



Partial Flow System for PHOENIX L300i

Translation of the original operating instructions
GA10277_002_C0

Cat.-No.

140 20

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Safety Information

Important Safety Information

Indicates procedures that must be strictly observed to prevent hazards to persons.

Indicates procedures that must be strictly observed to prevent damage to, or destruction of the product.

Emphasises additional application information and other useful information provided within these Operating Instructions.

The Leybold Partial Flow System for PHOENIX L300i has been designed for safe and efficient operation when used properly and in accordance with these Operating Instructions. Observe all safety precautions described in this section and throughout this Operating Instructions. The Calibrated Sniffer Test Leak must only be operated in the proper condition and under the conditions described in the Operating Instructions. It must be operated and maintained by trained personnel only. Consult local, state, and national agencies regarding specific requirements and regulations. Address any further safety, operation and/or maintenance questions to our nearest office.

Warranty

Leybold covers no responsibility nor warranty if the user or third parties

- disregard the information in this document
- utilize the product not according to the defined use
- make any kind of changes (modifications, alterations, etc.) to the product.

Safety Information

- Unpack the partial flow system immediately after delivery, even if it is to be put into operation at a later date.
- Retain the shipping container and the packaging materials in the event of complaints about damage.
- Check that the partial flow system is complete (see Section 1.2) and subject it to a careful visual check.
- If any damage is discovered, report it immediately to the forwarding agent and insurer. If the damaged part has to be replaced, please get in touch with the orders department.

Warning

Caution

Note

Caution



Safety Information

Purpose

The partial flow system is operated in connection with the PHOENIX L300i leak detector. In the partial flow operation the test sample is evacuated in addition via an auxiliary pump. Consequently the following advantages result:

- faster response time,
- readiness to measure already as of 1000 mbar inlet pressure,
- fast venting of big test samples.

Figures

The references to figures, e.g. (2/1) consist of the Fig. No. and the Item No. in that order.

We reserve the right to make technical changes without prior notice.

1 Description

1.1 Partial Flow Operation of the PHOENIX L300i

The valve block is at the heart of the partial flow system. This valve block consists of two firmly mounted valves V9 and V10 as well as a bypass orifice. The connection to the partial flow pump is provided via a separate DN 25 right-angle valve V8 and pipe bend or an elbow (see vacuum diagram in Fig. 1).

Via operating the Start push-button on the hand unit of the PHOENIX L300i, valves V8 and V10 are opened in order to evacuate the test sample via the external partial flow pump (generally a D 25 B) and also via the internal backing pump. If within the quick point time (see also TH PHOENIX L300i) a pressure of 3 mbar is reached, the PHOENIX L300i will switch to the GROSS mode with running partial flow pump; the detection limit is $1 \cdot 10^{-8}$ mbar·l·s⁻¹. Further evacuation lets the leak detector enter the FINE mode at 0.1 mbar with active partial flow pump. The lowest detectable leak rate is now $5 \cdot 10^{-10}$ mbar·l·s⁻¹.

If it is not possible to evacuate the test sample within the quick point time to below 3 mbar, for example because the volume of the test sample is over 1 to 2 l or if a gross leak is present, valve V10 is closed again, i.e. the test sample is then exclusively evacuated by the partial flow pump. The only vacuum link which now exists to the PHOENIX L300i is via the bypass orifice (see Fig. 1). Thus, the amount of gas flowing into the leak detector is so small, that even at atmospheric pressure (1000 mbar) within the test sample, the pressure in the inlet area of the PHOENIX L300i will be ≤ 3 mbar so that the PHOENIX L300i can run in the GROSS mode. The detection limit is $2 \cdot 10^{-5}$ mbar·l·s⁻¹.

If a test sample pressure of approx. 500 mbar is decreased the detection limit is $5 \cdot 10^{-6}$ mbar·l·s⁻¹.

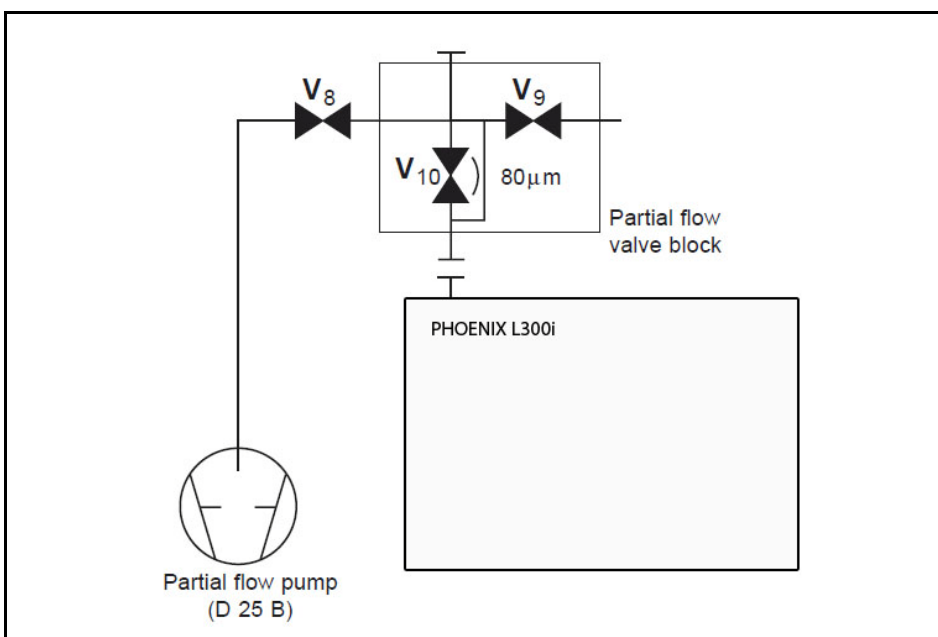


Fig. 1 Vacuum diagram

Description

If 3 mbar are decreased, V10 is opened and as described before the GROSS mode is attained with the partial flow pump (V8 and V10 open).

The partial flow valve V8 closes at an inlet pressure of $< 10^{-2}$ mbar when the „NORMAL“ partial flow mode has been selected. If the „oil-free“ partial mode was selected, valve V8 closes already at a pressure of < 0.1 mbar. In both cases the PHOENIX L300i is running in the FINE mode at its full detection sensitivity of $5 \cdot 10^{-11}$ mbar·l·s⁻¹.

Via actuation and pressing down the Stop key (Vent function) the test sample is subjected to fast ventilation (V8 and V10 closed) via V9 (diameter 6 mm).

The valves are fully automatically controlled by the PHOENIX L300i via the delivered cable (2/5).

Examples:

For a quick point time of $T_Q = 0$ s and by operating "START" the valve V10 is initially not opened. This setting is recommended in the case of large volumes and dirty test samples.

For $T_Q = \infty$ (>>) valve V10 is opened upon operating "START". At an inlet pressure of $p_E < 3$ mbar the leak detector will enter into the measurement mode and display leak rates. V10 remains open until pressing "STOP". The setting of T_Q is recommended in such cases where it is acceptable to wait until the leak detector enters into the measurement mode and when it is not necessary to display a leak rate before that time.

1.2 Equipment

1.2.1 Standard Specification

Partial flow valve block

DN 25 KF right angle valve

Control cable

Vacuum hose

Small flange connections

90 degrees elbow / pipe bend

1.2.2 Spare Parts

Description	Cat. No.
Right angle valve 110/230V	200 99 292
Partial flow valve block complete PHOENIX L300i MODUL / DRY	200 99 009
Partial flow valve block complete PHOENIX L300i	200 28 856
Partial flow cable set complete PHOENIX L300i MODUL / DRY	200 99 010
Valve V9	200 000 516
Valve V10	200 000 517

Description

2 Operation

For proper start up and operation of the partial flow valve it is absolutely necessary to take note of the information provided in the separate Operating Instructions for the components of the system besides the information given in these Operating Instructions.

2.1 Start up

An overview of the arrangement of the partial flow valve is given in [Fig. 2](#).

Switch the PHOENIX L300i off and disconnect any possibly connected test objects from the test port. Connect the partial flow valve block (2/2) to the test port of the PHOENIX L300i. When doing so, the metal filter on the rear should point backwards and the lateral vacuum flange should point to the left.

In order to exclude the effects of any interference, the right-angle valve DN 25 KF (2/1) must now be flanged to the side port of the partial flow valve block (2/2) so that the second flange points to the front and so that the LEDs of the valve point to the left.

The partial flow pump (2/8) is connected via the vacuum hose (2/9) and the pipe bend / elbow (2/10) to the DN 25 KF right-angle valve (2/1). Provide the electrical connection through connection cable (2/5) as follows:

- 1) Screw together the round connection plug with the cable coupling of the right angle valve.
- 2) Connect plug (2/3) to valve V9.
- 3) Connect plug (2/4) to valve V10.

The designation is glued onto the corresponding cable plugs and valves.

- 4) Connect plug (2/6) to the 8-way socket (OPTION) on the face of the PHOENIX L300i.

Switch on the partial flow pump.

Switch the PHOENIX L300i on.

Select through the software menu of the PHOENIX L300i:

- Line 2 : the „partial flow“ operating mode and
- Line 10 : „Evactime 1“ 5 seconds or higher
- Line 29 : the nominal pumping speed of the partial flow pump. Connect the test sample to the partial flow valve block (2/2).

Note

Operation

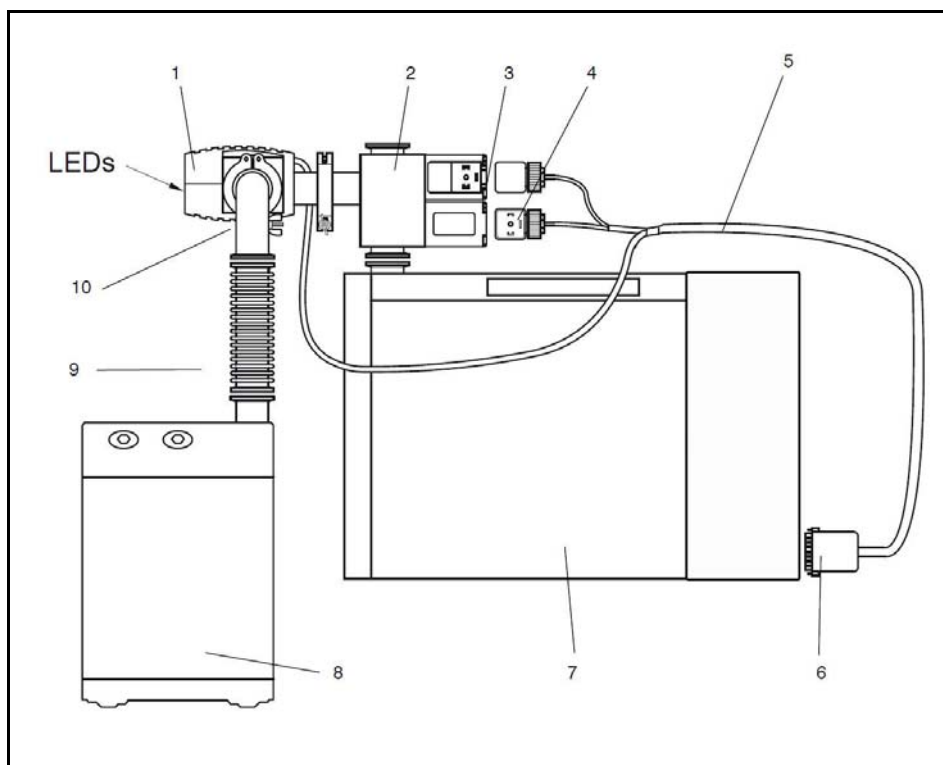


Fig. 2 Set of partial flow valves for the PHOENIX L300i

Pos.	Description	Pos.	Description
1	DN 25 KF right angle valve with electronics unit	6	Connection plug for the PHOENIX L300i (Option)
2	Partial flow valve block	7	PHOENIX L300i
3	Connection plug for valve V9	8	Partial flow pump Vacuum hose
4	Connection plug for valve V10	9	Vacuum hose
5	Connection cable	10	90 degrees elbow / pipe bend

3 Maintenance

3.1 Leybold Service

Whenever you send us in equipment, indicate whether the equipment is contaminated or is free of substances which could pose a health hazard. If it is contaminated, specify exactly which substances are involved. You must use the form we have prepared for this purpose.

A copy of this form has been reproduced at the end of these Operating Instructions: Declaration of contamination for Compressors, Vacuum pumps and Components. Another suitable form is available from www.leybold.com - Documentation - Download Documents.

Attach the form to the equipment or enclose it with the equipment.

This statement detailing the type of contamination is required to satisfy legal requirements and for the protection of our employees. We must return to the sender any equipment which is not accompanied by a contamination statement.

Caution



Contamination

Form

4 Waste Disposal

The equipment may have been contaminated by the process or by environmental influences. In this case the equipment must be decontaminated in accordance with the relevant regulations. We offer this service at fixed prices. Further details are available on request.

Contaminated parts can be detrimental to health and environment

Before beginning any work, first find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Separate clean components according to their materials, and dispose of these accordingly. We offer this service. Further details are available on request.

When sending us any equipment, observe the regulations given in Section „3.1 Leybold Service“.

Contamination

Caution



Declaration of Contamination of Compressors, Vacuum Pumps and Components

The repair and / or servicing of compressors, vacuum pumps and components will be carried out only if a correctly completed declaration has been submitted. Non-completion will result in delay. The manufacturer can refuse to accept any equipment without a declaration.

A separate declaration has to be completed for each single component.

This declaration may be completed and signed only by authorized and qualified staff.

Customer/Dep./Institute : _____ Address : _____ _____ Person to contact: _____ Phone : _____ Fax: _____ End user: _____	Reason for return: <input checked="" type="checkbox"/> applicable please mark Repair: <input type="checkbox"/> chargeable <input type="checkbox"/> warranty Exchange: <input type="checkbox"/> chargeable <input type="checkbox"/> warranty <input type="checkbox"/> Exchange already arranged / received Return only: <input type="checkbox"/> rent <input type="checkbox"/> loan <input type="checkbox"/> for credit Calibration: <input type="checkbox"/> DKD <input type="checkbox"/> Factory-calibr. <input type="checkbox"/> Quality test certificate DIN 55350-18-4.2.1
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A. Description of the Leybold product: Material description : _____ Catalog number: _____ Serial number: _____ Type of oil (ForeVacuum-Pumps) : _____	Failure description: _____ Additional parts: _____ Application-Tool: _____ Application- Process: _____
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B. Condition of the equipment	No¹⁾	Yes	No	Contamination :	No¹⁾	Yes
1. Has the equipment been used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	toxic	<input type="checkbox"/>	<input type="checkbox"/>
2. Drained (Product/service fluid)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	corrosive	<input type="checkbox"/>	<input type="checkbox"/>
3. All openings sealed airtight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	flammable	<input type="checkbox"/>	<input type="checkbox"/>
4. Purged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	explosive ²⁾	<input type="checkbox"/>	<input type="checkbox"/>
If yes, which cleaning agent _____				radioactive ²⁾	<input type="checkbox"/>	<input type="checkbox"/>
and which method of cleaning _____				microbiological ²⁾	<input type="checkbox"/>	<input type="checkbox"/>
¹⁾ If answered with "No", go to D. ←				other harmful substances	<input type="checkbox"/>	<input type="checkbox"/>

C. Description of processed substances (Please fill in absolutely)																												
1. What substances have come into contact with the equipment ? Trade name and / or chemical term of service fluids and substances processed, properties of the substances According to safety data sheet (e.g. toxic, inflammable, corrosive, radioactive)																												
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%; text-align:center">X</td> <td style="width:40%;">Tradename:</td> <td style="width:50%;">Chemical name:</td> </tr> <tr><td></td><td>a)</td><td></td></tr> <tr><td></td><td>b)</td><td></td></tr> <tr><td></td><td>c)</td><td></td></tr> <tr><td></td><td>d)</td><td></td></tr> </table>	X	Tradename:	Chemical name:		a)			b)			c)			d)		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%; text-align:center">No</td> <td style="width:10%; text-align:center">Yes</td> </tr> <tr> <td>2. Are these substances harmful ?</td> <td style="text-align:center"><input type="checkbox"/></td> <td style="text-align:center"><input type="checkbox"/></td> </tr> <tr> <td>3. Dangerous decomposition products when heated ?</td> <td style="text-align:center"><input type="checkbox"/></td> <td style="text-align:center"><input type="checkbox"/></td> </tr> <tr> <td colspan="3">If yes, which ? _____</td> </tr> </table>		No	Yes	2. Are these substances harmful ?	<input type="checkbox"/>	<input type="checkbox"/>	3. Dangerous decomposition products when heated ?	<input type="checkbox"/>	<input type="checkbox"/>	If yes, which ? _____		
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3. Dangerous decomposition products when heated ?	<input type="checkbox"/>	<input type="checkbox"/>																										
If yes, which ? _____																												

²⁾ Components contaminated by microbiological, explosive or radioactive products/substances will not be accepted without written evidence of decontamination.

D. Legally binding declaration

I / we hereby declare that the information supplied on this form is accurate and sufficient to judge any contamination level.

Name of authorized person (block letters) : _____

_____ Date

_____ signature of authorized person

firm stamp

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