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**œrlikon**  
leybold vacuum

# **PHOENIXL 300**

## **New Standards in Leak Testing**

**Technical Information 180.75.02**



# PHOENIXL 300

## Helium Leak Detector

### A Helium Leak Detector of the Premium Class

The new helium leak detector PHOENIXL300 from Oerlikon Leybold Vacuum is based on the consistent further development of the successful and well-known ULTRATEST UL 100, UL 200 leak detectors as well as their successors L 200 and L 200+.

PHOENIXL300 leak detectors set new standards for modern and up-to-date leak detection.

The PHOENIXL300 excels through ruggedness, rapid entry into the measurement mode, high measurement accuracy and reliability as well as flexibility of use.

Being a mobile helium leak detector, the PHOENIXL300 is equally suited for use on mass production lines and service work.

It excels through its rapid entry into the measurement mode and an extremely short response time thereby fulfilling the requirements of industrial series production testing – for example in the refrigerating and air conditioning industry.

The oil-free gas inlet system allows the use of this leak detector in testing of optical systems, in analytical systems or in the semiconductor industry.



### Modern, up-to-date Leak Detection

The PHOENIXL300 Modul is suited for leak testing large volume vessels. In combination with a partial flow pump set, the PHOENIXL300 can also be equipped for such applications offering leak rate measurements starting at 1000 mbar.

In connection with the corresponding accessories, the leak detector may be operated as a sniffer leak detector.

Upon request, our application consulting department is prepared to customise the PHOENIXL 300 also in response to specific customer specifications.

The special construction, the modern design and the easily comprehensible user menu with operation through soft keys make the PHOENIXL300 in many applications suited even better than its predecessors.

### Applications

- Quality assurance
- Research and development
- Power plant engineering
- Analytical technology
- Plant engineering
- High and ultrahigh vacuum technology

AC & R industry

Automotive industry

Electrical industry



Photo: Leak test of electrical surge arresters.  
By courtesy of ABB Inc., Younawood, PA (USA).

# Professional Leak Detection - Faster and Better

## Customer Benefits

### PHOENIXL 300

- Lowest detectable leak rate for helium  $< 5 \times 10^{-12}$  mbar l /s
- Faster detection times through an averaging method which adapts itself dynamically to the leak rates
- Leak detection starting at an inlet pressure of 15 mbar
- Oil-free gas inlet system
- Short recovery time after helium contamination ( $\leq 5$  min.)
- High helium pumping speed 2.5 l/s
- The leak detector may be moved to a different location immediately ( $\leq 30$  s) after switching off
- Conversion of the Helium leak rate into R134a equivalent g/a, oz/yr and ppm read out in sniffer mode selectable
- Integrated calibrated leak and automatic calibration
- 3 freely selectable trigger thresholds
- Switchable for the detection of  $H_2$ ,  $^3He$  and He
- Trend/bargraph leak rate display
- Transportation in any orientation
- Helium background suppression upon a single key press (Auto-Zero)
- Measurement range of 12 decades
- Data output and external driving analog / RS 232
- Documentation and qualification of the leak rates acc. to ISO 9000

### PHOENIXL 300 Dry

- Entirely oil-free vacuum system
- Purge function for preventing helium accumulations in the system

### PHOENIXL 300 Modul

- Additional forevacuum system for testing of large volume vessels

### PHOENIXL 300 Cart-Option

- Modular and mobile system; The PHOENIXL 300 is configured according to customer specifications depending on the demanded leak rate, timings and type of gas.

### Design Characteristics

- Newly designed operating panel and graphic display for easy and convenient operation
- Angled operating panel for easy visibility of the instrument status
- Innovative oil-free gas inlet system
- Maintenance friendly concept – the mechanical connections have been separated from the electrical connections and have each been arranged in a protected connection strip
- Oil level glass at the housing for simple oil level checks
- Extremely long service life of the cathodes due to their Iridium/Yttrium coating
- Distinctive, modern design
- The optional remote control unit is equally suited for right handers and left handers

## Additional Benefits

The Oerlikon Leybold Vacuum PHOENIXL300 helium leak detectors are so-called counterflow leak detectors which contain many well proven own components, like for example:

- TRIVAC rotary vane pumps for rapid evacuation of the device under test and for producing a high gas flow in the sniffer mode
- Turbomolecular pumps TW 70 for improving the pumping speed and the helium background characteristic
- A  $180^\circ$  mass spectrometer with an excellent track record already in the predecessors to the PHOENIXL300 leak detector
- The optimised valve block ensures, compared to the design used in the predecessors, a significantly reduced recovery time after suffering helium contamination and a high pumping speed at the inlet



Cart 300 for PHOENIXL300

# Maintenance-Friendly and Cost Effective



Customised PHOENIXL 340 for parts testing in series production

## Maintenance-Friendly

The design of the PHOENIXL300 is such that all components can be accessed rapidly when maintenance becomes necessary.

The internal arrangement completely separates the mechanical from the electrical and electronic subassemblies. Thus mutual influencing and inter-fereces are reliably avoided.

Heat sources like, for example, those of the motor of the backing pump or the power supply of the turbomolecular pump have been thermally isolated and, moreover, are cooled by a well-directed air flow.

The preamplifier of the mass spectrometer is located in a hermetically sealed metal enclosure and is thereby protected against external influences like humidity in the air, for example.

All subassemblies can be removed or replaced with ease, thereby reducing servicing downtime to a minimum.



Internal design - clear and maintenance-friendly

## Cost Effective

The PHOENIXL300 helium leak detector was developed for the demanding tasks of industrial leak detection. Even under unfavourable operating conditions it will supply accurate results fast.

The PHOENIXL300 saves time and money because it is

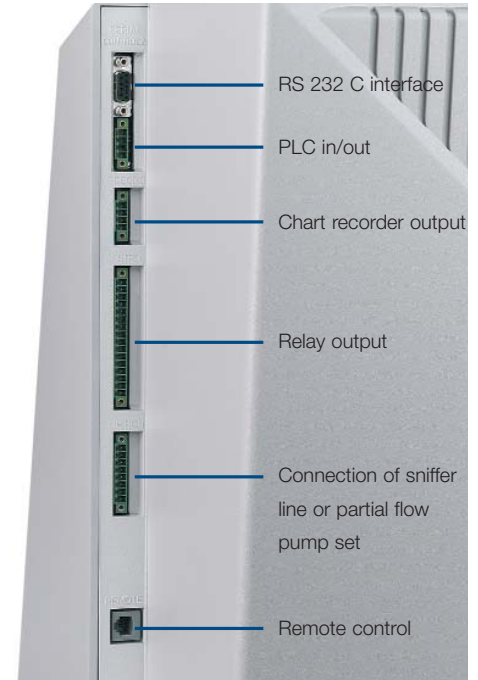
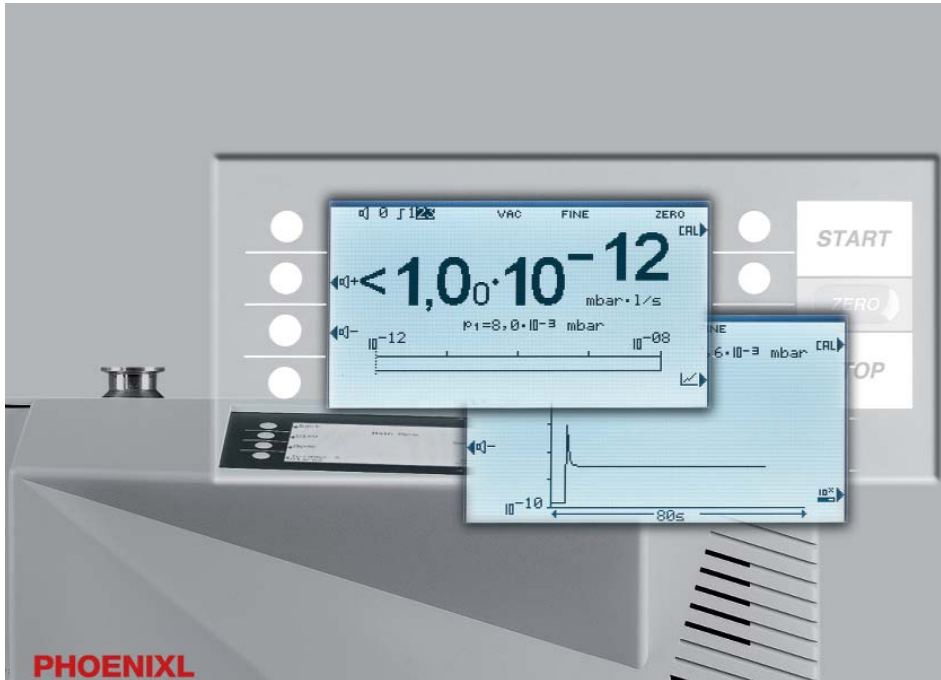
- user-friendly
- quickly ready for operation
- provides reliable measurement results
- offers a high detection rate and high degree of reproducibility
- equipped with a unique mass spectrometer
- equipped with one ion source with two automatically switchable cathodes

## Extended Warranty\*

Oerlikon Leybold Vacuum offers an extended warranty period of 36 months\* for the PHOENIXL300, relating to the service life of the ion source.



# Leak detection > smart & safe <



Electrical connection strip on the rear

## Operating Panel

The PHOENIXL300 is equipped with a newly developed operating panel. The integrated graphic display in the basic unit ensures that all the necessary parameters can be set up easily. Status and measurement results are displayed in an excellent size and with outstanding clarity, and can be read conveniently even from a greater distance.

The type of display can be switched over between numerical, bargraph or trend. The important basic functions (START, ZERO, STOP) are available upon a single key press.

The software is operated under menu control. Sections of the menus can be protected against unauthorised use or unintentional changes.

## Accessories

### Remote Control

Operating the leak detector through the optional remote control unit allows the PHOENIXL300 to be operated from a distance of up to 28 metres, depending on the length of the cable.

The functions START, STOP/VENT, STOP (venting), ZERO as well as the volume and the leak rate display can be controlled through the remote control unit.

### Sniffer Line SL300

By using a sniffer line, the may also be used as a sniffer leak detector.

The length of the sniffer line is 4 m. Sniffer probes of different sizes, either of flexible or rigid design, are available.

## LeakWare Software

Software for operating the leak detector through a PC as well as for displaying and processing the measured leak rate data.

## Partial Flow Pump System

The PHOENIXL300 can be supplemented by a partial flow pump system.

The additional evacuation of the device under test using an auxiliary pump offers the following benefits:

- Faster response times
- Ready to measure already at an inlet pressure starting at 1000 mbar
- More rapid venting of large devices under test
- Leak detection of large volumes

# Technical Data

## Ordering Information

Helium Leak Detector	PHOENIXL	300	300 Dry	300 Modul
Lowest detectable helium leak rate				
Vakuum operation	mbar l/s	$\leq 5 \cdot 10^{-12}$	$\leq 3 \cdot 10^{-11}$	$\leq 5 \cdot 10^{-12}$ a) / $8 \cdot 10^{-12}$ b)
Sniffer operation	mbar l/s	$\leq 1 \cdot 10^{-7}$	$\leq 1 \cdot 10^{-7}$	$\leq 1 \cdot 10^{-7}$
Maximum measurable helium leak rate				
Vakuum operation	mbar l/s	> 0.1	> 0.1	> 0.1
Measurement ranges		12 decades	12 decades	12 decades
Maximum permissible inlet pressure	mbar	15	15	15
Pumping speed during pumpdown, 50 Hz/ 60 Hz	m <sup>3</sup> /h	2.5 / 3	1.6/1.8	25/30a) / 30/36b)
Helium pumping speed in the vacuum mode	l/s	> 2.5	> 2.5	> 2.5
Time constant for the leak rate signal	s	< 1	< 1	< 1
Time until ready for operation	min	$\leq 2$	$\leq 2$	$\leq 2$
Power consumption	VA	420	350	350
Inlet flange		DN 25 KF	DN 25 KF	DN 25 KF
Dimensions (W x H x D)	mm		495 x 456 x 314	
Weight	kg	40	35.5	29.5

a) with rotary vane pump TRIVAC D 25 B 25 m<sup>3</sup>/h

b) with scroll pump 30 m<sup>3</sup>/h



Ordering Information	PHOENIXL	300	300 Dry	300 Modul
Helium leak detector PHOENIXL				
230 V, 50/60 Hz	Euro model	250 000	250 001	250 002
115 V, 60 Hz	US model	251 000	251 001	250 002
100 V, 50/60 Hz	Japan model	251 100	251 101	250 002
Remote control kit, consisting of remote control unit, 4 m cable, mounting kit		252 002	252 002	252 002
Extension cable for remote control, 8 m		140 22	140 22	140 22
Sniffer line SL300, 4 m		252 003	252 003	252 003
LeakWare - data acquisition software		140 90	140 90	140 90
Partial flow system, 90 V / 230 V, AC, 50/60 Hz		140 20	–	140 20
Transport case		252 004	252 004	252 004
Mobile Cart model according to a customer specs.		upon request	upon request	upon request

\* not for shipping. Use as a transport or storage case only.

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