

# S-Series Screw



The  innovation  
leader

# Screw vacuum pumps



S-VSI TWISTER

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.

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

These sturdy vacuum pumps requiring little maintenance and service are dry running and offer remarkably low life cycle costs. Food packaging and processing are typical areas which benefit most from this machine - especially when it comes to oxygen applications.

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



S-VSA TWISTER



S-VSB TWISTER

# 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
- Low life cycle costs
- Oxygen version available (S-VSI)



**S-VSI TWISTER**  
with integrated cooling circuit



**S-VSI TWISTER OXY**  
Special version for oxygen applications

## Dry running, contact free screw vacuum pumps

### S-VSI TWISTER

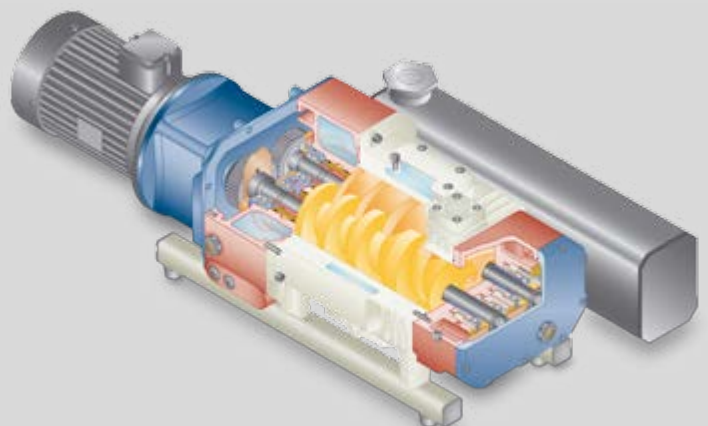
**Capacities from 100 to 360 m<sup>3</sup>/h**, end vacuum 0.01 mbar (abs.)  
Progressive graduation of the screw pitch. Maximum tightness thanks to labyrinth, shaft and piston ring seals. Sealing gas is optional. Benefits include low noise, low operating temperatures and easy serviceability. Designed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

### S-VSA TWISTER

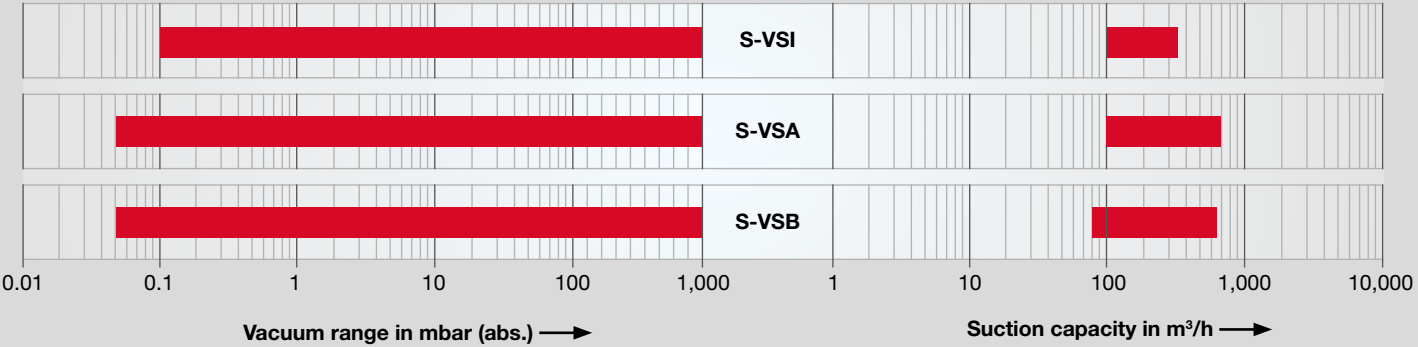
**Suction capacities ranging from 105 to 720 m<sup>3</sup>/h**, end vacuum 0.05 mbar (abs.). Screw rotors with a fixed pitch. A combination of mechanical seals and double-lip PTFE seals assure maximum shaft tightness. Low noise level, easy to service. Corrosion resistant versions feature special coatings,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

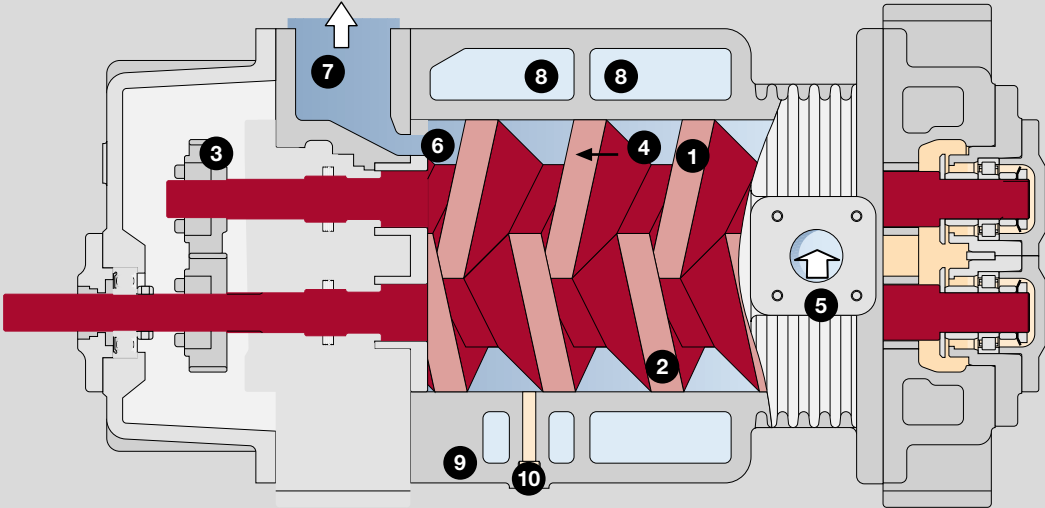


# Technical specifications



## 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**).







## 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

### Food Packaging and Processing

- Tray sealing
- MAP packaging
- Degassing
- Drying

# Gardner Denver

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- Sales / Service Location
- Manufacturing Location
- Our Partners

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**F-Series**  
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**V-Series**  
Rotary Vane



**R-Series**  
Rotary Lobe



**C-Series**  
Claw



**S-Series**  
Screw



**X-Series**  
Systems