can handle aggressive gases and high vapor loads
- Vertical and horizontal designs
- Modular 1 and 2 stage designs
- Air or water cooling
- Reduced polymerization and plugging
- Continuous duty
- Low maintenance
- Also available as customized pump stand
- V-VLV-2 available with ATEX certificate
- V-VWZ available as ATEX compliant version



V-VL



V-VLB



V-VLV-2



V-VWZ

Once through oil lubricated rotary vane vacuum pumps



## Applications

### Oil lubricated

#### Environmental engineering

- Aeration
- Drying
- Dust extraction systems

#### Food processing

- Bottling and filling machines
- Cutting machines

#### Industrial applications

- Drying systems
- Dust extraction systems
- Industrial furnaces
- Vacuum hold down

#### Packaging industry

- Centralized vacuum systems
- Packaging machines

#### Pneumatic conveying

#### Woodworking industry

- Dust extraction systems
- Vacuum hold down

### Once through oil lubricated

#### Chemical and pharmaceutical processes

- Crystallization
- Degassing
- Distillation
- Drying
- Evaporation
- Fractionation
- Impregnation
- Super cooling
- Vacuum coating (sublimation)
- Vacuum filtration

# Product overview

## Oil lubricated / oil flooded rotary vane vacuum pumps

### V-VGA / V-VGC

**Small oil flooded rotary vane vacuum pumps with capacities ranging from 4 to 7.2 m<sup>3</sup>/h.** Ultimate vacuum V-VGA at 20 mbar (abs.) and V-VGC at 2 mbar (abs.). Needs little space thanks to overhung rotor design and integral motor. Air cooled, low noise level.

### V-VGD

**Oil flooded rotary vane vacuum pump with capacities from 10 to 18 m<sup>3</sup>/h.** The ultimate vacuum can be selected by user at either 2 mbar (abs.) for fine vacuum or 10 mbar (abs.) for coarse vacuum. Needs little space thanks to overhung rotor design and integral motor. Fitted as standard with fine mesh filter, vacuum non-return valve and oil separator. Very quiet running.

### V-VCB

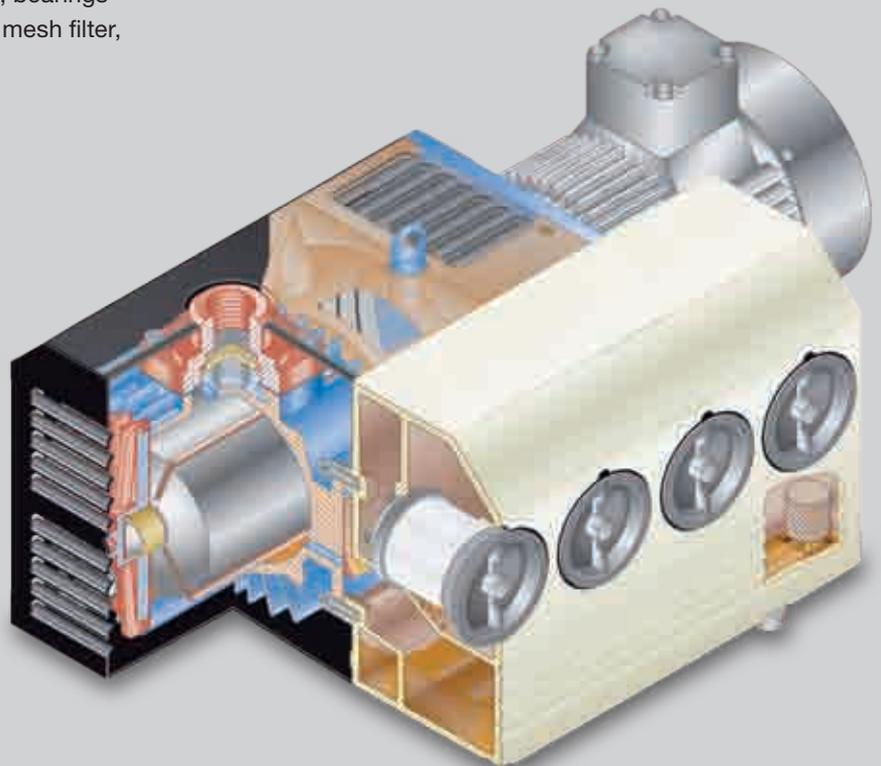
**Oil flooded rotary vane vacuum pump with capacities ranging from 20 to 26.5 m<sup>3</sup>/h,** and an ultimate vacuum of 2 mbar (abs.). Designed especially for installation into small vacuum packaging machines. Flange mounted motor, bearings on both sides of the rotor, air cooling. Fitted with fine mesh filter, vacuum non-return valve and oil separator.

### V-VCA / V-VCE

**Oil flooded rotary vane vacuum pumps with capacities ranging from 25 to 48 m<sup>3</sup>/h.** Ultimate vacuum V-VCA at 0.5 mbar (abs.) and V-VCE at 10 mbar (abs.). Flange mounted motor, bearings on both sides of the rotor, air cooling. Fitted as standard with fine mesh filter, vacuum non-return valve, gas ballast valve and oil separator.

### V-VC

**Oil flooded rotary vane vacuum pump with capacities ranging from 50 to 1,535 m<sup>3</sup>/h** and an ultimate vacuum of 0.1 mbar (abs.). Flange mounted motor, bearings on both sides of the rotor, oil/air heat exchanger. All models include aluminum alloy vanes, back pressure gauge, gas ballast valve(s), non-return valve and easy-access replaceable oil separators. Sizes of 400 m<sup>3</sup>/h and above include 5 micron paper inlet filter(s) and double-walled cylinder construction.



## Once through oil lubricated rotary vane vacuum pumps

### V-VL

**Once through oil lubricated rotary vane vacuum pump with capacities ranging from 10 to 120 m<sup>3</sup>/h** and an ultimate vacuum at 30 mbar (abs.). Bearings on both sides of the rotor. Shaft sealing for bearing protection from corrosive vapors. Air cooling, low operating temperature.

### V-VLB

**Once through oil lubricated rotary vane vacuum pump with capacities ranging from 10 to 120 m<sup>3</sup>/h** and an ultimate vacuum at 30 mbar (abs.). Fitted as standard with waste oil and condensate tank. Bearings on both sides of the rotor. Shaft sealing for bearing protection from corrosive vapors. Air cooling, low operating temperature.

### V-VLV-2

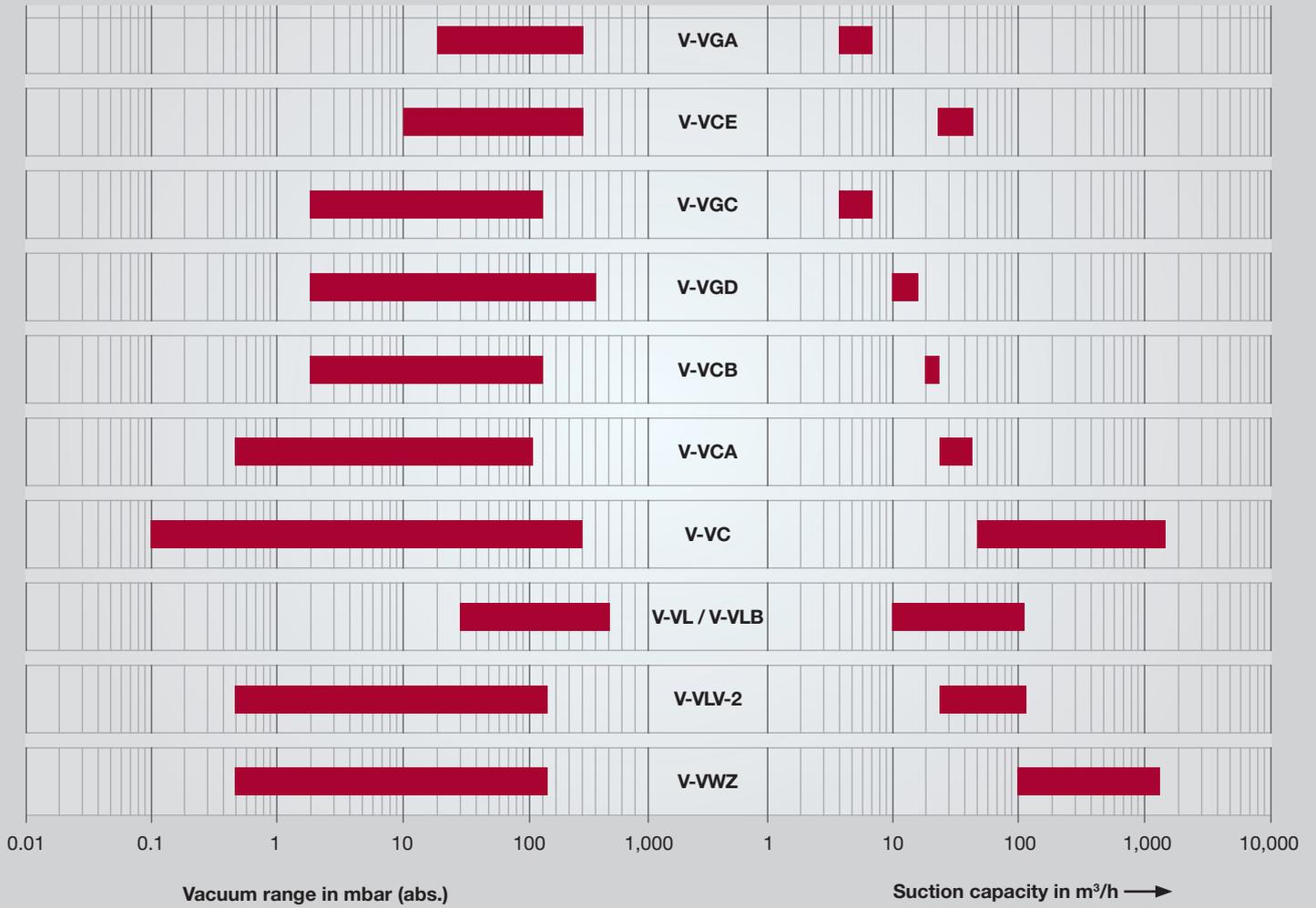
**Two-stage rotary vane vacuum pump in vertical design. Capacities ranging from 27 to 120 m<sup>3</sup>/h.** Ultimate vacuum at 0.5 mbar (abs.). The once through oil lubrication protects the pump chamber from corrosive vapor. Can be used in combination with a rotary lobe vacuum booster.

### V-VWZ

**Two stage rotary vane vacuum pump with internal water cooling. Capacities ranging from 100 to 1,440 m<sup>3</sup>/h.** Ultimate vacuum at 0.5 mbar (abs.). Thanks to its once through oil lubrication it is suitable for handling aggressive gases. Easy stage exchange due to modular design. Operating temperature thermostat and integrated cooling water regulation valve included. Large range of accessories.



# Technical specifications



## Operating principle

Pressure increase by volume reduction is the principle behind rotary vane operation. This design offers excellent service for 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 (3). Rotor blades or vanes (5) as they are called, are positioned inside rotor slots (4). 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 (6) is formed between two blades with a volume that changes constantly during rotation. Air enters from the inlet port (7) into a cell until the rear blade reaches the far end of the inlet port (8). At this point the cell (6) has achieved its maximum air volume.

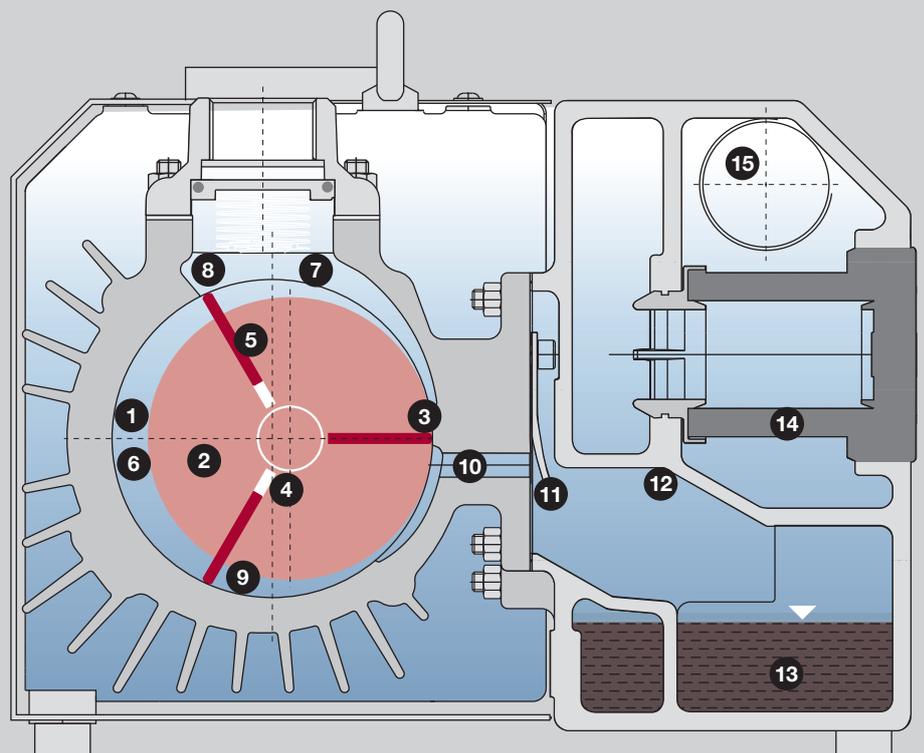
As the cell then moves away from the port its volume (9) becomes smaller and smaller, the air is thus compressed and the pressure rises.

Some models are fitted with outlet valves (11) next to the outlet port (10) which stop the backflow of discharged air when the maximum pressure has been reached.

### De-oiling once through vacuum pumps

After its passage through outlet port (10) and outlet valves (11), the oil-gas mixture reaches the de-oiling chamber (12) where the oil is separated from the gas in two steps. Larger oil drops are mechanically separated from the gas and are eventually deposited in the oil sludge recipient (13).

The remaining oil gas mixture is then taken through fine filter elements (14) which separate even the smallest oil particles. These are then reintroduced through an oil suction pipe into the pump's oil circuit. The virtually oil free gas can be let outside either through the air outlet (15) or through other hose or piping arrangements.





## Technologies for all vacuum and pressure applications



**F-Series** Radial



**G-Series** Side Channel



**L-Series** Liquid Ring



**V-Series** Rotary Vane



**R-Series** Rotary Lobe



**C-Series** Claw



**S-Series** Screw



**X-Series** Systems

[www.gd-elmorietschle.com](http://www.gd-elmorietschle.com)

[er.de@gardnerdenver.com](mailto:er.de@gardnerdenver.com)

**Gardner Denver  
Schopfheim GmbH**  
Roggenbachstraße 58  
79650 Schopfheim · Germany  
Ph. +49 7622 392-0  
Fax +49 7622 392-300

**Gardner Denver  
Deutschland GmbH**  
Industriestraße 26  
97616 Bad Neustadt · Germany  
Ph. +49 9771 6888-0  
Fax +49 9771 6888-4000

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