



# SCREWLINE SP

Dry vacuum for harshest applications



# Dry screw vacuum pump

**SCREWLINE SP** dry compressing screw vacuum pumps are extremely robust with the internally cooled rotors, and a special cantilevered bearing arrangement. These industrial dry vacuum pumps are designed to meet the special requirements of heavy duty applications with longer maintenance in-

tervals. The standard versions of the **SCREWLINE** pumps are air-cooled from the outside for industrial applications. Water-cooled versions are available to operate in air-conditioned rooms as well as ATEX-certified variants are available for explosion proof compliance.



## Harshest applications ready

- Cantilevered bearing design prevents process gas ingress to bearings and oil completely
- Easy accessibility of pump chamber
- Flushing in-situ
- “Heavy-duty” design tolerant to contaminants
- Aluminum material of construction to avoid rust



## Extended uptime

- Internally cooled rotors for trouble free pumping
- Direct pumping path for higher particulate handling capability
- Non-contacting shaft-seals for wear free operation

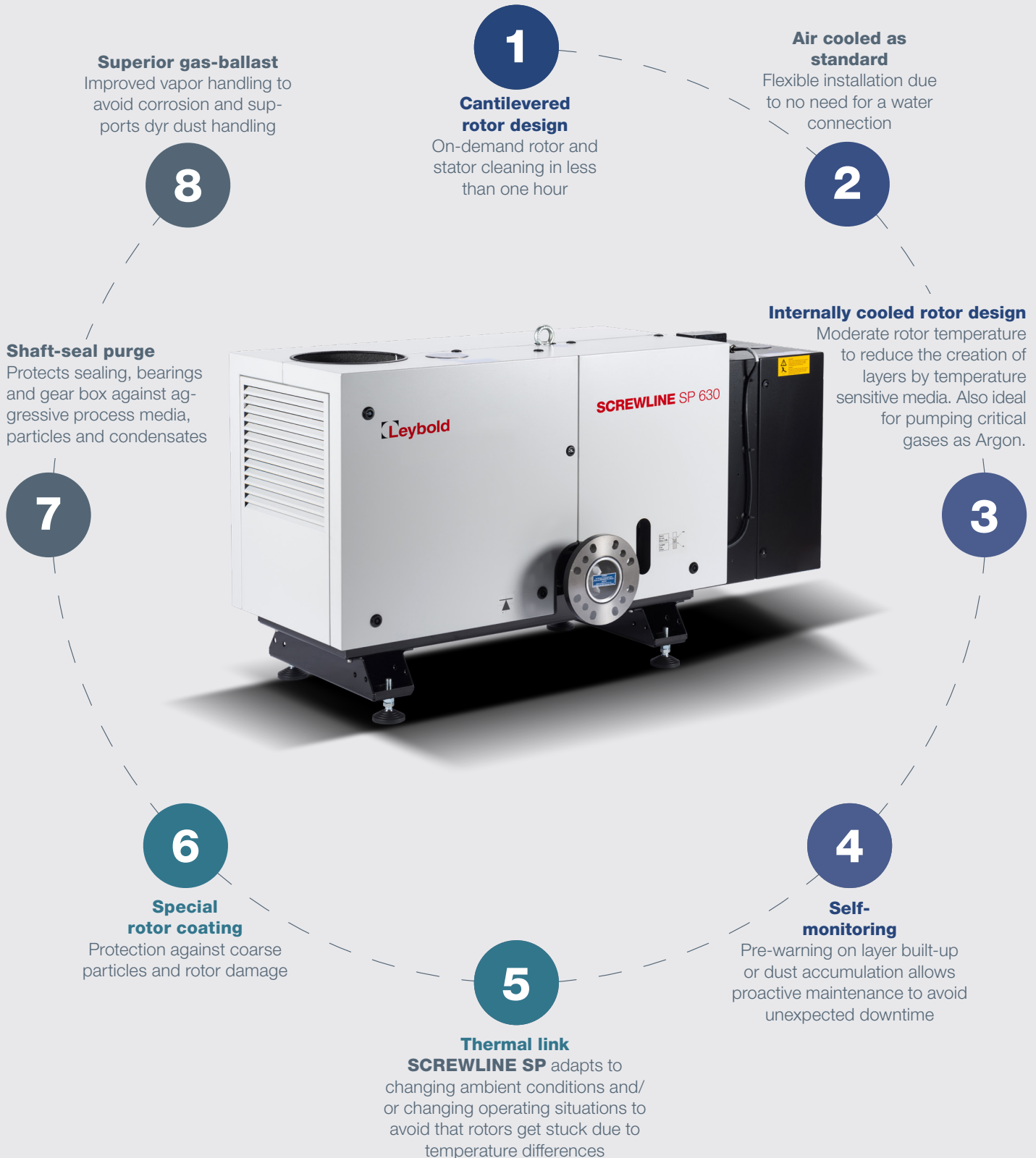


## Process capable

- Integrated shaft seal purge
- Pump Argon continuously at any pressure
- Air- or water-cooled, even suitable for mobile applications
- Tolerant against process mishaps such as water ingress



## Benchmark screw pump technology for harshest applications





# Markets and applications

✓ **Thin film coating**

- Large area coating
- Display coating
- Industrial coating

✓ **General industry**

- Vacuum drying / freeze drying
- Transformer production
- Oil degassing / purification
- Leak detection
- Waste management

✓ **Furnace & Metallurgy**

- Industrial furnaces / heat treatment
- Metallurgical systems
- Vacuum casting
- Welding technology



✓ **Semi & Solar**

- Photovoltaic lamination
- Crystal pulling / casting

✓ **Food**

- Food packaging / processing
- Food freeze-drying
- Botanical processing

✓ **Plastic & Composites**

- Plastic extrusion
- Vacuum forming

✓ **Special applications**

- Load lock chambers
- Space simulation
- Processes with pure Argon or pure Oxygen



### Photovoltaic lamination

Thousands of **SCREWLINE SP630** are installed at Chinese customers as they deliver consistent pumping performance and a fast pump down for quick lamination cycles. The pump design allows on-site cleanability resulting in longer process uptime and fewer maintenance. **SCREWLINE SP** has an integral moderate temperature profile which minimizes layer build up which can be easily cleaned by the user.



**SCREWLINE SP 630** installed on a Stack Laminator

### Food freeze drying

**SCREWLINE SP** was installed at a customer's fruit freeze drying facility in the USA as it successfully handled the presence of water vapors, organic acids and abrasive particles. Our customer observed 15% reduction in maintenance costs as compared to their previously used competitor's oil sealed rotary vane vacuum pumps.



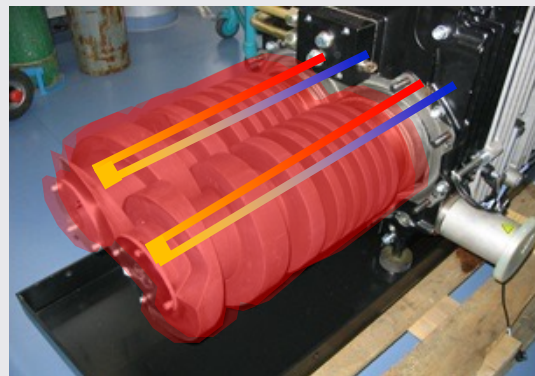
**SCREWLINE SP 630/WAU 2001**  
installed on a fruit freeze drying chamber



# Product Range

### Complete product range for your application

**SCREWLINE SP** special design feature with internally cooled rotors reduces layer build up and allows for Argon pumping at any pressure for longer duration. The integrated oil cooling arrangement of the rotors and the housing allows the **SCREWLINE** pumps to adapt to ambient conditions under changing operating situations.



### SCREWLINE SP Standard

Standard air cooled variants are available with a simple and flexible installation. They are equipped with a heat exchanger for effective internal pump temperature management.

### SCREWLINE SP F

Standard **SCREWLINE SP F** dry vacuum pumps are available as water-cooled variants for operation in air-conditioned facilities.

### SCREWLINE SP O<sub>2</sub>

**SCREWLINE SP O<sub>2</sub>** variants are capable of pumping 100% oxygen.

### SCREWLINE SP ATEX

ATEX certified variants for zone 2 and 3 application comply with the requirements of the European Directive and are suited for use in potentially explosive atmospheres ATEX Guideline requirements (ATEX 2014/34/EU). As standard, all **SCREWLINE SP ATEX** pumps are equipped with a barrier gas control unit.

## Monitoring system & accessories

**SCREWLINE SP** vacuum pumps are equipped with the SP-Guard monitoring system as a standard to monitor vital operating parameters. The SP-Guard indicates critical operating conditions at an early stage.

The comprehensive range of accessories offers optimum adaptation to individual requirements in different applications.

- Flushing kit for simple pump chamber cleaning

Other available accessories:

- Exhaust silencer
- Roots pump adapter
- Gas ballast valve - manual or solenoid
- Dust filter
- Non-return valve

# Systems + Solutions

## Tailor made solutions for you application

**SCREWLINE SP** pump systems, combinations of fore vacuum pumps along with roots vacuum pumps, are typically used to attain a base pressure of  $10^{-3}$  mbar. Multi-stage combinations can be customised for you application where pressures below  $10^{-4}$  mbar are required. Our range of standard pump systems has been carefully developed by our Systems + Solutions team to provide the right solution for your process.



- Roots pumps RUVAC WA(U), WS(U) and WH(U)
- Adapter versions
- Frequency converters
- Silencers with integrated dust filter
- Custom made frames (for e.g.: movable or on castors)
- Electronic controllers as per your specifications, including solutions with electrical cabinets
- Covers for outdoor installations
- Subsystems for integration within customers plants



## Technical data

### Ordering information

SCREWLINE SP		SP 630	SP 630 F
Max. pumping speed (50/60 Hz)	m <sup>3</sup> /h	630	630
Ultimate pressure (50/60 Hz)	mbar	≤ 0.01	≤ 0.01
Nominal motor power (50/60 Hz)	kW	15	15
Motor power consumption at ultimate pressure (50/60 Hz)	kW	< 11	< 11
Motor current / motor voltage	50 Hz	28 A / 400 V	28 A / 400 V
	50 Hz	56 A / 200 V	56 A / 200 V
	60 Hz	24 A / 460 V	24 A / 460 V
	60 Hz	52 A / 210 V	52 A / 210 V
Cooling		Air	Water
Noise level (50/60 Hz) <sup>1)</sup>	dB(A)	≤ 72 / 75	≤ 72
Flange connections at the intake and exhaust side		EN 1092-2 PN 6 - DN 100 EN 1092-2 PN 16 - DN 100 ISO 1609 -1986 (E) 100 (DN 100 ISO-K) <sup>2)</sup> ASME B 16.5 NPS4 Class 150	
Weight, approx.	kg	530	530
Dimensions (L x W x H)	mm	1630 x 660 x 880	1630 x 660 x 880

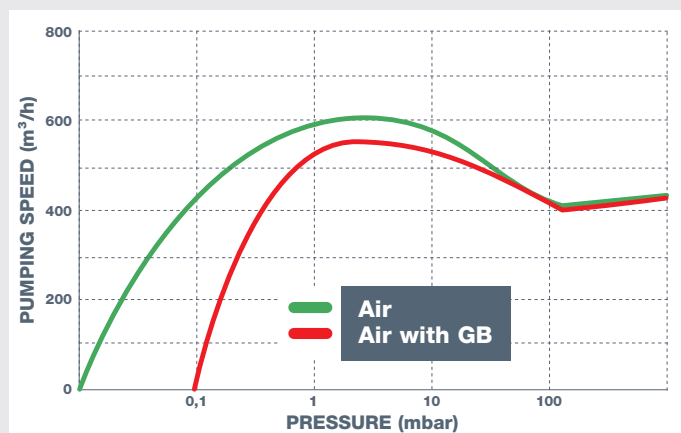
SCREWLINE SP dry screw pump variants:			
Standard	50 Hz	117 007	117 113
	60 Hz	117 008	117 114
ATEX Cat 3 inside	50 Hz	117 017	117 115
	60 Hz	117 018	117 116
ATEX Cat 2 inside / 3 outside	50 Hz	–	117 111 V11
	60 Hz	–	–
Oxygen	50 Hz	117039	–
	60 Hz	117040	–
Exhaust silencer		119 001	
Exhaust silencer, maintainable		119 004V	
Roots pump adapter		119 021	
Dust filter		951 72 <sup>3)</sup>	
Intermediate piece, suitable to the intake flange		119 020	
Non-return valve for the exhaust		119 010	
Purge gas retrofit kit		119 030	
Flushing kit		119 015V02	
Pump system complete (adapter version), pallet mounted with RUVAC WAU 501 with RUVAC WAU 2001		– 502 472 V003	– 502 472 V002
Pump system complete, frame mounted with RUVAC WH 2500 with RUVAC WH 4400		– 503 163 V005	503 159 V001 503 163 V001

<sup>1)</sup> With connected exhaust gas line at ultimate pressure    <sup>3)</sup> Not suitable for ATEX applications

<sup>2)</sup> Standard at the discharge flange

\* Selection from the product range. For detailed information on our full scope of **SCREWLINE SP** pump model versions, motor voltages and accessories please refer to our Leybold Full Line Catalog. Visit our webshop [www.leyboldproducts.com](http://www.leyboldproducts.com).

### Pumping speed curve SP630



### Service Preventive

- Maintenance and service can be scheduled by use of monitoring system SP-Guard
- Pre-warning on layers
- Using low wear or wear-free components

### Fast & simple

- All servicing points on one side
- Easy access to the oil cooler for comfortable cleaning
- Simple dismantling of the pump housing and chamber
- Manual cleaning and water flushing (optional) possible

### Low cost of ownership

- Oil-change after every 20.000h (2,5 years)
- Full service in Service Center after 40.000h (5 years)
- Maximum Uptime!
- Fast (1 hour\*) on demand cleaning of rotors, compression room or oil-cooler (at customer site / independent)
- 2.5 year maintenance free!