



## S-Series Screw



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



# Screw vacuum pumps

The dry and contact free operation of the Elmo Rietschle S-Series screw vacuum pumps requires no lubrication in the pumping chamber. This translates into major advantages: no process contamination and no pollution caused by the pump operation.

## Wide performance range

Our S-VSA, S-VSB and S-VSI screw vacuum pumps achieve an ultimate vacuum of 0.05 mbar (abs.) and can operate at any pressure between end vacuum and atmospheric pressure.

## Rugged and durable design

In the pump housing, two parallel screw rotors, both timing gear synchronized, turn in opposite directions. Gas is compressed in the direction of the discharge port. Gearbox and mechanical seals are oil lubricated. Cooling is achieved through the continuous flow of coolant through the pump housing.

Our S-Series screw pumps feature high vapor and liquid tolerance, are easy to service and have a long service life – the low rotational speed ensures low noise and low vibration operation.

## Multiple applications

Elmo Rietschle screw vacuum pumps are primarily used in applications across many different industries where clean, oil free vacuum is needed. They can also be combined with a vacuum booster in customized vacuum systems for very high suction capacities.

The S-VSB range are to be found in many chemical and pharmaceutical processes. ATEX compliant versions are available.

General industrial applications such as packaging, drying and coating or vacuum furnaces are best served by our S-VSI range of pumps.



S-VSA TWISTER



S-VSB TWISTER



S-VSI TWISTER



## Applications

### Chemical and pharmaceutical industry

- Cooling
- Degassing
- Distillation
- Drying
- Evaporation
- Fractionation
- Impregnation

### Industrial applications

- Cleaning
- Coating
- Drying
- Dust extraction systems
- Industrial furnaces
- Vacuum metallurgy

### Packaging industry

- Central vacuum systems

### R&D / laboratories

- Different process applications

### Solar technology

- Cell lamination
- Glass plate handling

### Surface technology / electronics

- CVD processes
- PVD processes
- Vacuum metallurgy

# Product overview

## Advantages at a glance

- Dry running, contact free operation
- High vacuum in one stage
- Application specific options
- High water vapor tolerance
- Short evacuation time due to high suction capacities
- Low noise level
- Easy to service
- ATEX available

## Dry running, contact free screw vacuum pumps

### S-VSA TWISTER

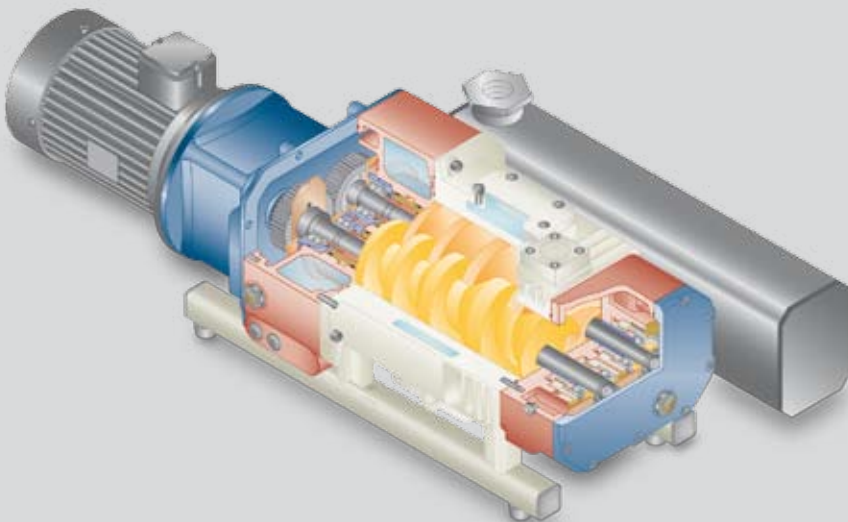
**Suction capacities ranging from 105 to 720 m<sup>3</sup>/h,** end vacuum 0.05 mbar (abs.). Screw rotors with a fixed pitch. A combination of mechanical seals and double-lip PTFE seals assure maximum shaft tightness. Low noise level, easy to service. Corrosion resistant versions feature special coatings, depending on the application. Suitable for solvent recovery and drying processes in the plastics industry.

### S-VSB TWISTER

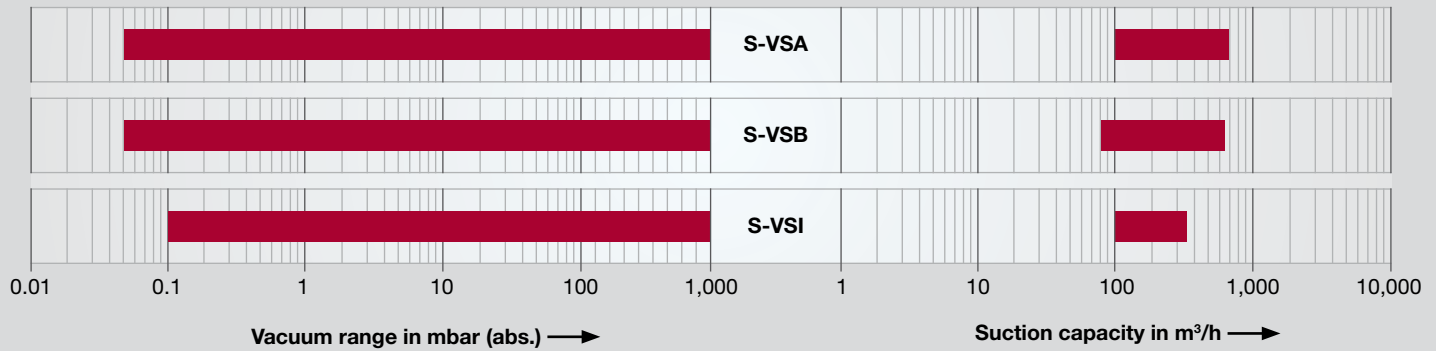
**Capacities ranging from 80 to 650 m<sup>3</sup>/h,** end vacuum 0.05 mbar (abs.). Screw rotors with a progressive graduation. A combination of mechanical seals and double-lip PTFE seals assure maximum shaft tightness. Designed for use with seal purge gas. Low noise level, easy to service. Low operating temperature. Corrosion resistant versions feature special coatings, depending on the application. Suitable for solvent recovery and drying processes in the chemical and pharmaceutical industry. ATEX compliant versions are available.

### S-VSI TWISTER

**Capacities from 100 to 360 m<sup>3</sup>/h,** end vacuum 0.01 mbar (abs.) Progressive graduation of the screw pitch. Maximum tightness thanks to labyrinth, shaft and piston ring seals. Sealing gas is optional. Benefits include low noise, low operating temperatures and easy serviceability. Designed for industrial applications devoid of aggressive gases.

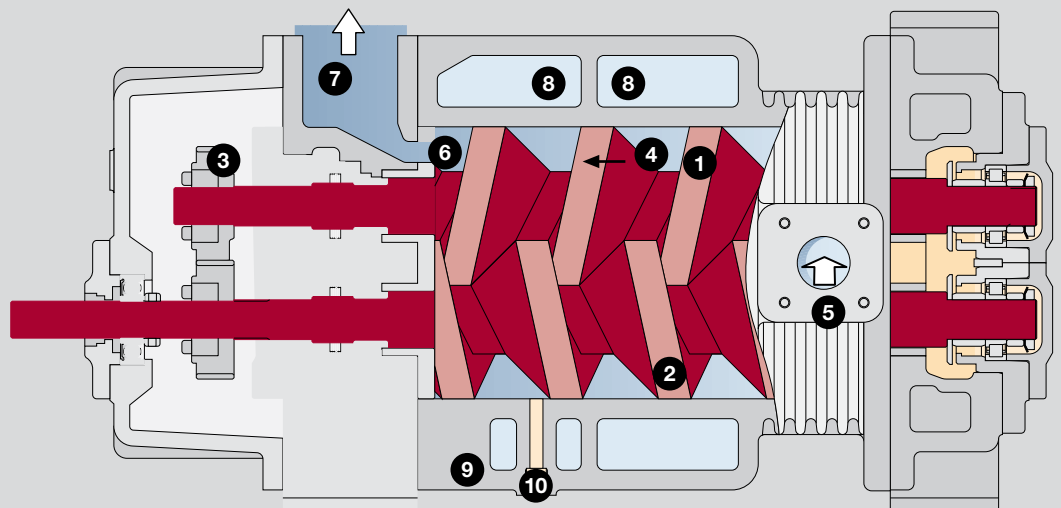


# Technical specifications



## Operating principle

A screw vacuum pump consists of two parallel, screw-shaped rotors (**1 and 2**), one with a right-hand thread and the other with a left-hand thread. Both screws turn in the compression housing (**9**) without friction and at very tight clearances. They are synchronized via a precision gear (**3**). The compression housing and the special shape of the screws form the compression chambers (**4**). Due to the opposite rotation of both screws the chamber connected with the suction port (**5**) is enlarged and the gas is transported into the compression chamber. Then the chamber moves axially from the suction side to the pressure side (arrow). In variable pitch models, the gas is compressed at each pitch change and cooled before the next pitch change, resulting in greater efficiency. On the pressure side the chamber is moved against the axial housing wall and the volume is reduced until the front surface of the screw (**1**) opens the pressure channel (**6**) and the pre-compressed gas is discharged through the pressure connection (**7**). Cooling is achieved using a water cooled outer chamber (**8**). For some pump sizes additional cooling gas can be introduced into the pump. (**10**).





## 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

**Gardner  
Denver**

Elmo Rietschle is a brand of the  
Gardner Denver Blower Division