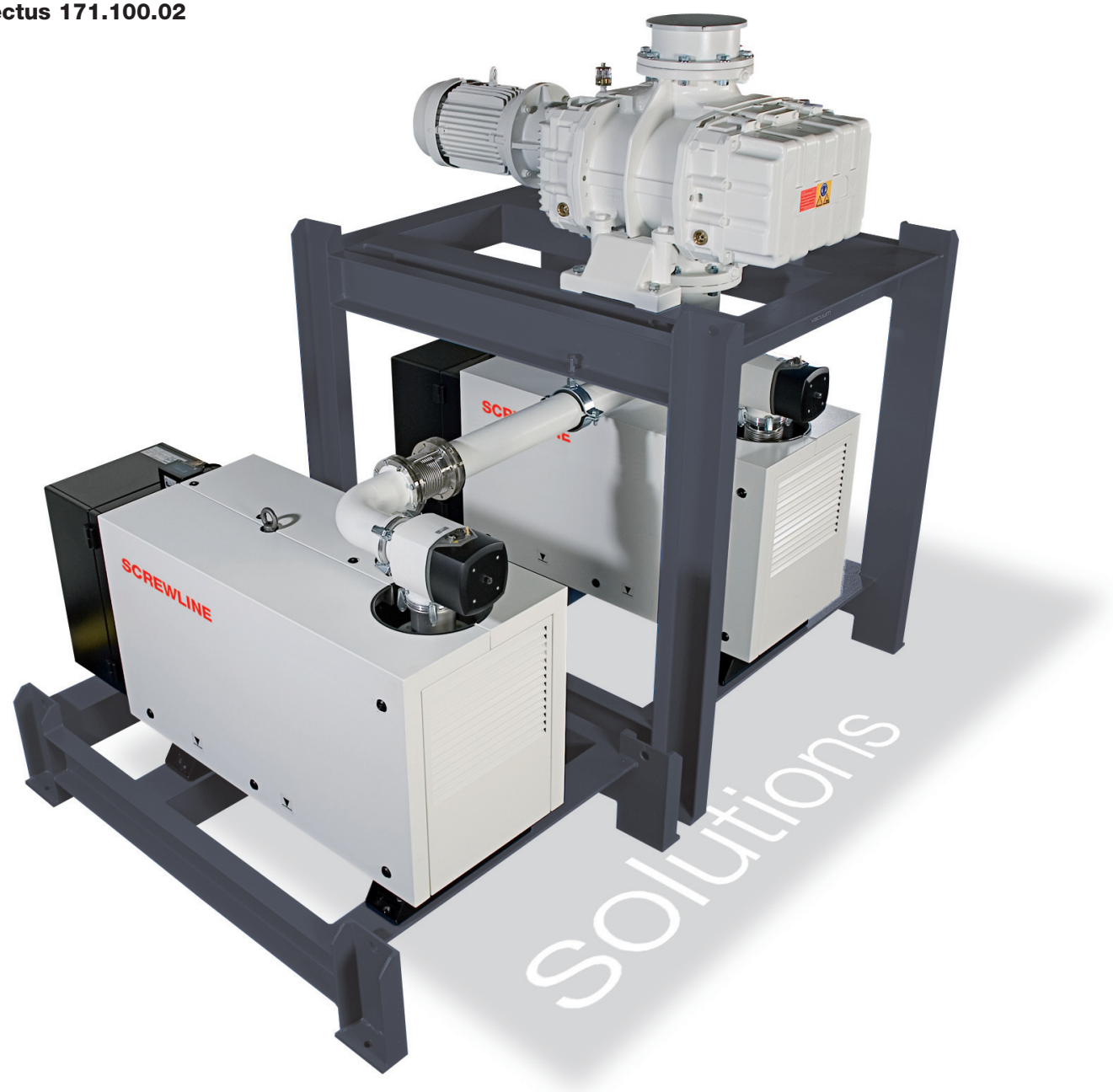
oerlikon
leybold vacuum

SCREWLINE Solutions

Vacuum systems for individual requirements

Prospectus 171.100.02



SCREWLINE Solutions
Perfect matching to processes -

The Dry Vacuum Solution - SCREWLINE

The screw vacuum pumps of the SCREWLINE have been specifically developed for covering the requirements of industrial applications and are also well proven in difficult applications.

The innovative and modular design of the SCREWLINE allows these pumps to be used in all cases where reliable, compact and low maintenance vacuum technology is demanded.
They are suited for all applications with high requirements regarding the backing pump, like processes involving particles or in rough everyday production, for example.

SCREWLINE vacuum pumps offer to the user the following benefits:

- High system availability
- Minimum maintenance complexity
- High vapour and particle tolerance
- Simple cleaning on-site
- Environment compliant production
- Low operating and investmant costs

SCREWLINE vacuum systems - well proven in applications of the process industry

Process Examples and Recommended Versions*

	Systems with Roots pumps	Purge kit version	Installation with SP-Guard/supply module	Equipped with seal gas kit	Combination with exhaust silencer	Fitted non-return valve	Equipped with gas ballast valve electromagnetic/manual	Dust filter option
Heat treatment furnaces		■	■		■		■	■
Sintering/de-waxing		■	■	■	■[1]		■	■
Brazing	■	■	■	■	■		■	
Electron and laser beam welding	■		■		■	■	■	■
Space simulation	■		■		■	■		
Glass coating	■		■	■	■	■	■	
Load lock	■		■		■	■		
Metallurgy/melting	■	■	■	■	■		■	■
Drying of high-voltage components		■	■	■	■		■	
Freeze drying of foodstuffs		■	■	■	■		■	■
Tobacco moistening	■		■	■	■	■	■	
Oil degassing or drying	■		■	■	■	■	■	
Food packaging	■		■	■	■	■	■	■
Web coating of polymer or metal foils (Batch-Roll Coater)	■		■	■	■	■	■	
Vacuum cooling of foodstuffs	■		■	■	■	■	■	■
Drying of cleaning systems (watery, PER)	■		■	■	■	■	■	
Other processes upon request								

[1] Detachable exhaust silencer is recommended

* Examples with standard accessories. For designing plug-and-play vacuum systems many further components (frames, Roots pumps, electrical cabinets, for example) are available.

- highly modular -

SCREWLINE Solutions –
Accessories in line with requirements of demanding processes

The comprehensive range of accessories offered, allows for optimum matching to individual requirements of different applications and is being constantly expanded in line with requirements.
The accessories are fully assembled, tested and supplied ready for connection by way of a SCREWLINE vacuum system.

A number of standard modules as well as numerous supplementing components are available for building complex vacuum systems. Custom solutions for specific applications are possible at any time.

Standard Modules

Roots Pump Adapter

Through this adapter, Roots pumps are directly fitted.

Purge Kit

Cleaning of the pumping chamber is a means of preventing deposits from the side of the process and thereby preventing unscheduled downtimes.

SP-Guard Monitoring Unit

For the purpose of monitoring important operating parameters it is recommended to equip the SCREWLINE vacuum pumps with a SP-Guard Monitoring System.

Besides vibrations, the oil level in the gear and the oil temperature as well as the exhaust pressure of the SCREWLINE are being constantly monitored.

The output signals are constantly evaluated, and in case the SP-Guard detects an unsafe operating status, this is then communicated to the connected system controller and indicated on the display.

In response to this, the user may at an early stage introduce suitable measures, like topping up a gear oil, for example, so as to ensure perfect operation of the SCREWLINE pump.

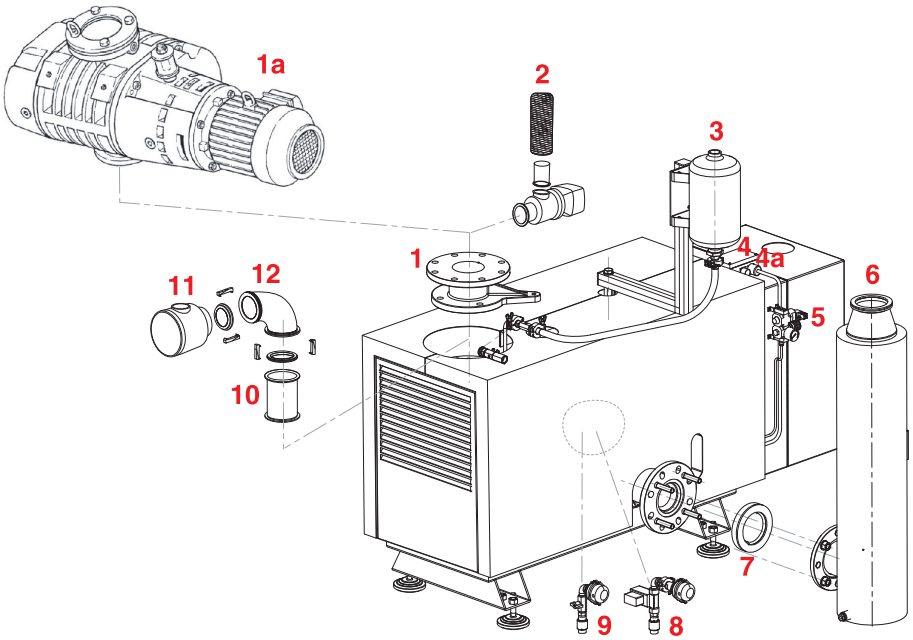
SP-Guard Supply Module with Remote Monitoring

With this supply module, the customer may easily commission and control the SP-Guard. The SP-Guard offers the following benefits:

- By means of floating contacts the signals are linked to the programmable logic controller (PLC)
- For the purpose of remotely monitoring the pump, a modem is installed which is suited for operation under the roughest industrial conditions
- All parameters of the pump can be queried by the service technician, respectively can also be changed
- When a warning occurs, the modem will automatically produce a SMS which is sent to a mobile phone
- Leased line operation for two- or four-wire private lines for transferring data from the pump to a remote control centre is possible
- Integrated remote configuring

Seal Gas Kit

The seal gas retrofit kit is recommended for protection of the inner components and seals against corrosion and contamination. Process gases from the side of the application, vapours and particles which might enter into the sealed area of the pump are thus held back.



Standard Accessories:

1	Wälzkolbenpumpen-Adapter
1a	Wälzkolbenpumpe
2	Lufteinlass für Spülkit
3	Spülkit
4	SP-Guard Überwachungseinheit
4a	Versorgungsmodul mit Fernabfrage
5	Sperrgas-Kit
6	Auslass-Schalldämpfer mit Kondensator
7	Rückschlag-Klappe
8	Gasballast-Ventil, elektromagnetisch
9	Gasballast-Ventil, manuell
10	Filter-Adapter
11	Staubfilter
12	Rohrbogen

- complex SCREWLINE system solutions

SCREWLINE standard vacuum system in a frame together with Roots pump as well as custom version fully covered

Exhaust Silencer with Condensate Drain

The silencer may be fitted either horizontally or vertically. In addition, it operates as a condensate separator.

Non-return Valve

The non-return valve is fitted to the exhaust flange of the SCREWLINE and prevents gas from flowing back into the pump. To prevent the intake of oxygen, fitting of a SECUVAC valve is recommended.

Gas Ballast Valve, Electromagnetically or Manually Operated

The gas ballast valve prevents condensation within the pump and drives dust out of the pump.

Dust Filter

A dust filter fitted in the intake line protects the pump against taking in dust. For fitting, a filter adapter and a pipe bend are required.

System Components

The possibilities of designing and producing simple as well as complex customised vacuum systems are highly varied.
For this reason, Oerlikon Leybold Vacuum is offering a number of components for assembling such systems:

- Roots pumps RUVAC WA(U), WS(U), RA
- Adapter versions
- Special valves (SECUVAC)
- Frequency converters
- Silencers with integrated dust filter
- Frames of the required construction also movable (on castors, for example)
- Electronic controllers according to customer's specifications, including solutions with electrical cabinets
- Silencing hoods
- Covers also for outdoor installations
- Subsystems for integration within customers plants

Vacuum Systems with SCREWLINE Pumps

SCREWLINE vacuum systems have been designed to handle pressures in the rough and medium vacuum range, i.e. the pressure range from atmospheric pressure to 10^{-2} mbar.
In connection with a high vacuum stage, operating pressures down in to the 10^{-7} mbar range can be attained.

The design criteria for SCREWLINE vacuum systems are, besides pump-down time and operating pressures, the process conditions, media properties and gas throughputs as well as branch and product specific standards and regulations.

Benefits Offered by the SCREWLINE Vacuum Systems

- Reduced cost of ownership for power and maintenance, for example
- Reliability
- Pumping speed and ultimate pressures matched to the specific process
- Space saving owing to a compact design
- Service friendliness

- tailor-made for any application

The Experts for Vacuum Systems

Oerlikon Leybold Vacuum Solutions specialises on all types of vacuum solutions.
Through many years of experience in the design and manufacture of vacuum systems we have at our disposal a broad portfolio of standard solutions, which in turn form the basis for all types of customised systems.

Oerlikon Leybold Vacuum Solutions offers tailor-made, requirements oriented and cost optimised products for almost any application. We have available a team of specialists with different qualifications which at any time is prepared to openly discuss with you complex and personally challenging issues. Thus unusual solutions are for this reason not exceptional.

Availability Worldwide

Oerlikon Leybold Vacuum Solutions maintains beside its headquarters in Cologne, Germany with design, production and project monitoring, strategic centres of competence worldwide.

Vacuum Components for any Application

For the purpose of designing vacuum solutions, a broad line of products manufactured by Oerlikon Leybold Vacuum is available:

- Oil-sealed rotary vane pumps TRIVAC B and SOGEVAC SV
- Oil-sealed rotary piston pumps E und DK
- Dry compressing screw vacuum pumps SCREWLINE
- Roots pumps Ruvac WA(U), WS(U) and RA
- Diffusion pumps DIP
- Turbomolecular pumps TURBOVAC, with conventional and magnetic bearings
- Cryogenic pumps COOLVAC

In line with customer's specifications, we are offering in addition products and implementations of other manufacturers and from other industrial branches.

Further Services and Accessories for Vacuum Systems:

- Vacuum engineering/design of vacuum systems of all kinds
- Worldwide application support
- Customer consulting at strategic centres of competence in Europe, USA and Asia
- Coordination of customer inquiries through a worldwide sales and service network

Vacuum system for simulating space conditions in a plasma channel
on a floor space of 5 x 5 m with weather protection roof for outdoor operation

Fax Reply
(0221) 347 - 1277

Make use of our know-how!

Oerlikon Leybold Vacuum
Solutions Cologne, Germany

Fax No.: +49 (0)221 347 - 1277
E-mail: sales.vacuum@oerlikon.com

From company:
Name/Department: _____
E-mail: _____

Tel.: _____
Fax: _____
Date: _____

Please simply send us the filled in checklist by fax. Our application engineers will then design the vacuum system which matches your requirements. You will shortly receive our offer.
Please answer the following questions:

1. In which kind of application, respectively process shall this pump system be used?

2. Which operating/ultimate pressures shall be attained (max./min./norm.) ?
mbar

3. What pumpdown time and what starting pressure is desired?

4. How high is the intake temperature at the pump's flange?
°C

5. Are partial pressures >1 mbar realised at high temperature whereby the vacuum pumps must operate with open valves?
❑ yes ❑ no

6. How high is the ambient temperature?
°C

7. What leak rate is to be expected?

8. Is gas being fed in while the processes are running?
❑ yes ❑ no

9. Type of gas?

10. Quantity of the gas?
sccm/m³

11. Pressure at which the gas is admitted?
mbar

12. Is the gas flammable?
❑ yes ❑ no

13. Batch duration?

14. Are vapours to be expected?
❑ yes ❑ no
If yes, type of vapour?

15. Are particles to be expected?
❑ yes ❑ no
If yes, type of particles?

16. Description of the product which is to processed:

17. Surface contaminated?
(with cleaning agents, drawing compounds or cooling agents, for example)
❑ yes ❑ no

18. What are the electrical connection specifications?
■ Mains voltage _____
■ Mains frequency _____
■ Control voltage AC/DC _____

19. What mechanical connection data is being planned?
■ Length of the intake line?
mm
■ Diameter of the intake line?
mm

20. Which cooling media are present?

21. Type of cooling medium (water, brine, etc.)?

22. Temperature of the cooling medium (max./min.)?
°C

23. Do a special regulations have to be complied with?

24. ATEX
Has an assessment and rating regarding explosion hazard areas in accordance with the Atex Directive been performed? (inside/outside)

Zone _____
Temperature class _____
Gas group _____

25. Other important information, respectively remarks not covered by the questions above:

Headquarters in Germany

Oerlikon
Leybold Vacuum GmbH
Bonner Straße 498
D-50968 Cologne
Germany

T +49 (0) 221-347-0
F +49 (0) 221-347-1250
info.vacuum@oerlikon.com

www.oerlikon.com

BICOM 09010.01 - 171.100.01 0.2.02.07 GK
Printed in Germany on chlorine-free bleached paper