Documentation

VLXE-SAB T.. / P..

Explosion protected vacuum leak detector

Please read the instructions before commencing any work

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1. General

1.1 Information

These instructions provide important notes on using the leak detector VLXE-SAB T.. / P... The pre-requisite for workplace safety is the adherence to all safety and handling instructions specified in this manual.

Furthermore, any local regulations for prevention of accidents applicable at the site of use of the leak detector and general safety instructions must be complied with.

1.2 Explanation of Symbols

In these instructions, warnings are marked with the adjacent symbol.

The signal word expresses the level of hazard.

DANGER:
Imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING:
Potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION:
Potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

Information:
Highlights useful tips, recommendations and information.

1.3 Limitation of Liability

All information and instructions in this documentation have been compiled considering the applicable norms and regulations, the state of the art and our longstanding experience.

SGB does not assume any liability in case of:

- Noncompliance with these instructions
- Unintended use
- Use by unqualified personnel
- Unauthorized modifications
- Connection to systems not approved by SGB

1.4 Copyright

1.5 Warranty Conditions

We provide warranty for the leak detector VLXE-SAB T.. / P.. for a period of 24 months from the day of installation on site in accordance with the General Terms & Conditions.

The maximum warranty period is 27 months from our date of sale.

Warranty is subject to submission of the functional/test report on initial commissioning by trained personnel.
Stating the serial number of the leak detector is required.

The obligation of warranty shall cease to exist in case of
- inadequate or improper installation
- improper use
- changes/repairs made without the manufacturer's consent.

Our warranty does not include parts, which may be perished premature due to their consistence or category of usage (e.g., pumps, valves, gaskets, etc.). Furthermore, we are not liable for defects or corrosion damages caused by humid or inappropriate installation environments.

1.6 Customer Service

Our customer service is available for any inquiries.

For information on contacts, please refer to our website sgb.de or the label of the leak detector.

2. Safety

2.1 Intended Use

WARNING!

Danger from misuse

- Assembly of housing in the open air
- Conditions from Chapter 3.5 “Field of Application” must be adhered to.
- Only the interstitial spaces of double-walled tanks/pipelines that show sufficient underpressure.
- Grounding/equipotential bonding in accordance with applicable regulations.
- Interstitial space detonation fuses usually required
- Tightness of the interstitial space according to this documentation (Chap. 6.1).
- Assembly outside the EX-area or in the area where the zone 1 does not exceed a height of one meter.
- Explosive vapor-air mixtures: II A to II B3; T1 to T4.
- Ambient temperature -20°C (heated -40°C) ... +60°C
- Implementation in manhole pits or inspection chambers shall be sealed gas-tight.
- The power supply cannot be disconnected.
- Ground/main voltages shall be at the same potential as the equipotential bonding of the tank/pipelines

- The volume of the space monitored by the leak detector must not exceed 10 m^3 (manufacturer’s recommendation: 4 m^3).

Caution: The protective function of the device may be impaired if it is not used as specified by the manufacturer.

Any claims arising from misuse are excluded.

2.2 Obligation of the Operating Company

The leak detector VLXE-SAB T.. / P.. is used in the commercial sector. The operating company is therefore subject to statutory occupational safety obligations.

In addition to the safety instructions in this documentation, all applicable safety, accident prevention and environmental regulations must be adhered to. In particular:

WARNING!

Danger in case of incomplete documentation

- Compiling a risk assessment and implementing its results in a directive
- Performing regular checks as to whether the directive is in compliance with the current standards
- The directive includes, among others, how to react to an alarm that might arise
- Arranging for an annual functional check

2.3 Qualification

WARNING!

Danger to humans and the environment in case of inadequate qualification

The personnel must be capable of independently recognizing and avoiding potential risks based on their qualifications.

Companies commissioning leak detectors must be trained by SGB or an authorized representative.

National regulations must be observed.

For Germany:
Technical service qualification for assembly, commissioning and maintenance of leak detection systems.

2.4 Personal Protective Equipment (PPE)

Personal protective equipment must be worn during work.

- Wear necessary protective equipment for the relevant work
- Note and comply with existing PPE signs

Entry in the "Safety Book"

Wear HV vest

Wear safety footwear

Wear hard hat

Wear gloves – where necessary

Wear safety goggles – where necessary

2.4.1 Personal protective equipment for systems that may be subject to risk of explosion

The parts listed here refer in particular to safety when working with systems that may be subject to risk of explosion.

If work is performed in areas in which an explosive atmosphere must be expected, the minimum required equipment is as follows:

- Suitable clothing (risk of electrostatic charge)
- Suitable tools (in accordance with EN 1127)
- Suitable combustible gas indicator calibrated to the existing vapor-air mixture (work shall be performed only at a concentration of 50 % below the lower explosion limit)[1]
- Measuring equipment to determine the oxygen content in the air (Ex/O-meter)

2.5 Fundamental Hazards

DANGER:

From electric current

When working on the leak detector, it must be disconnected from the power supply unless stated otherwise in the documentation.

Comply with relevant regulations regarding electric installation, explosion protection (e.g., EN 60 079-17), and accident prevention.

CAUTION:

From moving parts

If the leak detector is used, the power must be switched off.

DANGER:

From explosive vapor-air mixtures

Explosive vapor-air mixtures can exist in the leak detector and in the connecting lines.

Ensure there is no gas present prior to performing work

Comply with explosion regulations, e.g., BetrSichV (and/or directive 1999/92/EC and the laws of the respective member states resulting therefrom) and/or others.

DANGER:

From working in chambers

The leak detector is usually assembled in the open air, whereas the assembly kit is usually assembled in manhole chambers. Therefore, the chamber must be entered for assembly.

Before entering, the corresponding protective measures must be taken and it must be ensured that no gas and sufficient oxygen are present.

[1] Other manufacturers' or countries' regulations may provide different percentages.

3. Technical Data of the Leak Detector

3.1 General Data

Dimension and Drilling Illustration	see Chap. 12.2
Dimensions of concrete base	see Chap. 12.3
Weight	80 kg
Storage temperature range	-20°C to +60°C
Operating temperature range	-20°C (heated -40°C) to +60°C
Volume of the audible alarm	≥ 70 dB (A)
Housing protection class	IP 54

3.2 Electrical Data

Power supply	100–240 V AC, 50/60 Hz
Power input	125 W…250 W
Terminals 27, 28, potential free, together, all tanks:	max: 250 V AC, 50 Hz, 1.5 A
Terminals 23, 24, potential free, together, all pipes	max. 250 V AC, 50 Hz, 1.5 A
Terminals PC X.Y	max. 250 V AC, 50 Hz, 1.5 A min. 6 V / 10 mA
Fuse protection:	max 10 A (1500 A switching capacity)
Overvoltage category:	2

3.3 EX data (lower part)

Leak detector ⟨Ex⟩ II 1/2G EX me IIB3 T4 Ga/Gb

3.4 Switching Values of the Leak Detectors and Suitability of the interstitial space

Type	**Alarm ON,** at the latest:	**Pump OFF,** not more than:	**Suitability*** of interstitial space given for
34	- 34 mbar	- 90 mbar	- 500 mbar
240	- 240 mbar	- 310 mbar	- 340 mbar**
330	- 330 mbar	- 450 mbar	- 700 mbar
410	- 410 mbar	- 540 mbar	- 750 mbar
500	- 500 mbar	- 630 mbar	- 850 mbar

The above listed switching values are implemented for tanks as well as for pipes. Special values can be agreed upon between the client and SGB.

* Classed as fulfilled for double-walled steel tanks in accordance with EN 12285. Lower values may occur with corresponding safety device, possibly when using a vacuum valve.

** A vacuum valve to protect the interstitial space must be installed for operation!

3.5 Field of Application

3.5.1 Tank

a) Single-walled horizontal (underground or aboveground) cylindrical tanks with leak protection lining (LAK) or jacketing (LUM) and suction line leading to the low point

Usage limits: None for density and diameter

b) Double-walled horizontal (underground or aboveground) cylindrical tanks (e.g., DIN 6608-2, 6616 or DIN EN 12 285-1-2)
- as with a), though without suction line leading to the low point
- as with c), though without suction line leading to the low point
- as with d), though without suction line leading to the low point

Usage limits:

Density of the stored material [kg/dm³]	$H_{max.}$(Tank height or height of the low point of the pipelines to the node[2]) [m]		
	330	**410**	**500**
0.8	3.8	4.8	6.0
0.9	3.4	4.3	5.3
1.0	3.1	3.9	4.8
1.1	2.8	3.5	4.4
1.2	2.6	3.2	4.0
1.3	2.4	3.0	3.7
1.4	2.2	2.8	3.4
1.5	2.0	2.6	3.2
1.6	1.9	2.4	3.0
1.7	1.8	2.3	2.8
1.8	1.7	2.2	2.7
1.9	1.6	2.0	2.5

For **underground** systems, a **density** of at least **1 kg/dm³** is needed.

c) Double-walled (or single-walled with leak protection lining or jacketing) vertical cylindrical tanks or troughs with a dished bottom (underground or aboveground) with a suction line leading to the low point (DIN 6618-2: 1989)

[2] The node is the merger of the suction and measuring lines at a vacuum leak detector for pipelines. This can also be in the assembly kit or a distributer unit.

Usage limits:

Diameter [mm]	Height [mm]	Max. density of stored material [kg/dm³]	
		34	**330 to 570**
1 600	≤ 2 820	≤ 1.9	≤ 1.9
	≤ 3 740	≤ 1.6	≤ 1.9
	≤ 5 350	≤ 1.6	≤ 1.9
	≤ 6 960	≤ 1.6	≤ 1.9
2 000	≤ 5 400	≤ 1.4	≤ 1.9
	≤ 6 960	≤ 1.4	≤ 1.9
	≤ 8 540	≤ 1.4	≤ 1.9
2 500	≤ 6 665	≤ 1.0	≤ 1.9
	≤ 8 800	≤ 1.0	≤ 1.9
2 900	≤ 8 400	≤ 0.9	≤ 1.9
	≤ 9 585	≤ 0.9	≤ 1.9
	≤ 12 750	≤ 0.8	≤ 1.6
	≤ 15 950	-	≤ 1.2

d) Rectangular or cylindrical tanks or troughs with a flat bottom (double-walled or with leak detection lining or leak detection jacket) with a suction line to the low point

Density of the stored material [kg/dm³]	$H_{max.}$ [m]			
	34	**330**	**410**	**500**
0.8	7.5	23.4	23.8	24.5
0.9	6.6	20.8	21.1	21.8
1.0	6.0	18.7	19.0	19.6
1.1	5.4	17.0	17.3	17.8
1.2	5.0	15.6	15.8	16.4
1.3	4.6	14.4	14.6	15.1
1.4	4.3	13.4	13.6	14.0
1.5	4.0	12.5	12.7	13.1
1.6	3.7	11.7	11.9	12.3
1.7	3.5	11.0	11.2	11.5
1.8	3.3	10.4	10.6	10.9
1.9	3.1	9.8	10.0	10.3

e) Tank according to a) to d) that operate with an inner overlay pressure of up to 5 bar

3.5.2 Pipes/Tubes

In factory or on-site construction

Usage limits: according to the Table in Chap. 3.5.1 under b) where instead of the tank diameter the height between the low point of the interstitial space and the node is to be set.

- Suction lines: The alarm-vacuum shall be at least 30 mbar higher than the max underpressure in the inner pipe at the high point of the interstitial space
- Pressure pipes with feed pressure of up to 5 bar
- For Germany: with proof of usability from construction authority

3.5.3 Monitorable liquids

Water-polluting liquids m (e.g., fuels).

The following applies:

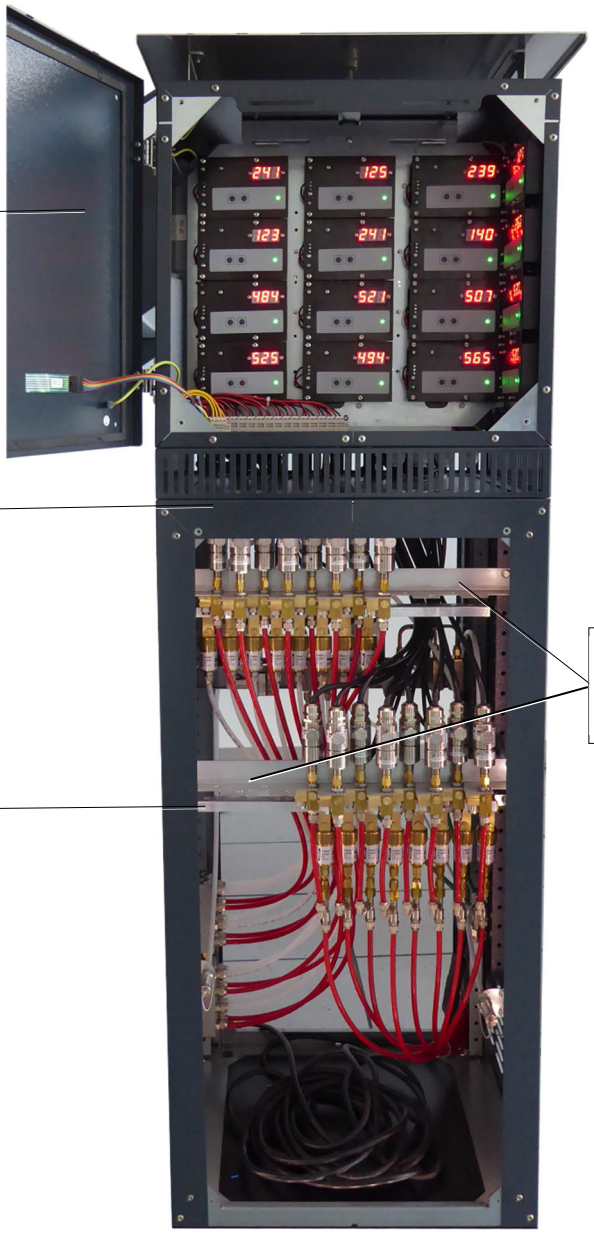
- The materials used shall be resistant to the liquids being monitored.
- Water-polluting liquids, the (possible) explosive steam-air mixture (also such ones that can arise through the stored/conveyed liquids in contact with air, humidity, condensation or the materials used) of which classes them in explosive groups II A to II B, as well as temperature classes T1 to T4 such as gasoline, for example.
- If different water-polluting liquids are transported in individual pipelines and monitored with a leak detector, these liquids or their mixing must not have any hazardous effects on one another or cause any chemical reactions.

4. Design and Function

4.1 Design

The leak detector VLXE-SAB T.. / P.. is designed to monitor various tanks and/or pipes separately at one time. According to the current regulations, every connected tank or pipeline[3] is separately monitored.

Up to 16 tanks or up to 16 pipelines can be monitored with the leak detector. A combination of tank and pipelines is also possible whereby the number of tanks and pipelines can be freely configured as long as the sum does not exceed 16.



Upper part with electronics and individual displays and operating units.
- IP 54
- No explosion protection

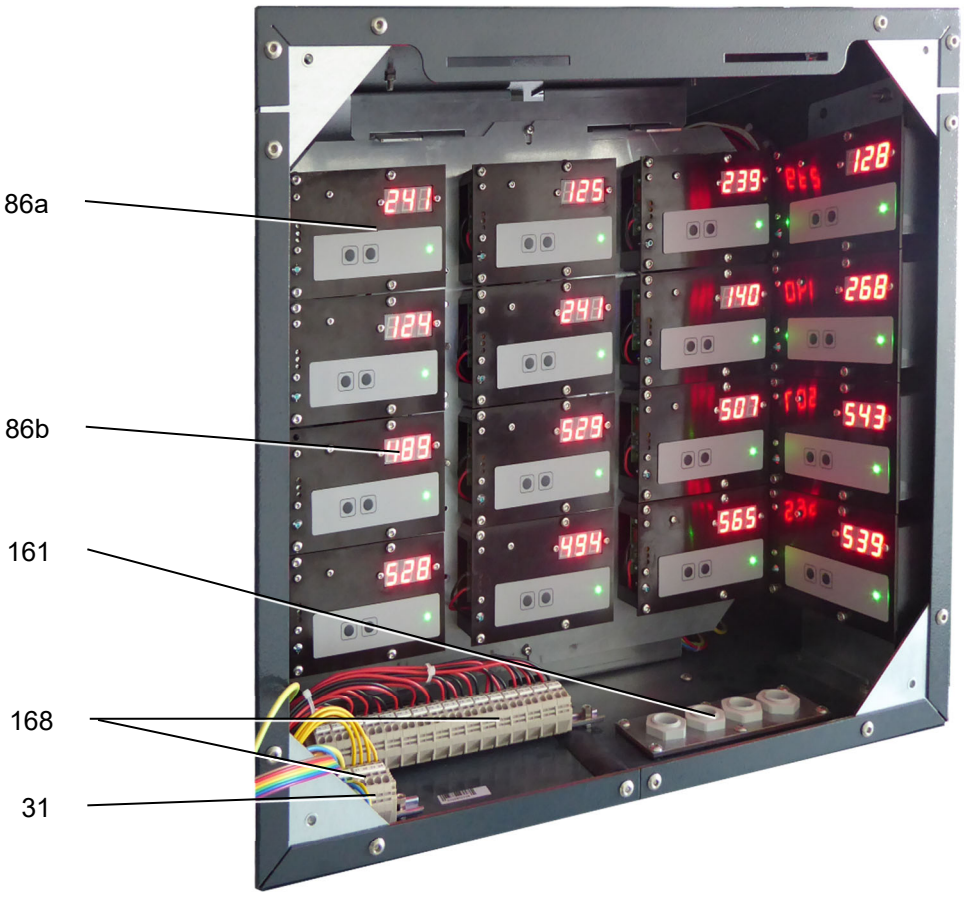
The ventilation level is used as a zone division.

Lower part with pneumatic connections for tanks and pipelines. The explosion protective components are fitted here.

1-12 outlets: 1 rail
13-16 outlets: 2 rails

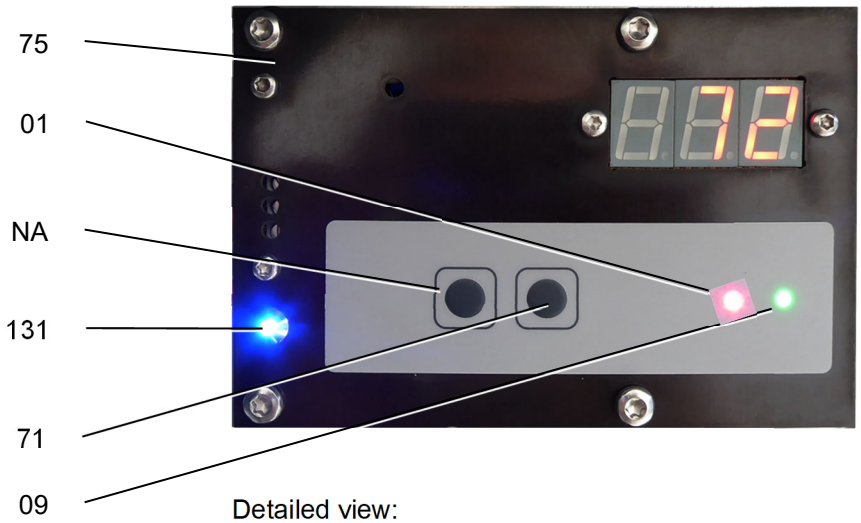
[3] Having said this, a pipeline can consist of many segments (e.g. fill pipe and pressure pipe)

4.2 Interior view, upper part



Interior view with:

31	Terminal strip (main connection)
86a	Leak indicating unit “tank”
86b	Leak indicating unit “pipe”
161	Flange plate (for electrical connections)
168	Potential-free relay contacts

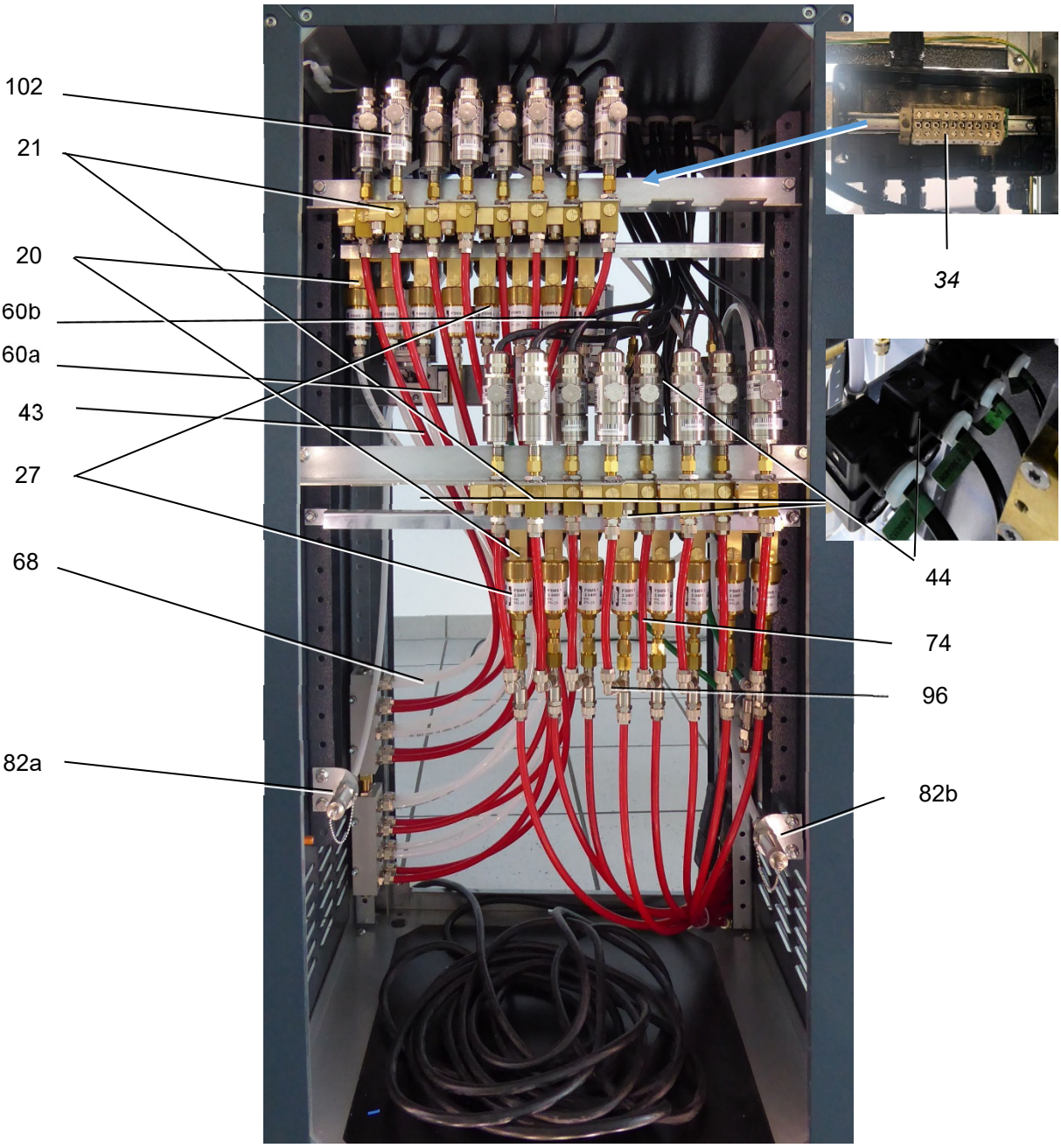


Detailed view:

01	Signal lamp “alarm”, red (pipe)
09	Signal lamp "operation", green (white)
71	“Mute” button
75	Display board
131	Signal lamp “pump operating”

4.3 Interior view, lower part

Indication: The interstitial spaces of pipelines are connected beneath the node. This defines the merger of the suction and measuring lines.



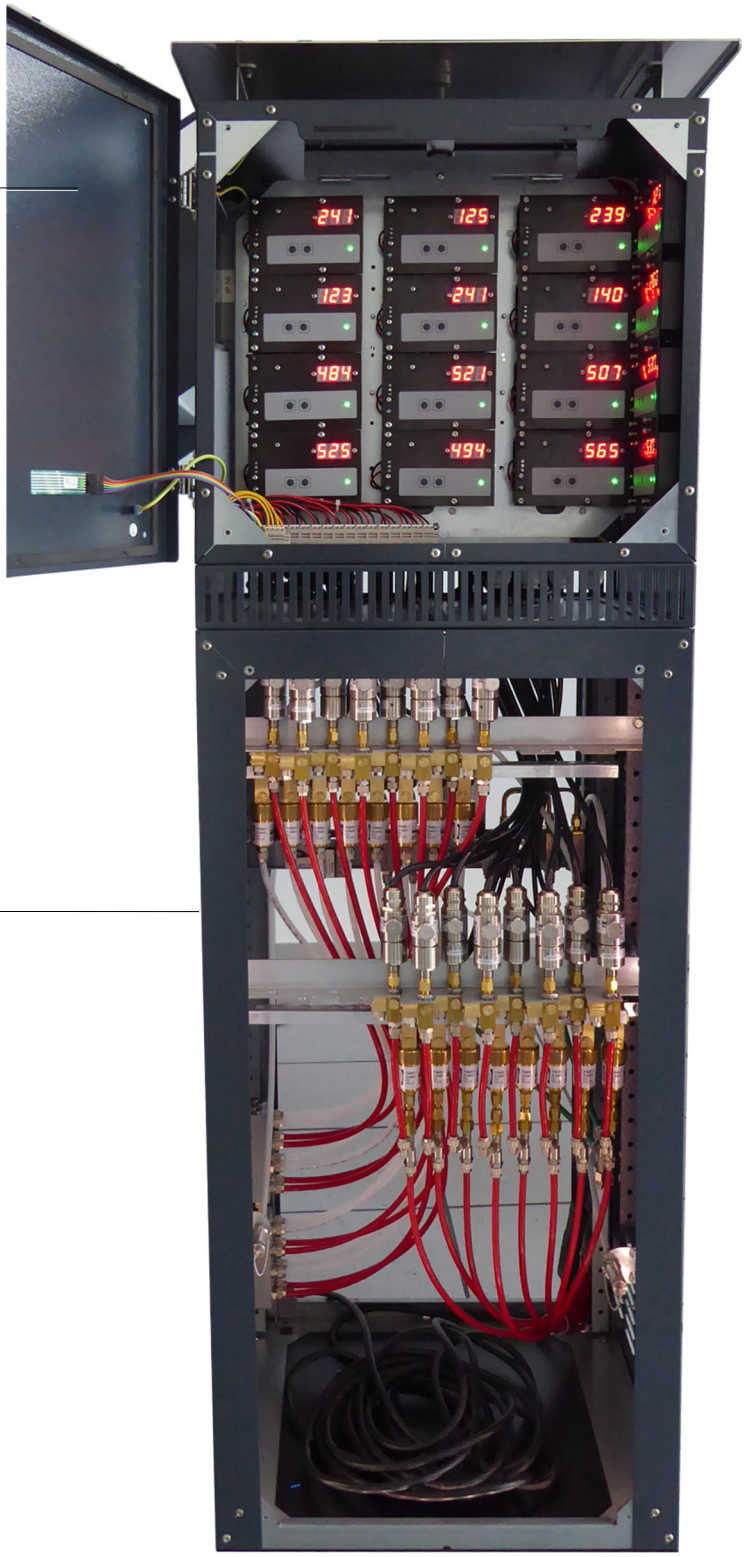
Interior view with:

20	Three-way valve in suction line	60b	Vacuum pump “Pipeline”
21	Three-way valve in the measuring line	68	Suction line to tank interstice
27	Liquid stop valve	74	Connection line (to pipelines interstice)
34	*Optional: Terminal box for probes*	82a	Connection assembly pump (tank)
43	Measuring lines to tank interstice	82b	Connection assembly pump (pipe)
44	Solenoid valve	96	Node point
60a	Vacuum pump “Tank”	102	Pressure sensor

4.4 Allocation of the leak indicating units to the pneumatic connections

The pneumatic connections arranged in the lower part of the housing from top left (tank) to bottom right (pipes) are assigned to the leak detection devices in the upper part of the housing in rows from left to right. Sequence: first tanks, then pipes.

Upper part with the leak indicating units; here the pipe leak indicating units follow the tank indicating units



Lower part with the pneumatic connections for tanks (T ..) and pipes (P ..)

4.5 Normal Operating Condition

Every vacuum leak detector is connected to an interstitial space via suction, measuring and connection lines. The vacuum generated by the pump(s) is measured and controlled by a pressure sensor.

When the operating pressure in all tanks' and/or pipelines' interstitial spaces is reached (Pump OFF), the pump shuts off. The vacuum slowly drops due to slight, unavoidable leaks in the leak detector system.

When the switching value "Pump ON" is reached, the pump turns on, the solenoid valve of the requesting interstitial space is opened and the interstitial space is evacuated until the operating pressure (Pump OFF) is reached.

If several interstitial spaces have reached the switching value Pump ON, the respective solenoid valves are opened and the pump serves all interstitial spaces (with open MV), separated according to container and pipeline.

In normal operation, the vacuum swings between the Pump OFF and Pump ON switch values, with short periods when the pump is run and longer standstills, depending on the tightness and temperature fluctuations of the entire unit.

4.6 Air Leak

If an air leak occurs (in the outer or inner wall, above the liquid level), the vacuum pump switches on and the respective solenoid valve opens to restore the operating vacuum. If the leak causes the incoming air to exceed the pump's capacity limit, the pump remains on continuously.

Increasing leak rates lead to a further decrease in pressure (with the pump running) until the Alarm ON switch value is reached. This triggers the visual and acoustic alarms.

4.7 Liquid Leak

In case of a liquid leak, the liquid enters the interstitial space and collects in the low point of the interstitial space.

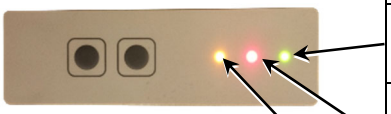
The incoming liquid decreases the vacuum, which causes the pump and respective solenoid valve to turn on/open and evacuate the interstitial space(s) until the operating vacuum is reached. The process repeats itself until the liquid stop valve in the suction line closes because of the sucked liquids.

The measuring lines still present vacuum sucks further transport or stored material as well as water into the interstitial space, the measuring line and possibly into the pressure compensation reservoir. This causes the vacuum to drop until the "Alarm ON" pressure is reached. This triggers the visual and acoustic alarms.

The pump remains switched on in this case.

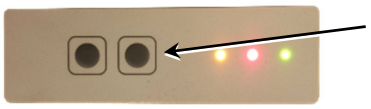
4.8 Displays and Controls, outside of the housing

4.8.1 Display



Indicator lights	Operating condition	Alarm tank	Alarm Pipe
OPERATION: green	ON	ON	ON
ALARM tank: red	OFF	ON (Blinking)[4]	OFF
ALARM pipe: yellow	OFF	OFF	ON (Blinking)[4]

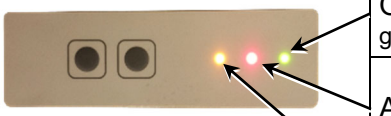
4.8.2 Function "Turn off audible alarm signal"



Shortly press the "Mute" button once, audible and optical signal turns off, the red or yellow LED blinks. This function is not available during normal operating conditions and malfunctions.

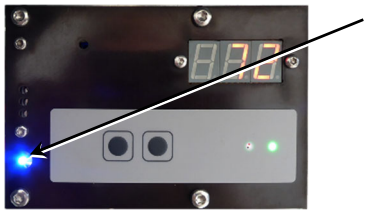
4.9 Internal Display and Control on each leak indicating unit

4.9.1 Display



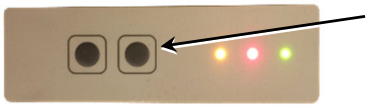
Indicator lights	Operating condition	Alarm, vacuum below “Alarm ON”	Probe alarm	Device malfunc-tion
OPERATION: green	ON	ON	ON	ON
ALARM tank:	OFF	ON (Blinking)[5]	ON (Blinking)	ON[6]
ALARM pipe:	OFF	OFF	Blinking	OFF

4.9.2 Display “Vacuum requirement”



The blue LED lights up when required to identify which interstitial space has requested the pump.

4.9.3 Function "Testing the optical and audible alarm signal"



Press and hold the "Mute" button (about 10 seconds). The alarm will be triggered until the button is released.

This inquiry is only possible if the pressure in the system has exceeded the "Alarm OFF" pressure.

[4] (Blinking) active for the acknowledged external signal
[5] (Blinking) active for the acknowledged external signal
[6] The “Mute” button does not have a function, which means the acoustic signal cannot be turned off.

5. Assembly of the System

5.1 Basic Instructions

- Prior to commencing work, the documentation must be read and understood. In case of ambiguities, please refer to the manufacturer.
- Observe the approvals of the manufacturer for the tank/pipeline and the interstitial space.
- The safety instructions in this documentation must be adhered to.
- Only qualified service companies may be used for assembly and start up[7].
- Lead-throughs for pneumatic and electric connection lines, through which the EX-atmosphere can carry over, must be sealed gas-tight.
- Comply with relevant regulations regarding electric installation, explosion protection (e.g., EN 60079-14, -17), and accident prevention.
- Comply with explosion regulations, e.g., BetrSichV (and/or directive 1999/92/EC and the laws of the respective member states resulting therefrom) and/or others.
- Pneumatic connections, connecting lines and fittings must be designed to at least PN 10 for the entire temperature range.
- Before entering inspection chambers, the oxygen content must be tested and the inspection chambers must be rinsed, if necessary.
- If metallic connection lines are used, it must be ensured that the power supply grounding is on the same potential as the pipeline/tank to be monitored.

5.2 Assembly of the Leak Detector

- Assembly of the in-situ concrete base. Ensure sufficient stability.
- Externally or internally of the ex-zone outside. Zone 1 or 2 must not extend into or above the ventilation level (chap. 4.1).
- If it is assembled in an enclosed space, it must be well ventilated. The operator shall apply EN 60079-10/EN 13237 as a basis for evaluation.

Note: If the pressure pipes are monitored, the assembly cannot be carried out indoors.

- To avoid excessive heating, the leak detector must not be installed directly next to a heat source. The leak detector is installed with a ventilation system that switches on the blower in the case of excessive temperatures.
- Ventilation systems shall be kept clear.
- Not mounted in manhole pits or inspection chambers.
- The housing of the leak detector has to be integrated into the potential compensation.

[7] For Germany: Specialist service companies per Water Law, which have documented qualifications to install leak detection systems.

5.3 Pneumatic Connection Lines

5.3.1 Requirements

- At least 6 mm inside clearance
- Resistant to the stored or transported products
- At least PN 10 over the total temperature range
- The full cross section must be maintained (not bent)
- Color coding:
  Measuring line: RED
  Suction line: WHITE or CLEAR
  Exhaust: GREEN
- The lines between the interstitial space and leak detector must not exceed 50 m in length. If the distance is greater than this, a larger cross section must be used. There are special requirements for the exhaust line, see Chap. 5.3.2.
- Lay connection lines with a gradient to the interstitial space, if this is not possible, use condensate traps.
- If liquids are being stored or transported that require compliance with explosion protection, suitable detonation fuses must be installed at the entry to the interstitial space.

5.3.2 Exhaust

- The length of the exhaust line may not exceed 35 m. If these lengths are not sufficient, the manufacturer must be consulted.
- The exhaust line is to be led to the place where the explosive vapors and possible small quantities of product can safely escape.
  - E.g.: Remote filling shaft or collecting chamber: An explosion protection device[8] must be provided at the end of the exhaust line. Condensate traps must be provided at low points; a liquid stop valve is not required if the end of the exhaust is in an area which is made liquid-tight (e.g., with collecting area).
  - E.g.: In the open air, into a safe [9]place, outside of the explosion area: Provide a condensate trap and liquid stop valve at the end of the exhaust line. The area within 1 m diameter of the end of the exhaust is considered as having zone 1 conditions; if necessary, attach a warning sign.
  - E.g.: To the tank vent, in which case an explosion protection device must be installed directly before the connection on the tank vent side.

5.3.3 Several pipe interstitial spaces are connected in parallels

- Connect a liquid stop valve to each connecting line to the interstitial space, against the valve direction.

[8] The explosion protection device can be omitted, if the exhaust is laid frost-free and a kink (e.g. shifting of a protective tube) or a block in the exhausted can be precluded.

[9] Among other things, not acceptable for public contact / persons

This prevents leaking liquids from entering the interstitial spaces of the other pipelines.

- If stop valves are installed in the connecting lines then they should be sealable in open position.
- The measure “H” (Chap. 3.5.1) between the low point of the pipelines and the node may not be exceeded. The distribution strip with its related pipes shall be kept beneath the high H.

5.4 Completing Pneumatic Connections

5.4.1 Assembling the connection to the tank’s interstitial space.

(1) Generally according to the tank manufacturer’s specifications.

(2) SGB offers assembly kits with the various connection possibilities.

5.4.2 Assembling the connection to the pipelines interstitial space or test valves

(1) Generally according to the pipelines/interstitial space manufacturer's specifications.

(2) If Schrader valves are used, please proceed as follows:

- Unscrew protective cap
- Re-tighten lock nut
- Unscrew valve insert and stick next to the connection with adhesive tape. (As evidence of dismantling)
- Screw connection to the interstitial space or test valve and fasten finger-tight.
- If necessary, further tighten with suitable pliers.

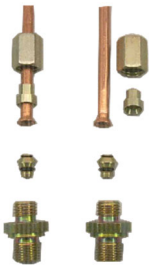
5.4.3 Between leak detector and interstitial space

(1) Select and install suitable pipe.

(2) During installation of the pipe, ensure again that they are protected against damage when the manhole chamber is entered.

(3) Complete the relevant connection (according to the illustrations in the following images)

5.4.3.1 Flanged screw connections (for flanged pipes)



(1) Lubricate O-rings

(2) Insert spacer ring loosely into the screw socket

(3) Slide union nut and pressure ring over the pipe

(4) Hand-tighten union nut

(5) Tighten union nut until need for increased force is clearly noticeable

(6) Final assembly: Tighten by another ¼ turn

5.4.3.2 Clamping ring screw connection for metal and plastic pipes

(1) Insert support sleeve (only plastic pipes) into end of the pipe

(2) Insert pipe (with support sleeve) all the way to the stop

(3) Tighten the screw connection by hand until resistance becomes noticeable, then tighten a further 1 ¾ turns with a wrench

(4) Loosen nut

(5) Tighten the nut by hand up to a noticeable stop

(6) Final assembly of the screw connection by tightening a 1/4 turn.

5.4.3.3 Quick screw connections for PA pipes

(1) Cut PA tube to length at a right angle

(2) Unfasten union nut and slide over the end of the pipe

(3) Slide pipe onto nipple up to the beginning of the thread

(4) Hand-tighten union nut

(5) Wrench-tighten union nut until need for increased force is noticeable (approx. 1 to 2 turns)

5.5 Electrical connection

5.5.1 Cable requirements

Supply line: minimum 1.0 mm², e. g. NYM 3 x 1.5 mm², and maximum 2.5 mm²

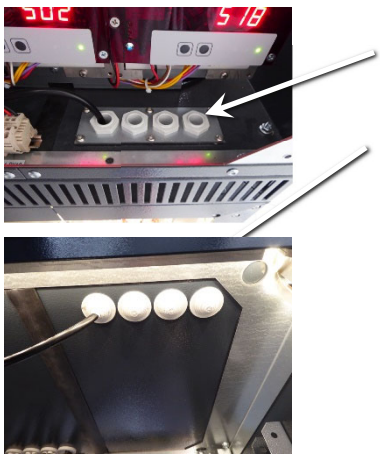
Power connection:

Max. cable diameter: 12 mm
- 2.5 mm² without ferrule
- 1.5 mm² with ferrule and plastic collar

Potential-free contacts
- 0.75 mm² with ferrule and plastic collar

Must be resistant to petroleum products.

5.5.2 Implementation of the cable (transfer into the device)



(1) Unscrew flange plate for electrical connections.

(2) Slide the cable from below to above through the cable sleeves and pull upwards through the opening of the far flange plate.

(3) (pull through other cables likewise)

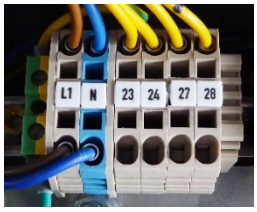
(4) Position the cable as desired and then cut to length.

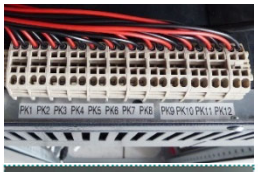
(5) Disengage the cable glands in the flange plate, then slide the flange plate with the feed-through cables so far before the position, such that the cable glands can still be attached.

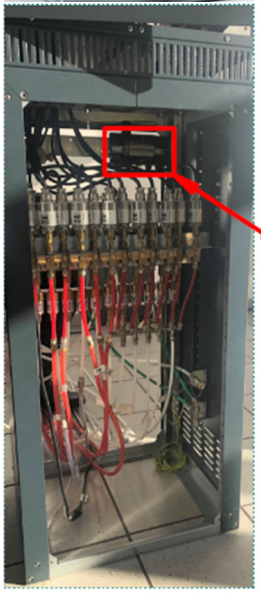
(6) Screw the cable glands tight.

(7) Screw down the flange plate to the provided position. For this, the cables in the lower part must be pulled back slightly.

5.5.3 Wiring diagram







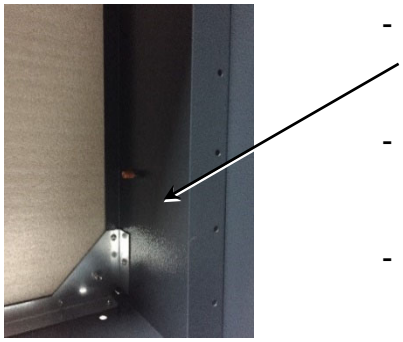
(1) Fixed wiring, i.e., no plug or switch connections.

(2) Observe the requirements for electric installations, if necessary, also those of the electric supply companies.

(3) Terminal layout:

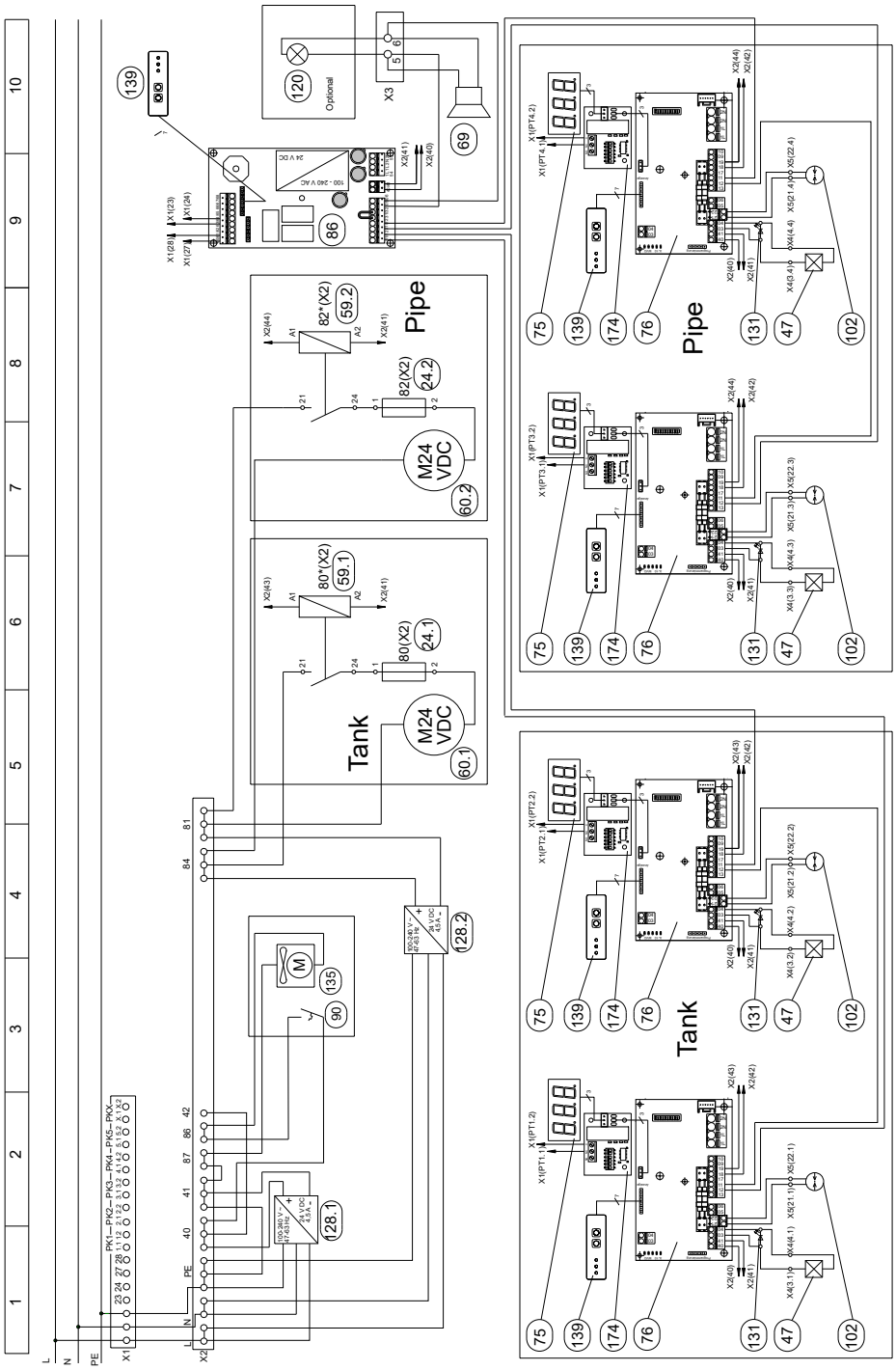
L1/N	Power connection (100…240 V AC)
PE	Ground for the power connection
27/28	Potential-free contact with all tanks together (opened in case of alarm or loss of power)
23/24	Potential-free contact with all pipes together (opened in case of alarm or loss of power)
PC X.Y	Potential-free contact for each tank and pipe separately (opened in case of alarm or loss of power). The assignment of the individual PC contacts to the respective monitoring areas follows the scheme of 4.4.
60…72	*(Optional) Probe alarm output for each tank separately - the terminal box is located in the lower area.* *Terminal assignment: 60/61 tank 1; 62/63 tank 2, ...*

5.5.4 Potential compensation



- The housing of the leak detector must be connected to the equipotential bonding of the overall system by means of the bolt provided for that purpose.
- The fittings in the connecting lines must likewise be integrated into the equipotential bonding, especially when plastic pipes (as connecting lines) have been used.
- Before replacing a leak detector, disconnecting lines or similar work, it must be ensured that the equipotential bonding remains intact (if necessary, pull electrically conducting bridges).

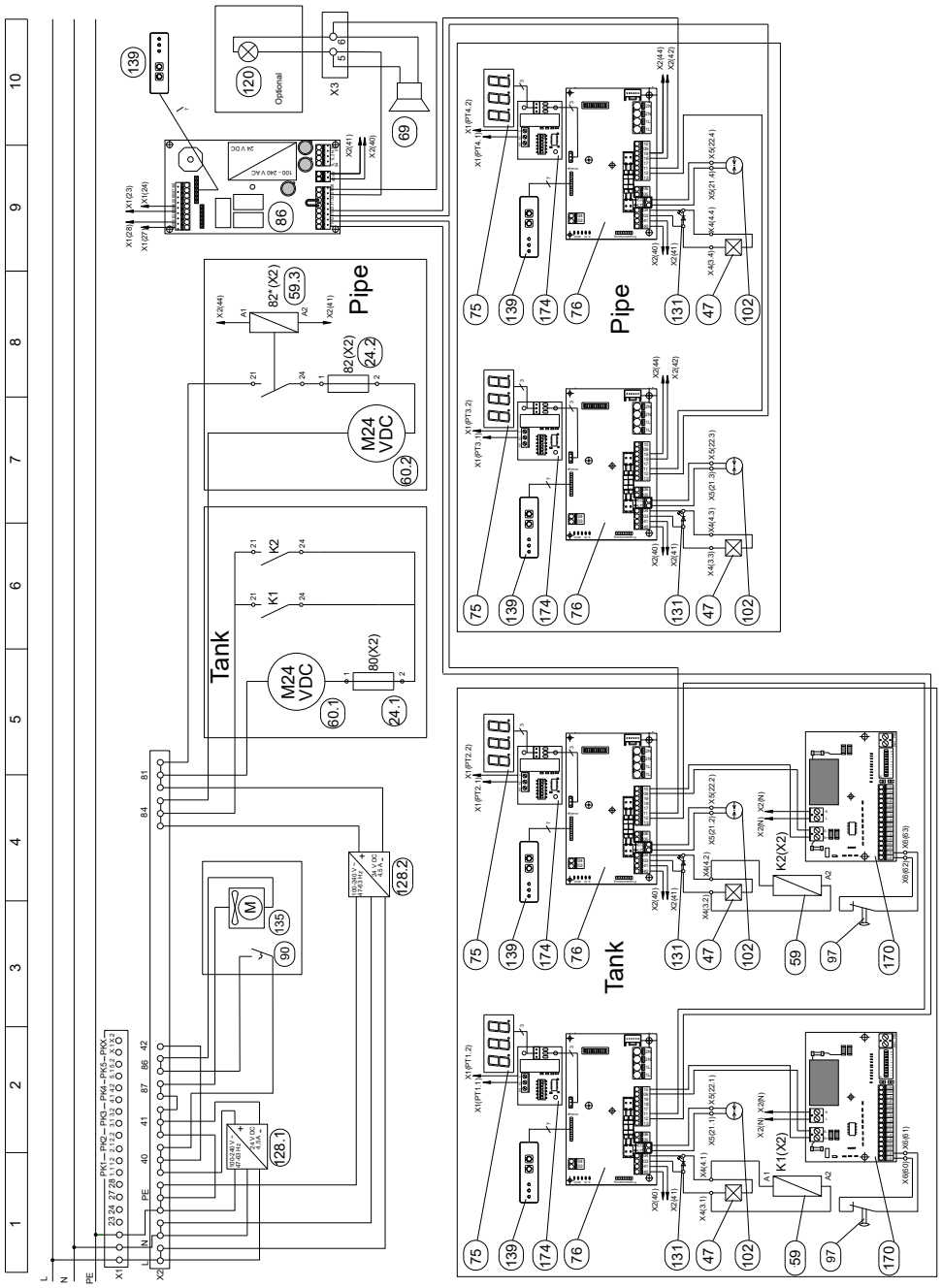
5.5.5 Block diagram (SL 854 300)



01
Signal lamp “Alarm”, red
09
Signal lamp “Operation”, green
24
Fuse
59
Relay
60.1
Vacuum pump (pipe)
60.2
Vacuum pump (tank)
69
Buzzer
71
„Mute“ button
75
Display board
76
Main board
86
Leak indicating unit
90
Thermostat
102
Pressure sensor
119
Jumper
120
Flashing light
128
Switching power supply
131
Signal lamp “Pump operating”
135
Filter fan
139
Key pad
158
Signal lamp “Probe alarm”
163
Switch Ethernet
174
DLR-ÜDV board

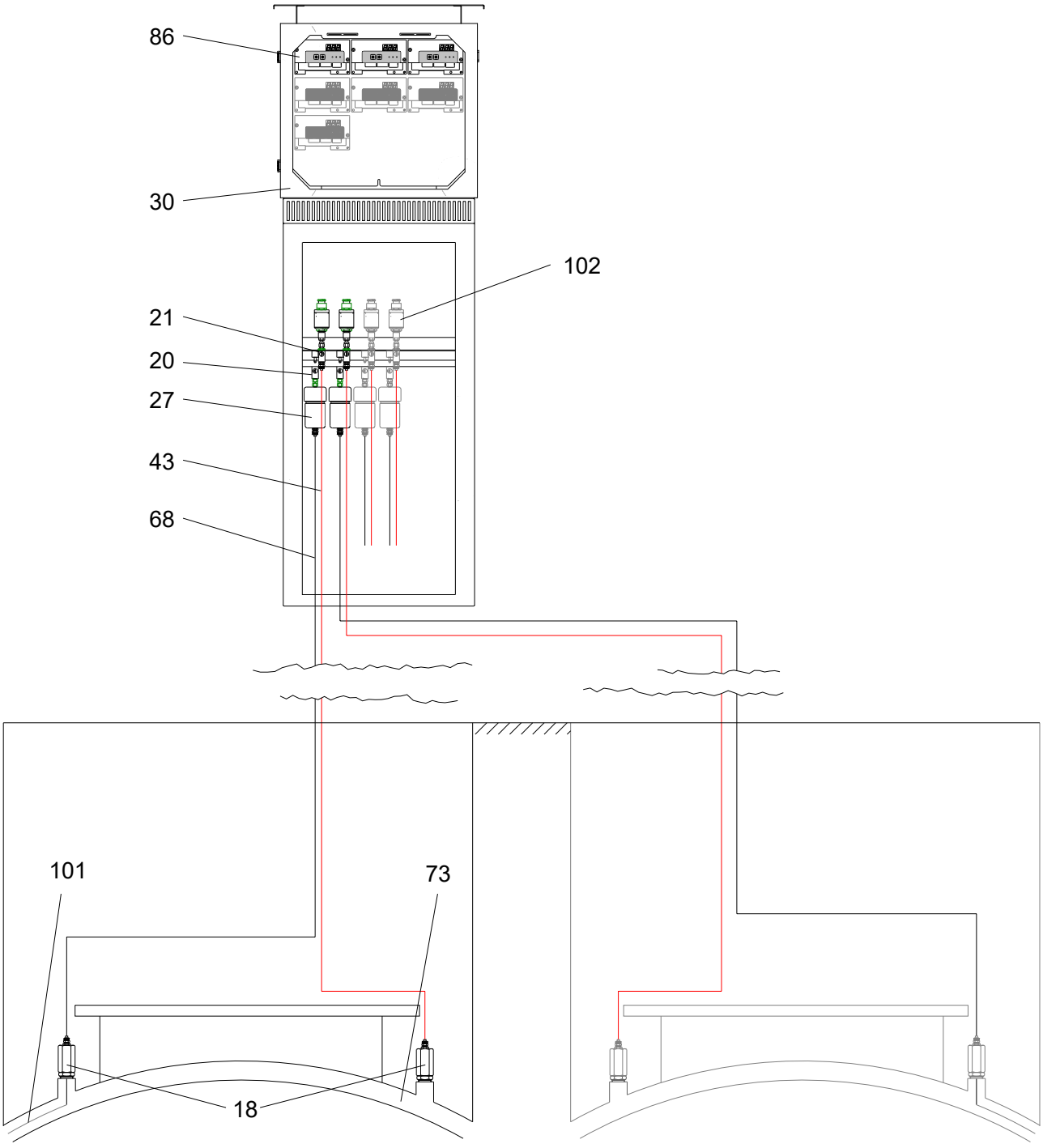
5.5.7 Block diagram (SL 854 350-25)

01
Signal lamp “Alarm”, red
09
Signal lamp “Operation”, green
24
Fuse
59
Relay
60.1
Vacuum pump (pipe)
60.2
Vacuum pump (tank)
69
Buzzer
71
„Mute“ button
75
Display board
76
Main board
86
Leak indicating unit
90
Thermostat
97
Leakage probe
102
Pressure sensor
119
Jumper
120
Flashing light
128
Switching power supply
135
Filter fan
139
Key pad
158
Signal lamp “Probe alarm”
163
Switch Ethernet
170
Circuit board LS1-8
174
DLR-ÜDV board



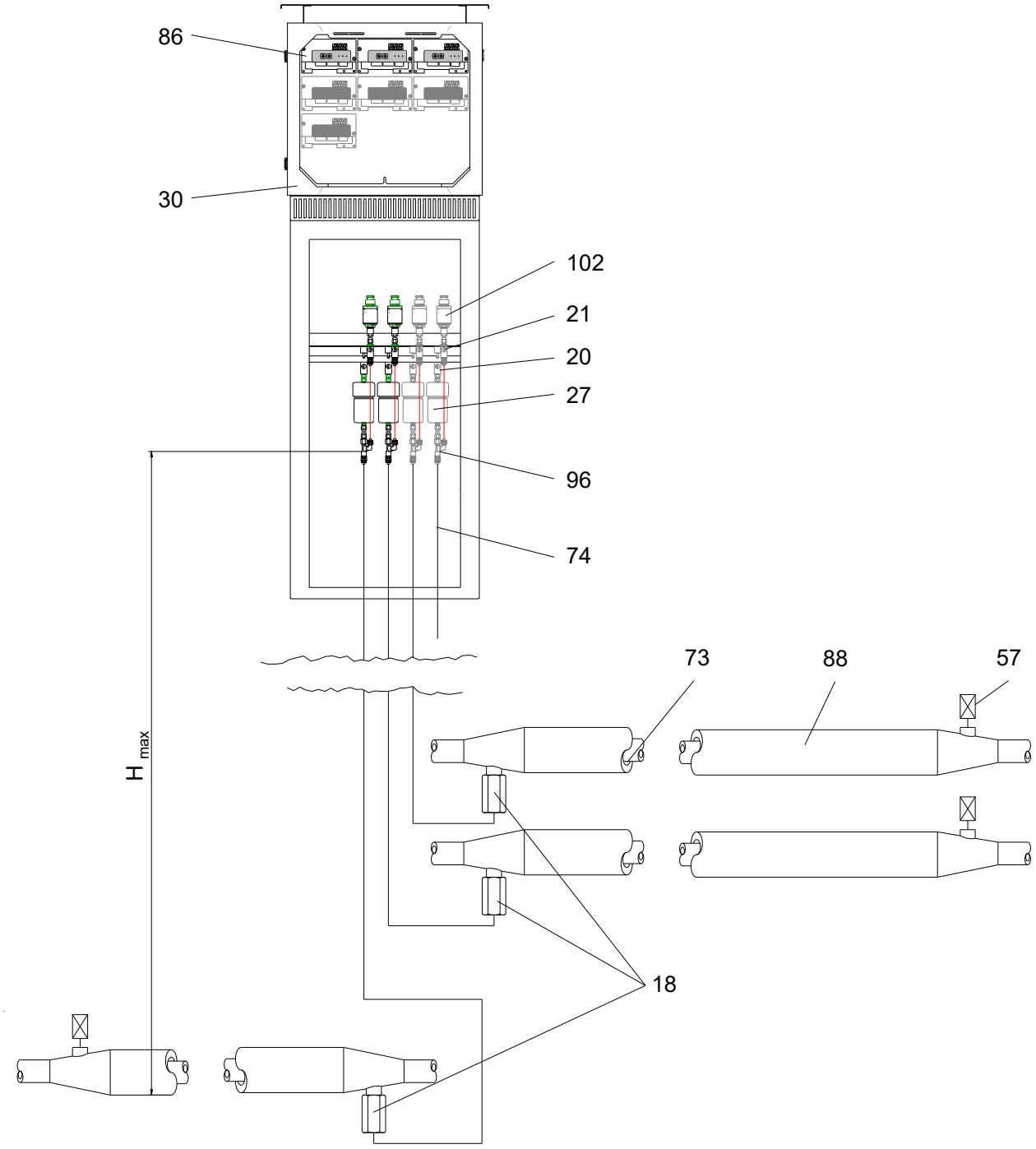
5.6 Assembly examples

5.6.1 Horizontal cylindrical tank with leak protection lining and suction line to the low point (up to 16 tanks)



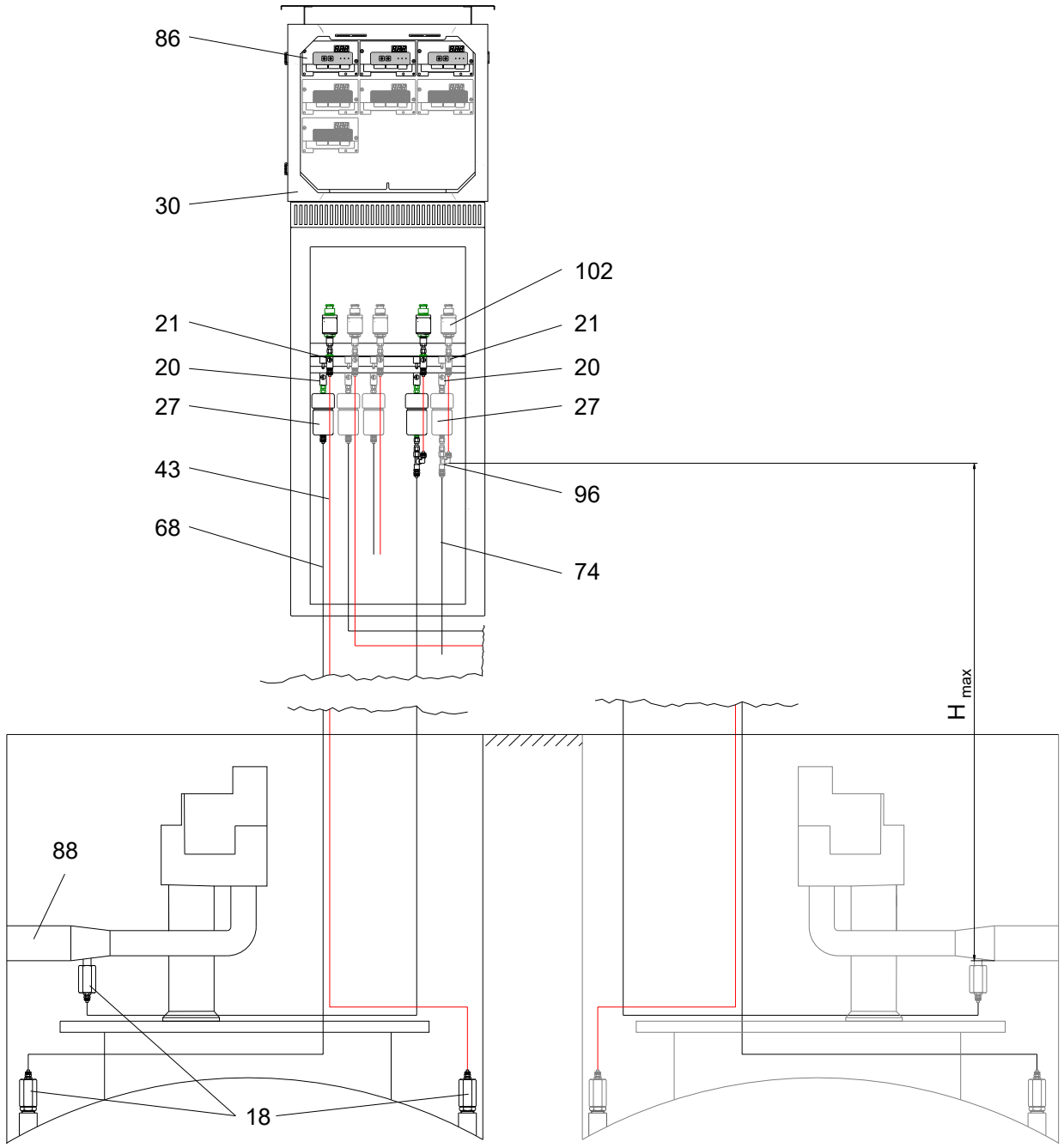
18	Detonation flame arrester		
20	Three-way valve, suction line	68	Suction line
21	Three-way valve, measuring line	73	Interstitial space
27	Liquid stop valve	86	Leak indicating unit
30	Housing	101	Suction line leading to the low point
43	Measuring line	102	Pressure sensor

5.6.2 Up to 16 pipes



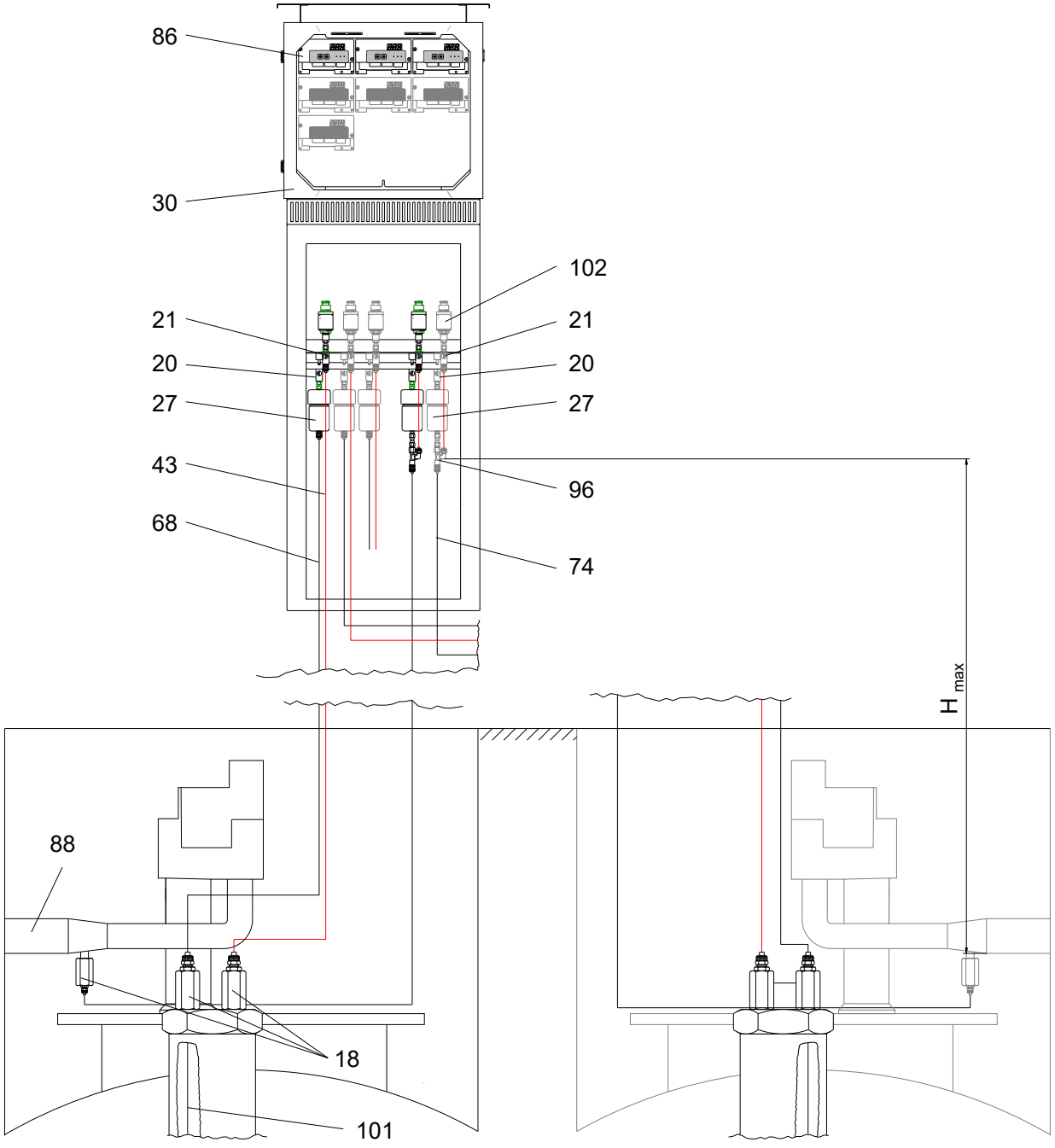
18	Detonation flame arrester	74	Connection line
20	Three-way valve, suction line	86	Leak indicating unit
21	Three-way valve, measuring line	88	Double-walled pipe
27	Liquid stop valve	96	Node point
30	Housing	102	Pressure sensor
57	Test valve		
73	Interstitial space		

5.6.3 Tank (without suction line to the low point) and pipes (X tank + Y pipe = 16)



18	Detonation flame arrester		
20	Three-way valve, suction line	73	Interstitial space
21	Three-way valve, measuring line	74	Connection line
27	Liquid stop valve	86	Leak indicating unit
30	Housing	88	Double-walled pipe
43	Measuring line	96	Node point
68	Suction line	102	Pressure sensor

5.6.4 Tank (with Interstitial Access Pipe and suction line to the low point) and pipe



18 Detonation flame arrester
20 Three-way valve, suction line
21 Three-way valve, measuring line
27 Liquid stop valve
30 Housing
43 Measuring line
68 Suction line
73 Interstitial space
74 Connection line
86 Leak indicating unit
88 Double-walled pipe
96 Node point
101 Suction line leading to the low point
102 Pressure sensor

6. Commissioning

(1) Only perform commissioning once the steps in Chap. 5 “Assembly" have been fulfilled.

(2) If a leak detector is operated on an interstitial space that is already in operation, special protective measures must be taken (for example, testing for gas freedom in the leak detector and/or the interstitial space). Additional measures may be necessary depending on the local conditions and must be assessed by qualified personnel.

(3) If an external vacuum pump is used to evacuate, this shall be carried out with **explosion protection** (Warning: be aware of temperature class and EX group!)

(4) To measure the vacuum, use an explosion protected vacuum measuring instrument.

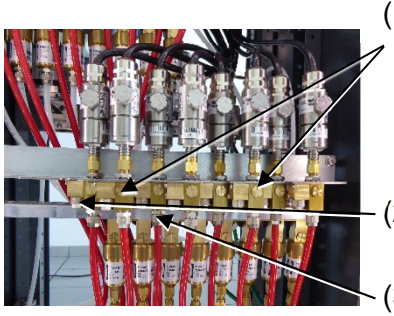
6.1 Tightness test

Prior to commissioning, ensure the tightness of each interstitial space.

The vacuum-construction (beneath the test vacuum) should be carried out with an external vacuum pump.

The test is generally considered passed if within a test period (in minutes) calculated from the interstitial space volume divided by 10 the vacuum does not drop by more than 1 mbar. E.g., the test period is for an interstitial space volume from 800 liters:
800/10 = 80 minutes. Within this text time, the vacuum may not fall below an underpressure of 1 mbar.

6.2 Explaining the test valves



(1) A three-way valve is used beneath every sensor.

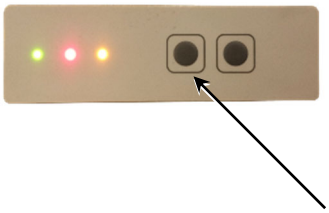
(2) The test measuring instrument can be connected to the relevant nozzle.

(3) The valves in the suction line are also three-way valves, i.e. the system can be vented via the lateral hole on the right.

(4) These valves in the suction line are for all tanks as well as for all pipelines and bound with the respective pump. The solenoid valve is used to release the vacuum demand (pump ON) to the respective interstitial space.

(5) A connection is provided for the measuring of the delivery pressure of the pump or for connecting to an external assembly pump. Left for tanks and right for pipes. (see the following chapter)

6.3 Commissioning the leak detector



(1) The tightness of all interstitial spaces prior to commissioning is assumed. Requirements according to chapter 6.1.

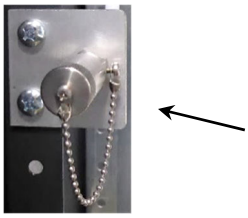
(2) If present, connect probes.

(3) Connect voltage supply.

(4) Ascertain lighting of "Operation" and "Alarm" signal lamps and sounding of the audible alarm.

(5) If necessary, turn off audible alarm signal.

The creation of the vacuum by one or more pumps begins immediately as longs as the interstitial spaces were not previously evacuated by the vacuum pressure.



82 a/b

(6) The underpressure construction can be monitored by the digital indicators built into the upper part.

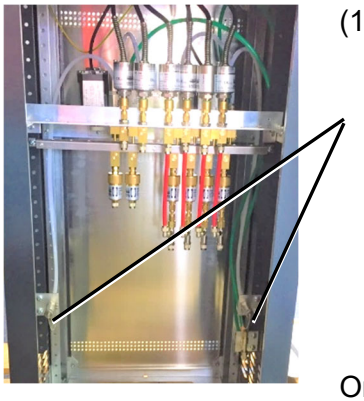
If the vacuum creation occurs to slowly, an assembly pump can be connected to the assembly pump port 82 a/b (left tank, right pipeline). The procedure for this is described in 6.3.1.

(7) The procedure according to 6.3.1 -- evacuate each interstitial space for themselves -- can be also applied with the integrated pumps, provided that the interstitial spaces are depressurized.

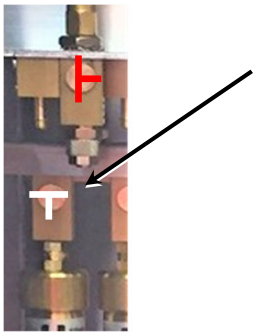
(8) After achieving an operating vacuum for all interstitial spaces both pumps are shut off.

(9) Perform a functional test according to Chap. 7.3/7.4.

6.3.1 Evacuation of the interstitial spaces by means of assembly pumps



(1) Choose the correct connections for the assembly pumps:
Left: tank monitoring
Right: pipe monitoring.

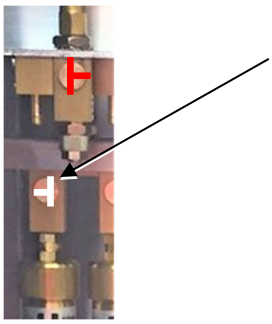


Only for initial commissioning:

Close all valves in the suction line (the far strip) of the area chosen beforehand. This ventilates the interstitial space to the atmosphere and closes it to the pump

(2) Unscrew the cover of the chosen connection.

(3) Connecting and turning on the assembly pump.



Only for initial commissioning:

Open the shut-off valve of the first interstitial space (to do this, turn the three-way valve by 90 ° clockwise) and evacuate to the operating vacuum according to Chap. 3.4. For this, the associated display is to be monitored.

(4) When the operating vacuum of the evacuated interstitial space is reached, the solenoid valve closes. There is no further vacuum build-up in the monitoring rooms.

(5) Continue until all interstitial spaces have reached the operating negative pressure.

(6) Remove the assembly pump and screw the cover back on.

7. Functional Check and Maintenance

7.1 General

(1) If the leak detection system has been properly installed and is free of leaks, trouble-free operation can be assumed.

(2) Frequent switching on or continuous running of the pump(s) indicates leaks, which should be corrected within a reasonable time.

(3) In the event of an alarm, determine the cause and fix it quickly.

(4) The operator must check the function of the operating lights at regular intervals.

(5) The leak detector must be disconnected from power for any repairs to be performed on the leak detector. If necessary, test EX atmosphere.

(6) A loss of power is indicated by the "Operation" signal lamp going off. Alarm signals are triggered via the potential-free relay contacts if contacts 23/24, 27/28 and PC X.Y were used. After the power loss, the leak detector automatically goes into operation again and the potential-free contacts no longer generate an alarm (unless the power loss has caused the pressure to drop below the alarm pressure).

(7) CAUTION: For single-walled tanks, equipped with a flexible leak protection lining, the interstitial space can never be without pressure (risk of collapse of the leak protection lining).

(8) To clean the leak detector, use a **moist** cloth (electrostatic).

(9) CAUTION: Explosive vapor-air mixtures can exist in the interior (of the test valve/connecting cable). Sufficient safety measures should be met (e.g., insert a diaphragm seal or a relevant, approved pressure measuring instrument).

7.2 Maintenance

- Maintenance work and functional checks must be performed by trained personnel only[10].
- Once a year to ensure functional and operational safety.
- Test scope according to section 7.3.
- Compliance with the conditions according to sections 5 and 6 must also be tested.
- Comply with explosion regulations (if required), e.g., BetrSichV (and/or directive 1999/92/EC and the laws of the respective member states resulting therefrom) and/or others.
- As part of the annual function test, check the motor(s) of the pump for running noises (damaged bearings).
- After 30 000 operating hours of the pump (rotations), the pump(s) must be replaced

[10] For Germany: Technical service according to water law with expertise in leak detection systems
For Europe: Authorization by the manufacturer

- Should the pump or its exhaust pipe be swapped or detached, then a leak test of the installed test should be carried out after the exchange in order to ensure the tightness of the exhaust in the housing.
- As part of the annual function test, the ventilation of the housing must be checked and, if necessary, the filter mat must be cleaned or replaced.

7.3 Functional Check

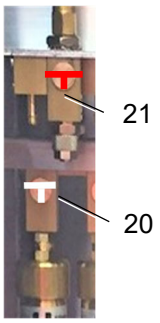
The functional and operational safety tests must be performed:

- after each commissioning
- According to the time intervals given in Chap. 7.2[11]
- each time a malfunction has been corrected

Two persons may be required to perform a functional check, depending on the type of pipeline or tank. The following contents must be observed or met:

- Coordinate the work to be performed with those responsible for operation.
- Observe the safety instructions for working with the product to be conveyed.
- Checking and if necessary, emptying the condensate traps (7.3.1).
- Continuity test of the interstitial spaces (7.3.2)
- Comparison pressure indicator and pressure measuring instrument (7.3.3)
- Testing the switch values with the testing device (7.3.4)
- Testing the pump(s) delivery pressure (7.3.5)
- Tightness test of system (7.3.6)
- Creating the operating condition (7.3.7)
- A test report must be completed, confirming functional and operational safety. (Test reports are available for download at SGB's website: sgb.de)

7.3.1 Checking and if necessary, emptying of the condensate trap



CAUTION: The condensate traps may contain the stored/transported product. Take appropriate protective measures.

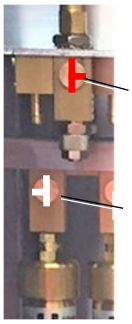
(1) Close any shut-off valves on the interstitial space side.

(2) Turn three-way valves 21 by 90° (clockwise) (ventilation measuring line).

(3) Turn three-way valves 20 90° each (counter-clockwise) (no further evacuation and ventilation of the suction line). For tanks with leak protection lining, observe chapter 7.1 (7).

(4) Open and empty the condensate traps.

[11] For Germany: In addition, national laws apply (e.g. AwSV)



(5) Close the condensate traps.

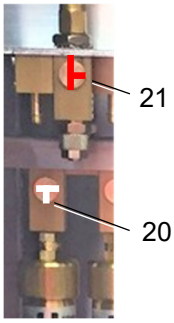
(6) Turn three-way valves 20 and 21 back to the operating position.

(7) Reopen under No. (1) closed valves.

7.3.2 Checking the free passage of air in the interstitial space

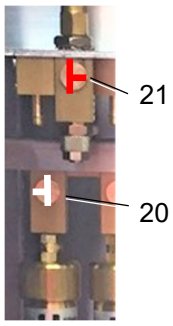
Checking the free passage of air ensures that an interstitial space is connected to the leak detector and that the interstitial space has passage.

It must be possible to identify the allocation of the outlet to be tested and related indicating unit (Chap. 4.4).



(1) <u>For tanks:</u>
Turn valve 20 of the first interstitial space to be tested 90° counter-clockwise.
Air flows into the interstitial space.
Determine pressure drop and turn three-way valve 90° clockwise again.
Repeat the procedure with all other tank monitoring chambers.

<u>For pipelines:</u>
Open the test valve(s) at the end away from the leak detector and identify the vacuum decay.



(2) If no change in the vacuum occurs, locate and correct the cause.

(3) Restore operational position for all three-way valves.

7.3.3 Comparison pressure indicator and pressure measuring instrument

(1) Identification of the test outflow and the relevant leak indicating unit (Chap. 4.4).

(2) Attach measuring gauge to connection on three-way valve 21 and turn valve 180°.

(3) Compare the pressure indicator with the pressure measuring instrument. The pressure difference between the pressure instrument and the pressure indicator may be at max +/-20 mbar.

(4) Repeat (1) … (3) for all outflows.

7.3.4 Testing the switch values with the testing device (see Chap. “Accessories”)

(1) Connect the test measuring instrument to three-way valve 21 and turn the three-way valve by 180 ° counter-clockwise.

(2) Turn three-way valve 20 of interstitial space 1 by 90 ° counter-clockwise. Air flows into the interstitial space, the negative pressure drops.

(3) Ventilate until switching value “Pump ON” and “Alarm ON” (acoustic and visual if necessary) are detected. Note the values.

(4) Turn three-way valve 20 of interstitial space 1 by 90 ° clockwise. The interstitial space is evacuated again, the negative pressure increases.

(5) Determine the “Alarm OFF” and “Pump OFF” switching values. Note the values.

(6) The test is passed if the measured switching values are within the specified tolerance.

(7) Repeat steps (1) to (5) for all connected interstitial spaces.

(8) Set both three-way valves to the operating position and remove the test measuring instrument.

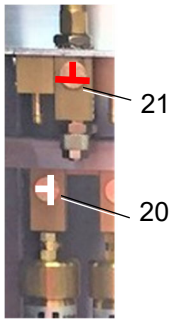
7.3.5 Testing the pump(s) delivery pressure

The test of the delivery pressure of the pump is carried out in order to determine if the vacuum source is capable of establishing the operating vacuum in the interstitial space.

(1) The operating vacuum must be applied to all interstitial spaces.

(2) Connect the pressure measuring instrument to the suction line connection 82 a/b. Left: tank monitoring, right: pipe monitoring.

(3) Usually, the pump is not running at this moment, i.e. the pressure sensor must be vented to start the pump.



<u>For tanks:</u>
Turn the three-way valve 21 with the smallest volume by 90° (ccw). The alarm is triggered, acknowledge if necessary.

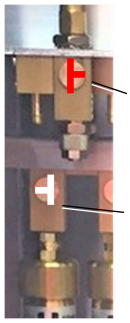
<u>For pipes:</u>
Turn the three-way valve 21 with the smallest volume 90° (ccw). The alarm is triggered, acknowledge if necessary.

Note:

The vacuum is also generated in the interstitial space of both the tank and the pipe. If the test pressure of the interstitial space is reached, the test must be aborted. In this case, the delivery pressure is sufficient.

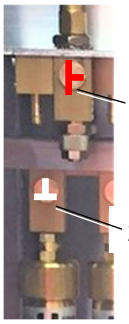
(4) This unit passes the test if the suction height of the vacuum pump is at least 40 mbar higher than the switching value “Pump OFF” (i.e., the operational vacuum).

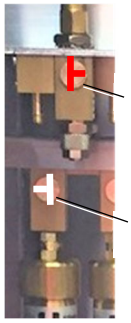
(5) Remove the measuring instrument. Reinstall the cover of the suction connection.



(6) Once the test is complete, return valves to their operational positions.

7.3.6 Tightness test of the system





(1) The system tightness requirement is defined in Chap. 6.1.

Determine the test time for each interstitial space (and/or the entire monitored system) connected (calculate or use test reports prepared by SGB GmbH).

(2) Turn all suction-side three-way valves 20 of the test area (tank or pipeline) 90° clockwise. If an interstitial space requests the pump, there is no vacuum build-up (air flows in through the side hole in 20).

(3) Record the initial vacuum from all pressure signs and times. Wait for test time to elapse.

(4) Record vacuum after test period and make difference with (3).

(5) The test is considered passed if the conditions specified in Chap. 6.1 have been satisfied.

(6) Once the test is complete, return valves to their original positions.

7.3.7 Creating the operating condition

(1) Test if all pneumatic connections are completed.

(2) Check that the three-way valves are in the correct position.

(3) Close test connections 82 a/b tightly. Close cap by hand.

(4) Seal the shut-off valves (between the leak detector and interstitial space) for each connected interstitial space in the open position.

(5) Attach a sign with trouble shooting information.

(6) Fill in a test report and hand over one copy to the operator.

8. Malfunction (Alarm)

8.1 Alarm Description

If an alarm goes off, one must assume that there is an explosive vapor-air mixture in the interstitial space. Take appropriate protective measures!

When monitoring pressure lines, the potential-free contacts of the leak detector must be used to switch off the feed pumps.

(1) An alarm is indicated by the “Alarm” signal lighting up and the sounding of the acoustic signal.

(2) For the operating company:

Through activating the “Mute” button, the audible and the externally optical alarm signal --if there is one-- is acknowledged.

Inform the installation company.

(3) The installation company must detect the cause and correct it.

CAUTION: Depending on the pipelines (e.g., pressure pipeline), there could be liquid under pressure in the connection lines.

CAUTION: Do not allow the interstitial space in the tanks with flexible leak detector jackets to become pressureless (collapse of the insert).

(4) On the outer display and control element, it can be distinguished whether the alarm is emitted from containers or pipes (see 4.8).

(5) By opening the upper part, it can be determined, which of the interstitial spaces has the alarm status. The type of alarm is to be determined according to 4.9.

(6) Note: If there is a pressure alarm on one leak detecting device (red LED shines) AND the underpressure on the other devices

a) repeatedly reaches the operating pressure:
➡ fluid leak, i.e., product or water has been taken in.

b) is beneath the operational underpressure: ➡ air leak

(7) (Optional) Alarm tank probe: Yellow LED at leak detecting device shines.

(8) Repairs to the leak detector (e.g., replacement of components) may only be made outside the ex-area, or if suitable safety measures have been met.

(9) After troubleshooting, perform a function test as per 7.3.

8.2 Malfunction

In the event of a malfunction, only the red indicator light will be lit up on the internal displays next to the green indicator light (yellow is off).

Press "Acoustic Alarm” button – in case of a malfunction the red LED DOES NOT blink (in contrast to the alarm state).

Depending on the cause of the malfunction an “S” (= Störung i.e. malfunction) will also be given on the display.

9. Spare Parts

For spare parts, please refer to our website shop.sgb.de.

10. Accessories

For accessories, please refer to our website shop.sgb.de e.g.

Testing devices

- Assembly kits

- Tanks/Containments

- Pipes

- Electrical isolators

11. Disassembly and Disposal

11.1 Disassembly

Prior to and during works, make sure the unit is free of gas and the breathing air contains sufficient oxygen levels

Seal any openings gas-tight through which an explosion atmosphere can carry over.

Avoid using spark-producing tools (saws, parting grinders, etc.) for removal whenever possible. Should this be unavoidable, however, comply with EN 1127 or the area must be free of explosive atmosphere.

Avoid the build-up of electrostatic charges (e.g., through friction).

11.2 Disposal

Properly dispose of contaminated components (possibly through outgassing).

Properly dispose of electronic components.

12. Appendix

12.1 Use of the interstitial space that is filled with leak detector fluid

12.1.1 Requirements

(1) Only leak detectors with suitable alarm pressures which depend on the tank diameter and the density of the stored material may be used.

(2) The procedure described below is intended for the horizontal cylindrical tanks (e.g., DIN 6608 or EN 12285-1).

(3) If this method is used on other tanks, the permission of the locally responsible authority is required on a case-by-case basis.

12.1.2 Preparation

(1) Remove the fluid-based leak detector.

(2) Remove the leak detection fluid from the interstitial space by suction. With the following procedure:

- Connect the suction line connection of the assembly pump to a tank[12] socket with intermediately connected tanks.
- Suction out until no more liquid is being suctioned.
- Assembly of a (large) shut-off valve (at least 1/2“) on the other nozzle and close the shut-off valve.
- Pump out liquid until no more liquid comes into the intermediate tanks.
- Suddenly open shut-off valve (for running pumps), such that a further sufficient “surge” of leak detecting fluid comes into the intermediate tanks.
- Continue operating with opening and closing of the test valve until no fluids enter the intermediate tanks either in the open position or in the close position.

12.1.3 Installation and Start Up of the Leak Detector

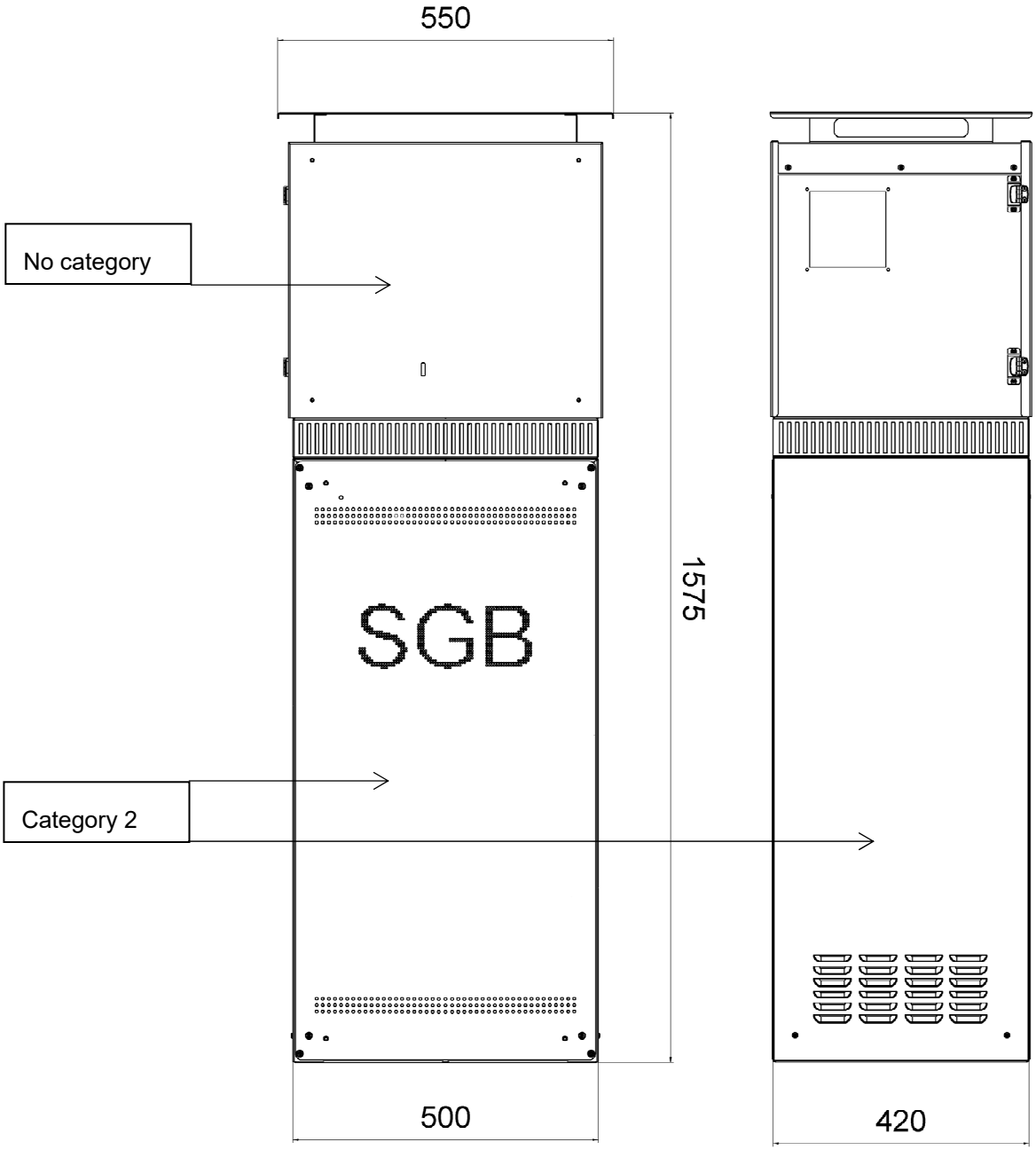
(1) The suctioning of the leak-detection liquid creates an air cushion above the leak detection liquid.

(2) Install the leak detector according to the documentation and start it up.

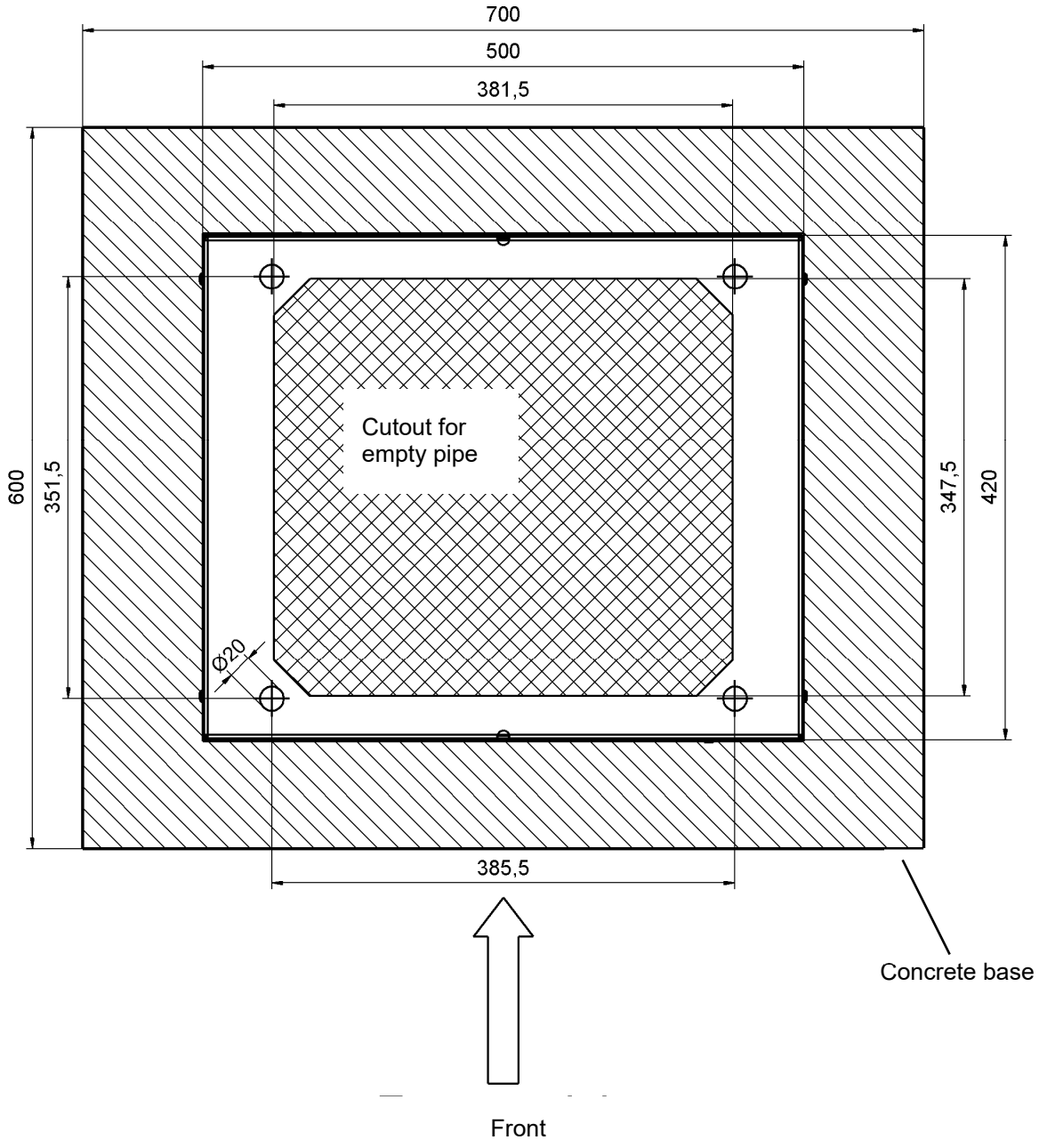
(3) Perform a function test on the leak detector.

[12] The liquid to be suctioned out is collected in this container.

12.2 Dimensions and boundaries of the categories (Ex)



12.3 Concrete base (top view: exterior, housing, holes and openings for protective pipes)



12.4 EU Declaration of Conformity

Hereby we

SGB GmbH
Hofstr. 10
57076 Siegen, Germany

declare in sole responsibility that the leak detectors

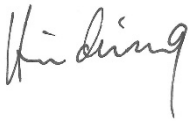
VLXE-SAB T.. / P..

are in conformity with the essential requirements of the EU directives/regulations/UK statutory requirements listed below.

In case the device is modified or used in a way that has not been agreed with us, this declaration shall lose its validity.

Number/short title	Satisfied regulations
2014/30/EU EMC Regulation SI 2016 No. 1091	EN 61 000-6-3: 2011 EN 61 000-6-2: 2006 EN 61 000-3-2: 2015 EN 61 000-3-3: 2014
2014/34/EU Equipment for EX Atmospheres SI 2016 No. 1107	The pneumatic components of the leak detector may be connected to spaces (interstitial spaces of tanks/pipelines/fittings) that require category 1 devices. For installation, see conditions of the documentation. The following documents have been consulted: PTB 02 ATEX 4012 X with: EN 16852:2010 TÜV-A 18 ATEX 0051 X with: EN 60079-0:2012; A11:2013; EN 60079-18:2015 TÜV-A 18 ATEX 0058 X with: EN 80079-36:2016; EN 80079-37:2016 TÜV-A 18 ATEX 0056 X with: EN 60079-0:2012 + A11:2013; EN60079-18:2015 EN 1127-1:2019 The ignition hazard assessment did not result in any additional hazards.

Conformity is declared by:



As of: 02/2023

ppa. Martin Hücking
(Technical Director)

12.5 Declaration of Performance

Number: **010 EU-BauPVO 2017**

1. Unique identification code of the product type:
   Vacuum leak detector type VLXE-SAB T.. / P..
2. Use:
   Vacuum leak detector of class I for monitoring double-walled pipelines and tanks
3. Manufacturer:
   SGB GmbH; Hofstraße 10; 57076 Siegen; Germany
   Tel.: +49 271 48964-0; Email: sgb@sgb.de
4. Authorized representative:
   n.A.
5. System for assessment and verification of constancy of performance:
   System 3
6. In case of a declaration of performance for a construction product which is covered by a harmonized standard:
   Harmonized standard: EN 13160-1-2: 2003
   Location notified: TÜV Nord Systems GmbH & Co.KG, CC Tankanlagen, Große Bahnstraße 31, 22525 Hamburg, Germany
   Identification number of the notified testing laboratory: 0045
7. Declared performance:

Essential characteristics	Performance	Harmonized standard
Electrical function	corresponds to documentation	EN 13160-2: 2003
”Operating” signal light/alarm	Green/Red	
Permeability test	< 1 Pa l/s	
Pressure switching values, depends on type	Satisfied	
Ensuring the Alarm	System requirement (met, if field of application is observed)	

8. Signed for and on behalf of the manufacturer by:
   Dipl.-Ing. M. Hücking, Technical Director
   Siegen, 02-2023

12.6 Declaration of Compliance of the manufacturer (ÜHP)

SGB
MVV TB
Anhang C 2.15.15
TÜV-NORD

Compliance with “Muster-Verwaltungsvorschrift Technische Baubestimmungen“ (sample administrative regulation technical building regulations) is hereby declared.

Dipl.-Ing. M. Hücking, Technical Director
Siegen, 02-2023

12.7 EX approval of the components (pump and pressure sensor)

https://sgb.de/en/products/downloads.html

12.8 PESO Certification

7/20/2020

Government of India
Ministry of Commerce & Industry
Petroleum & Explosives Safety Organisation (PESO)
5th Floor, A-Block, CGO Complex, Seminary Hills,
Nagpur - 440006

E-mail : **explosives@explosives.gov.in**
Phone/Fax No : **0712 -2510248, Fax-2510577**

Approval No : A/P/HQ/MH/104/6491 (P478421) Dated : **16/07/2020**

To,

M/s. SGB GmbH,
HOFSTRASSE 10 ,SIEGEN
57076
GERMANY

Sub : Approval of Encapsulated Type Electrical Equipment under Petroleum Rules 2002- Regarding.

Sir(s),

Please refer to your letter No. **OIN516506** dated **19/06/2020** on the subject.

The following Ex electrical equipment(s) manufactured by you according to **EN 60079-0 : 2012/A11 : 2013, EN 60079-18 : 2015,** standards and covered under **TUV AUSTRIA SERVICES GMBH** Test reports mentioned below is/are approved for use in **Zone 1** of Gas **IIC** hazardous areas coming under the the Petroleum Rules, 2002 administered by this Organization.

Sr. No	Description	Safety Protection	Equipment reference Number	Test Agency			Drawing no
				Name	Certificate No.	Certificate Date	
1	Explosion protected vacuum leak detector	Ex ma IIC T4 Ga/Gb	**P478421/1**	TUV AUSTRIA SERVICES GMBH	TUV-A 18ATEX0051X	15/06/2018	as per report

This Approval is granted subject to observance of the following conditions:-

1)The design and construction of the equipment shall be strictly in accordance with description, condition and drawings as mentioned in the TUV AUSTRIA SERVICES GMBH Test Reports referred to above.

2)The equipment shall be used only with approved type of accessories and associated apparatus.

3)Each equipment shall be marked either by raised lettering cast integrally or by plate attached permanently to the main structure to indicate conspicuously:-
(a) Name of the manufacturer
(b) Name and number by which the equipment is identified.
(c) Number & date of the test report of the TUV AUSTRIA SERVICES GMBH applicable to the equipment.
(d) Equipment reference number of this letter by which use of apparatus is approved.
(e) Protection level.

4) A certificate to the effect that the equipment has been manufactured strictly in accordance with the drawing referred to in the TUV AUSTRIA SERVICES GMBH Test report and is identical with the one tested and certified at TUV AUSTRIA SERVICES GMBH shall be furnished with each equipment.
5) The customer shall be supplied with a copy of this letter, an extract of the conditions and maintenence schedule, if any, recommended by TUV AUSTRIA SERVICES GMBH in their test reports and copy of

1/2

7/20/2020

instructions booklet detailing operation & maintenance of the equipment so as to maintain its Flame Proof characterestics.
6) The After sales service and maintanance of subject equipment shall be looked after by your representative Tokheim India Pvt. Ltd, Building No.2, Plot No 66, TTC Industrial Area, M City : NAVI MUMBAI Taluka / Tahsil : Mumbai District : MUMBAI State : Maharashtra Pincode : 400710 Phone : 022-67614034

This approval also covers the permissible variations as approved under the TUV AUSTRIA SERVICES GMBH test reports referred above. This approval is liable to be cancelled if any of the conditions of the approval is violated or not complied with . The approval may also be amended or withdrawn at any time, if considered necessary in the interest of safety.

The field performance report from actual users/your customers of the subject equipment may please be collected and furnished to this office for verification and record on annual basis.
The Approval is Valid upto **31/12/2024**

Yours faithfully,

(R.A.GUJAR)
Dy. Chief Controller of Explosives
For Chief Controller of Explosives
Nagpur

Copy to :
1. Jt. Chief Controller of Explosives, West Circle, MUMBAI
2. Tokheim India Pvt. Ltd,Building No.2, Plot No 66, TTC Industrial Area, M City : NAVI MUMBAI Taluka / Tahsil : Mumbai District : MUMBAI State : Maharashtra Pincode : 400710 Phone : 022-67614034

for Chief Controller of Explosives
Nagpur

(For more information regarding status,fees and other details please visit our website http://peso.gov.in)

This is System Generated document. Signature is not required.

Note:- Please submit the revalidation application one month before the date of Expiry of approval otherwise approval will be treated as cancelled and a fresh application for approval will be considered for the approval.

2/2

Imprint

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