Vacuum leak detector

VLX ../SA-Ex

Documentation VLX ../SA-Ex

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Germany

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1. Subject

Partially explosion-proof vacuum leak detector without integrated pressure generator type VLX 350/SA-EX as part of a vacuum leak detection system with an alarm vacuum of at least 350 mbar.

Design variations: a) additional pre-alarm (warning before the actual alarm sounds)
b) completely explosion-proof

2. Operative Range

2.1. Double-walled Tanks

- DIN 6618/2[1]
- Other double-walled tanks (or single-walled with leak protection lining or jacketing)[1], that have a suction line to the lowest point of the interstitial space or a pipe union arranged so as to be accessible at the lowest point of the interstitial space.
- Tanks with double-bottom, which have a suction line to the lowest point of the interstitial space (e.g. DIN 4119).
- The tank may be operated at an inner space pressure of up to 25 bar.

2.2. Double-walled pipes

- Double-walled pipes that are approved by a construction authority laid out according to the installation examples.
- The feed pressure in the inner pipe may not exceed 25 bar.

2.3. Stored/Conveyed Product

Water-polluting liquids

Occurring vapour-air mixtures, which stem from

- the stored liquid
- the stored liquid combined with air / humidity or condensation
- the stored liquid combined with components (materials) with which the liquid comes into contact

must be classified in gas group II A, II B or II C and in temperature code T1 to T6.

2.4. Resistance to Materials

In the case of the VLX 350/SA-Ex leak detector, either the MS 58 or special steel (1.4571) must be sufficiently resistant to the stored material[2].

[1] Assurance of an alarm in accordance with Appendix A must be proven; for this type of tank, the proof is listed in Appendix E.

[2] Sufficient means that the physical properties are not adversely affected; discoloration is acceptable.

3. Function Description

The VLX 350/SA-Ex leak detector monitors both walls of a tank or pipe for leaks. The vacuum created by an external installation pump is so high, that leaks in the inner or outer walls are indicated by a vacuum drop (= pressure increase).

3.1. Switch Values of the Leak Detector

operating vacuum to be created (target pressure)	> -350 mbar to max. -700 mbar
Alarm ON	-375 ± 25 mbar

3.2. Normal Operation

The normal operating condition is reached at start-up by building up the operating vacuum using an external installation pump.

The vacuum existing in the interstitial space is monitored by the leak detector (contact manometer). Any leaks will lead to a vacuum drop. Thus very high requirements are placed on the tightness of the interstitial room(s) and the connecting line(s) to ensure trouble-free operation.

3.3. Air Leaks

If a leak occurs in the outer wall (above the groundwater) or in the inner wall above the liquid level, air will be sucked into the interstitial space due to the vacuum existing there. The vacuum drops.

In case of a vacuum drop, the alarm is triggered until the set alarm vacuum is reached.

3.4. Liquid Leaks

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

The vacuum decreases due to the incoming liquid. Additional incoming leaking liquid (due to the vacuum in the interstitial space) leads to a further vacuum drop. The alarm is triggered as soon as enough liquid has penetrated into the interstitial space so as to exceed the alarm vacuum.

If several pipes are connected to a leak detector VL-300 Ex at the same time, as shown in Figure M3-100 380, liquid stop valves should be installed against the direction of flow so that if there is a leak in one of the pipes, the leaking liquids are prevented from entering the interstitial spaces of the other pipes.

4. Installation Instructions

4.1. General Notes

(1) The approvals of the manufacturer of the tank or interstitial space must be complied with.

(2) Only qualified service companies may be used for installation and start up[3].

(3) Explosion protection requirements must be satisfied (where necessary), such as laws on the basis of the European Directive 1999/92/EG and/or other applicable codes.

(4) Comply with relevant regulations regarding electric installation[4] (e.g. EN 60 079-14) and explosion protection[5] (e.g. EN 60 079-17).

(5) Pneumatic connections and fittings must be designed to at least PN 10. If the contact manometer is installed at the lowest point, the static pressure (or feed pressure) of the liquid must also be taken into account.

4.2. Personal Protective Equipment

The parts listed here refer exclusively 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 may be expected, the minimum required equipment is as follows:

- Suitable clothing (risk of electrostatic charge)
- Suitable tools (e.g., per EN 1127)
- Suitable combustible gas indicator calibrated to the existing vapor-air mixture (work should be performed only at a concentration of 50% below the lower explosion limit)[6]

4.3. Installation of the Leak Detector

The leak detector consists of a leak indicating device and the leak detector (= contact manometer).

4.3.1 Installation of the leak indication device, housing for installation on a wall

(1) Generally mounted on walls with plugs and screws.

(2) **NOT** in potentially explosive areas. (see also 1-100 380)

(3) The leak indicating device is designed for a temperature range from -20°C to +60°C

(4) In closed, dry areas, not directly next to sources of heat.

(5) In a protective box when assembling out of doors or in damp locations.

(6) When installing in a protective box: Additional outdoor signal or alarm forwarding via voltage-free contacts to a switchboard or similar device.

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[3] For Germany: Specialist services according to environmental law (Wasserrecht), for Europe: Authorization by manufacturer.

[4] For Germany: e.g., VDE regulations, regulations of the electrical supply companies.

[5] For Germany: e.g., ElexV, GSiG.

[6] Other countries' regulations may give different percentages.

4.3.2 Installation of the leak indication device, top hat rail installation of control modules in the control cabinet.

(1) Attaching to top hat rail (DIMENSION/DESIGNATION) in the control cabinet.

(2) Complete wiring according to section 4.5.2.

(3) If several control modules are used, they can be brought together using an alarm batch fault message (e.g. SGB devices: SSM 10 or ASM-8).

(4) **NOT** in potentially explosive areas[7] (see also I-100 380)

(5) When installing in the control cabinet: additional outdoor signal [8] or alarm forwarding via voltage-free contacts to a switchboard or similar device.

(6) The control module is designed for a temperature range from -20°C to +60°C.

4.3.3 Installation of the leak detector

(1) Near the tank/pipe, if possible, and usually directly on the tank/pipe using an installation kit.

(2) If the existing explosive atmosphere is classified to temperature code T5 or T6, a protection from direct sunlight is required, to avoid temperatures above 81°C for T5, resp. 66°C for T6.
The leak detector can be installed out of doors (IP 65).

(3) Even in potentially explosive areas (zones 1 and 2) (see also 1-800 380).

(4) The inside of the leak detector is suitable for zone 0.

(5) Turn the drain plug at the high point of the contact manometer according to the attached drawing.

(6) When installing the leak detector on a heated tank, the temperatures mentioned in no. (2) shall not be exceeded, taking the ambient temperature conditions into consideration.

(7) If the leak detector is installed inside the building (e.g. tank is inside a building), it must be well ventilated. The operator shall apply EN 60 079-10/EN 13 237 as a basis for evaluation.

(8) For mounting (screwing in) the leak detector only the provided places shall be used. NEVER use the housing of the gauge.

4.4. Installation of electrical connecting line (intrinsically safe, blue)

(1) Shielded cable[9], if an overall interval of at least 5 cm to the other live lines is not guaranteed.

(2) Type of cable: e.g.: ÖLFLEX EB-0, 2x0.75 (or comparable) ÖLFLEX EB-CY, 2x0.75 (or comparable)

[7] When a explosion proof enclosure and explosion protected signal lights and switches are used, the leak indication device can also be installed in the potentially explosive area (zones 1 and 2).
Occurring vapour-air mixtures must be able to be assigned to the respective temperature code and gas group according to the explosion protection of the leak indication device.

[8] Provide an external switch for turning off the outdoor signal!

[9] If shielded cable is used, the shielding must only be connected in the contact manometer.

(3) Requirements:
max. cross section 2.5 mm^2
Resistant to possible vapours that may exist.

(4) The proof of intrinsic safety must be provided.

(5) Observe polarity.

(6) Switch or plug connections are prohibited

(7) When laying in conduits, at least the opening on the tank (pipe) side must be sealed gas-tight.

(8) A cable break causes the alarm to sound (safety wiring).

(9) EN 60079-14/IEC 60079-14 must be taken into consideration.

4.5. Electrical Connection

(1) 230 V – 50 Hz.

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

(3) The leak detector must be connected to the equipotential bonding of the overall system.

4.5.1 Terminal layout, housing for installation on a wall (see also SL-854 100, above)

2	Outer conductor (230 V); + (24 V DC)
3	Neutral conductor (230 V); - (24 V DC)
1	Ground
4/5	External signal (230 V / 24 V DC in the event of an alarm)
7/8	Voltage-free contacts (opened in case of alarm or loss of power)
- (1)	blue terminal: Connection of the leak detector (minus)
+ (2)	blue terminal: Connection of the leak detector (plus)

4.5.2 Terminal layout, control module, top hat rail installation (see also SL 854 100, below)

If a control module is used in an existing control cabinet, then at least the voltage free contacts must be used to forward the alarm signal to a switchboard. If this is not possible, a visual and audible alarm should be provided.

23	Outer conductor (230 V); + (24 V DC)
24	Neutral conductor (230 V); - (24 V DC)
13-14	Voltage-free contacts
15-21	Voltage-free contacts
12 (-(1))	blue terminal: Connection of the leak detector (minus)
10 (+(2))	blue terminal: Connection of the leak detector (plus)

4.6. Installation Examples

Installation examples are given in the Appendix.

The following conditions must be met for pipes:

- The height limitations given in Sheet M2-100 380 apply correspondingly for Sheet M3-100 380. When laying according to M3-100 380 (above), ensure that there is an alarm in individual cases, if necessary Consult with the manufacturer.
- The following dimensions, depending on density ρ, must be complied with[10]:

Density ρ in kg/dm³	Height H in m	Height h in m
1,0	≤ 6,7	≤ 3,2
1,1	≤ 6,1	≤ 2,9
1,2	≤ 5,6	≤ 2,7
1,3	≤ 5,2	≤ 2,5
1,4	≤ 4,8	≤ 2,3
1,5	≤ 4,5	≤ 2,1
1,6	≤ 4,2	≤ 2,0
1,7	≤ 3,9	≤ 1,9
1,8	≤ 3,7	≤ 1,8
1,9	≤ 3,5	≤ 1,7

5. Start Up

Before starting every work, the suitability of the used tools / materials (e.g. installation pump (electrically and pneumatically) including the tubing or test measuring instrument (gauge)) shall be evaluated for its intended use, taking the local conditions into consideration.

(1) After installation of the pneumatic fittings, connect to the power supply.
Turn the drain plug on the contact manometer according to the drawing!

(2) Check that the operating and alarm lights and the audible alarm [11] (if available) work properly. Then set the switch ”Audible Alarm” to the OFF position.

(3) Connect high-performance installation pump to the test port (suction point to the low point). CAUTION: The installation pump must be suitable for the relevant vapour-air mixture with respect to explosion protection.

(4) Connect a suitable test vacuum gauge to the measuring pipe union (parallel to the contact manometer).

(5) Supply the leak detection system with a vacuum up to a max. of 700 mbar.

(6) Close the stop cock in front of installation pump.

(7) Perform the function test per section 6.4.

[10] The different heights (H and h) result from the pipe laying procedure. The laying procedures are presented as an installation example.

[11] Or forwarding of the alarm signal

(8) The leak detector (WIKA, 9694473) shall only be used with the control unit (P&F KHA6-SH-Ex1 (230 V, AC) resp. KFD2-SH-Ex1 (24V, DC).

(9) Avoid pressure shocks on the leak detector, open and close test valves slowly.

6. Operating Instructions

6.1. General Notes

(1) If the leak detection system is installed properly and tightly, it can be assumed that the leak detector works within the control range.

(2) Frequent sounding of the alarm indicates leaks, which must be corrected within a reasonable time.

(3) The operator must check the function of the operating lights at regular intervals by means of a visual inspection.

6.2. Maintenance

(1) Maintenance work and function tests must be performed by trained personnel only. [12]

(2) Explosion protection requirements must be satisfied (where necessary), such as laws on the basis of the European Directive 1999/92/EG and/or other applicable codes.

(3) Once a year to ensure functional and operational safety.

(4) Test scope per section 6.4.1.

(5) Compliance with the conditions per section 4 must also be checked.

(6) Disconnect the power to the leak detector before opening the housing.

(7) To clean the leak detector use a moist cloth.

6.3. Intended Use

- Use as a leak detector for the tanks and pipes listed in the area of use.
- Tank grounding according to the applicable regulations (e.g. EN 1127)
- Tightness of the leak detection system according to section 6.4.4 (leak rate must not exceed tightness requirement).
- Conduits for connection lines are to be closed gas tight.
- Leak detector (electric) cannot be turned off.

6.4. Function Testing

Before starting every work, the suitability of the used tools/materials (e.g. installation pump (electrically and pneumatically) including the tubing or test measuring instrument (gauge)) shall be evaluated for its intended use, taking the local conditions into consideration.

[12] For Germany: Technical knowledge for installation service of leak detectors or under the supervision of a responsible expert, according to currently valid regulations.

The functional and operational safety tests must be performed

- after each start up
- according to section 6.2, while also observing national laws (e.g. VawS)
- each time a malfunction has been corrected

Explosion protection measures must be considered during the function testing, in particular when re-building the operating vacuum!

6.4.1 Test Scope

(1) If necessary, coordinate the work to be performed with those responsible for operation

(2) Observe the safety instructions for working with the stored material.

(3) Check the free passage of air in the interstitial space (section 6.4.2)

(4) Testing the switch values (section 6.4.3)

(5) Testing tightness (section 6.4.4)

(6) Creating the operating condition (section 6.4.5)

(7) A test report must be completed, confirming functional and operational safety.

6.4.2 Checking the Free Passage of Air in the Interstitial Space

Can only be done if there is a second connection (check valve) in the interstice of the tank.

(1) Connect vacuum gauge to measuring pipe union.

(2) Open stop cock to vacuum gauge.

(3) Compare pressure value between contact manometer and vacuum gauge. Deviation should not be greater than the value calculated from the class precision of the vacuum gauge.

(4) Ventilate the system via the test cock(s).

(5) Determine vacuum drop on the test vacuum gauge and close test cock.

(6) Repeat the process according to (2) and (3) for each additional interstitial space.

(7) Close stop cock to the vacuum gauge and remove the vacuum gauge.

6.4.3 Testing the switch values

(1) Ventilate the system via the test cock until the Alarm ON switch point is reached. Close test cock, record the values.

(2) Install installation pump on the test cock, switch pump on and open stop cock.

(3) Build up a vacuum and check Alarm OFF during the process.

(4) Further vacuum build-up to 700 mbar.
NOTE: If there is no vacuum build-up, first check the delivery rate of the pump[13]. If this test is satisfactory, the existing leak must be determined and corrected.

(5) Close stop cock, turn off and remove pump.

[13] To do so, close the stop cock, remove the pump from the test pipe union and connect the test vacuum gauge to the air intake of the pump. The vacuum reading should now be at least 750 mbar.

6.4.4 Leak Detection System Tightness Testing

(1) Wait for the pressure to be equalized after the vacuum build-up.

(2) Connect the vacuum gauge to the measuring pipe union and open the stop cock.

(3) Assuming a condition of trouble-free operation, the test is considered positive if the pressure drop is less than 1 mbar per 24 hours.

(4) Close stop cock, remove vacuum gauge.

6.4.5 Creating the Operating Condition

(1) Seal the housing and “Audible alarm” switch in the ON position.

6.5. Alarms

(1) The alarm is indicated by lighting up of the (respective) light-emitting diode in the control module.

(2) Only housing for installation on a wall: An alarm is indicated by the “Alarm” signal lighting up and the sounding of the audible signal. Shut off the audible signal by activating the ”Audible alarm” switch.

(3) Notify technical service.

(4) Technical service must detect the cause and correct it.
CAUTION: The contact manometer can be damaged when pressure in the interstitial space is > 1 bar and must then be replaced.
CAUTION: A cable break also triggers the alarm.

(5) If the alarm can be traced back to a defect in the contact manometer or control module (e.g. a mechanical problem, a component failure …), repair work may only be carried out at the factory.

(6) Perform a function test per section 6.3.

7. Removal

To remove units, which can cause an explosion risk, the following points must be observed in particular:

- Make sure the unit is free of gas before and during removal.
- Seal any openings gas-tight through which the explosion atmosphere can carry over.
- Avoid using spark-producing tools (saws, parting grinders, etc.) for removal whenever possible. If this is unavoidable, be certain to observe EN 1127.
- Avoid the build-up of electrostatic charges (e.g., through friction).
- Properly dispose of contaminated components (possibly through outgassing).

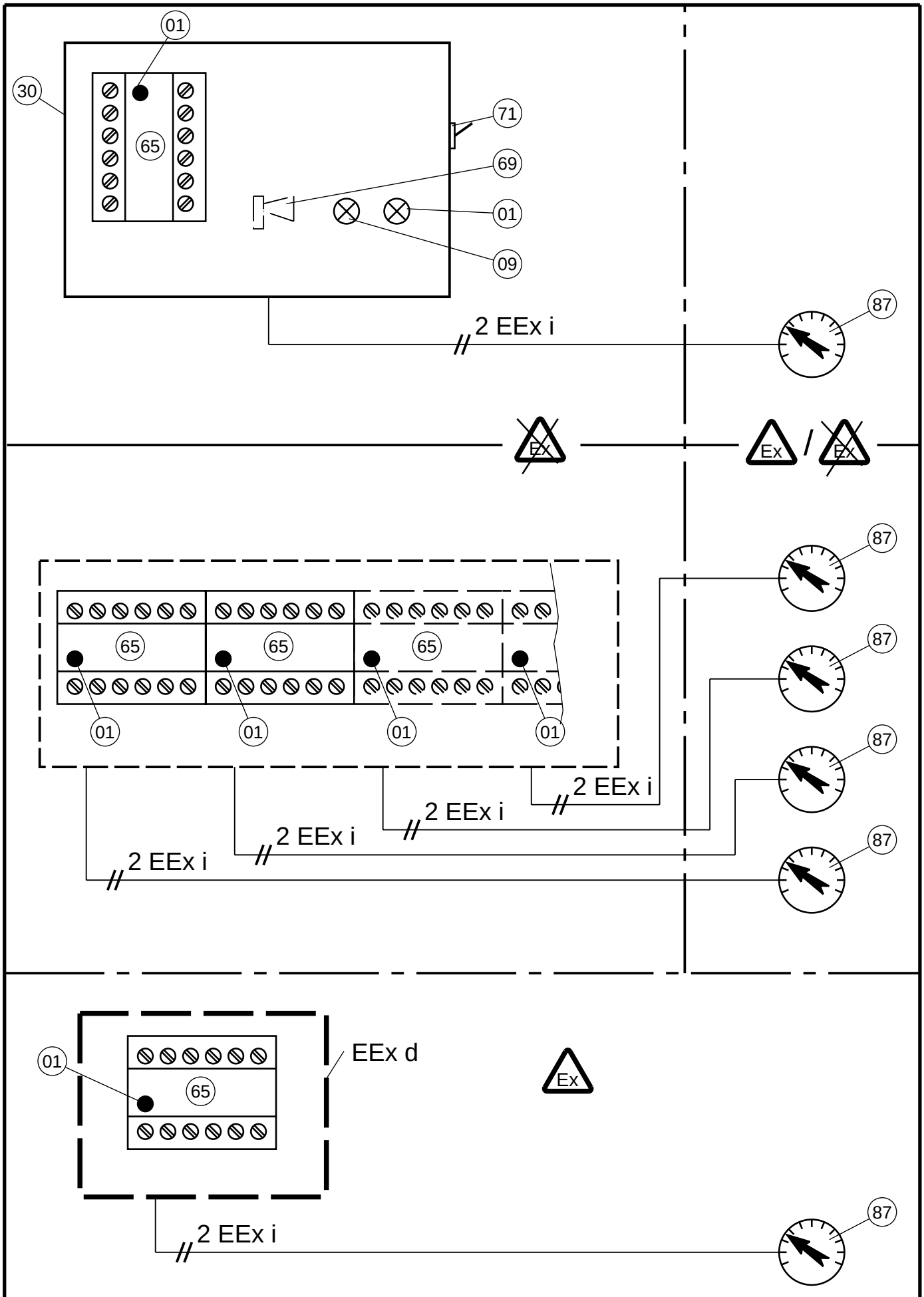
8. Marking

- Type
- Electrical data

- Manufacturer or manufacturer symbol
- Date of manufacture (month/year)
- Serial number
- Symbol specified by law

9. Abbreviations used

01 ”Alarm” signal light, red
02 Stop cock
09 ”Operating” signal light, green
27* Liquid stop valve, installed opposite the valve direction
30 Housing
57 Test cock (test port)
65 Control unit
69 Buzzer
71 ”Audible Alarm” switch
73 Interstitial space
87 Leak detector
88 Double-walled pipe
100 Measuring connection
101 Suction line to the low point of the interstitial space



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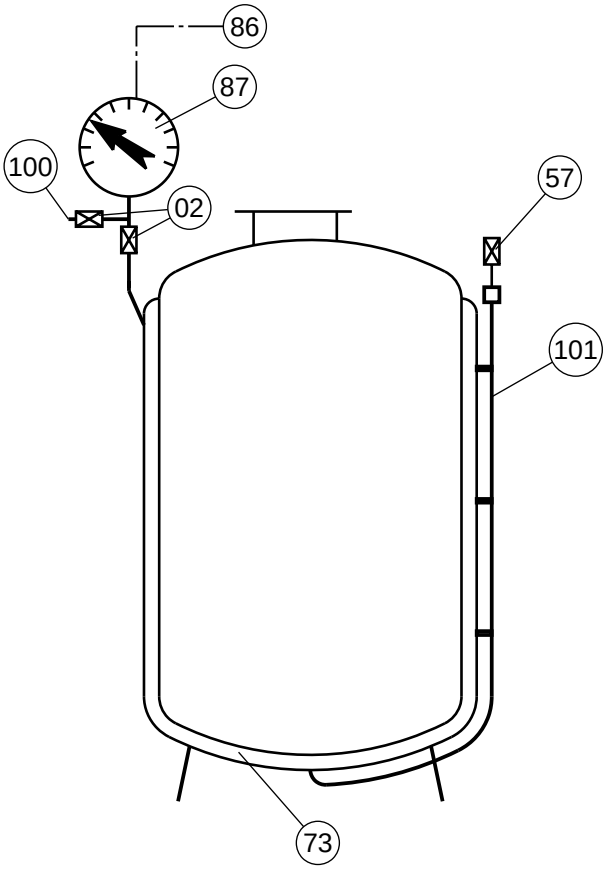
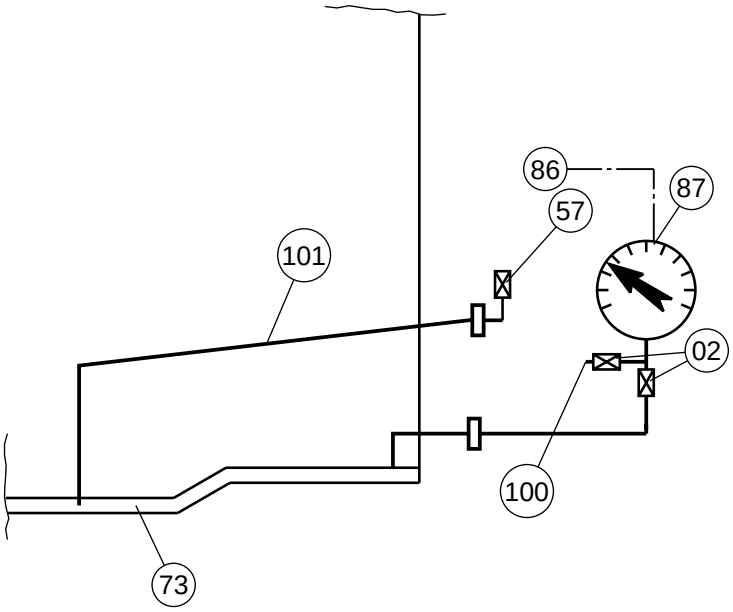
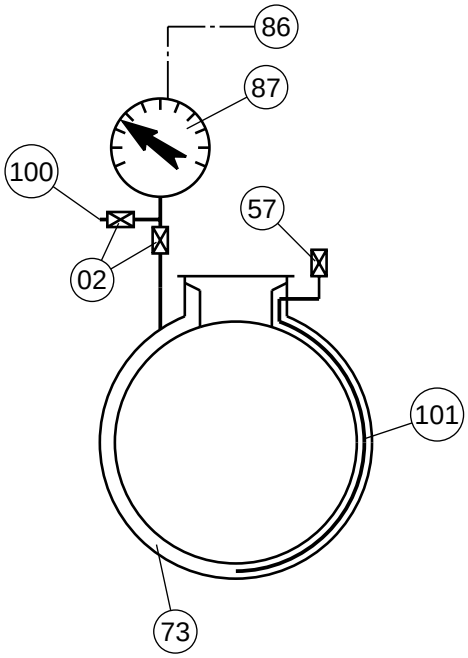
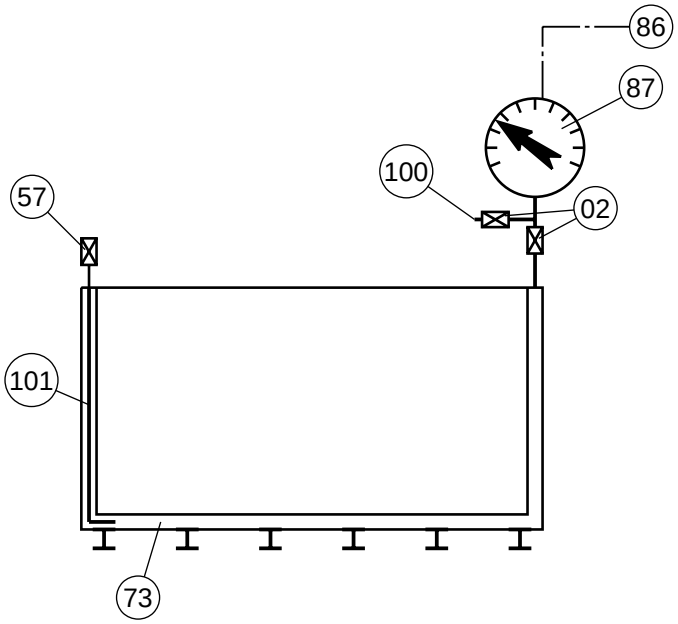
I - 100 380









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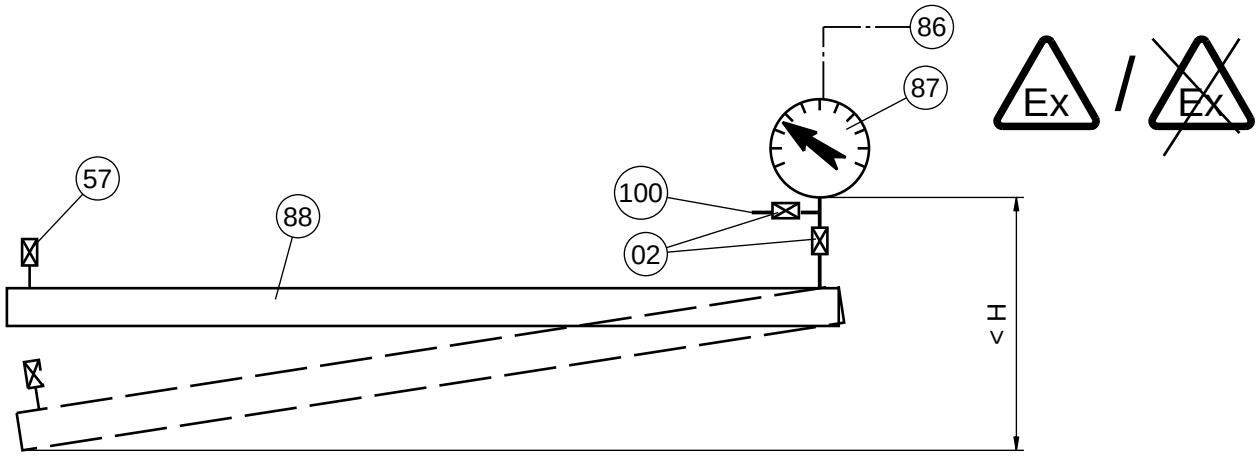
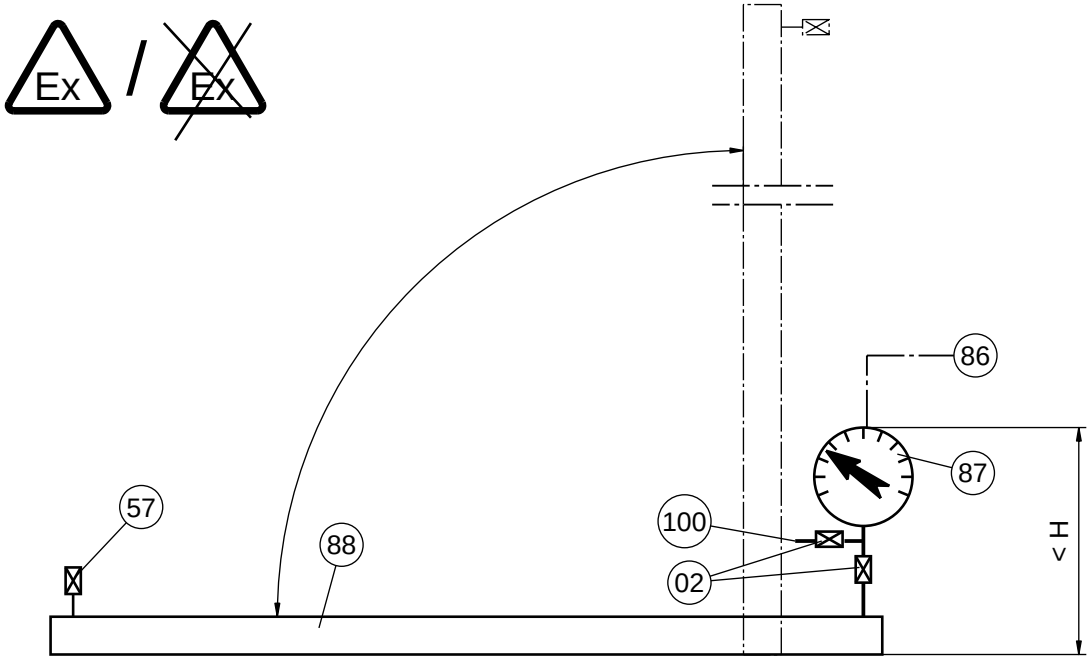
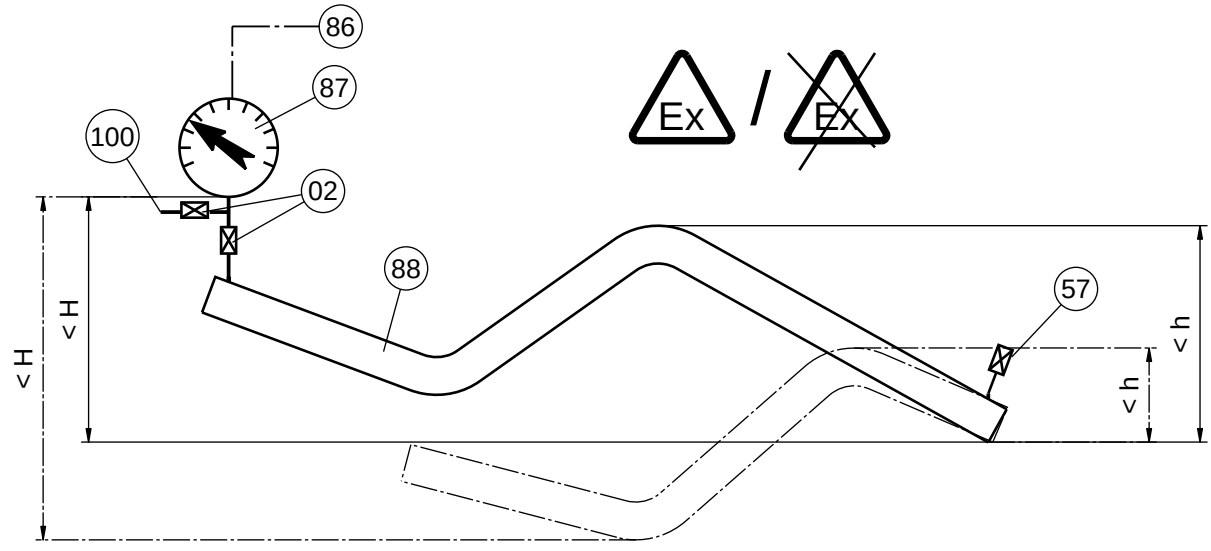
M1 - 100 380







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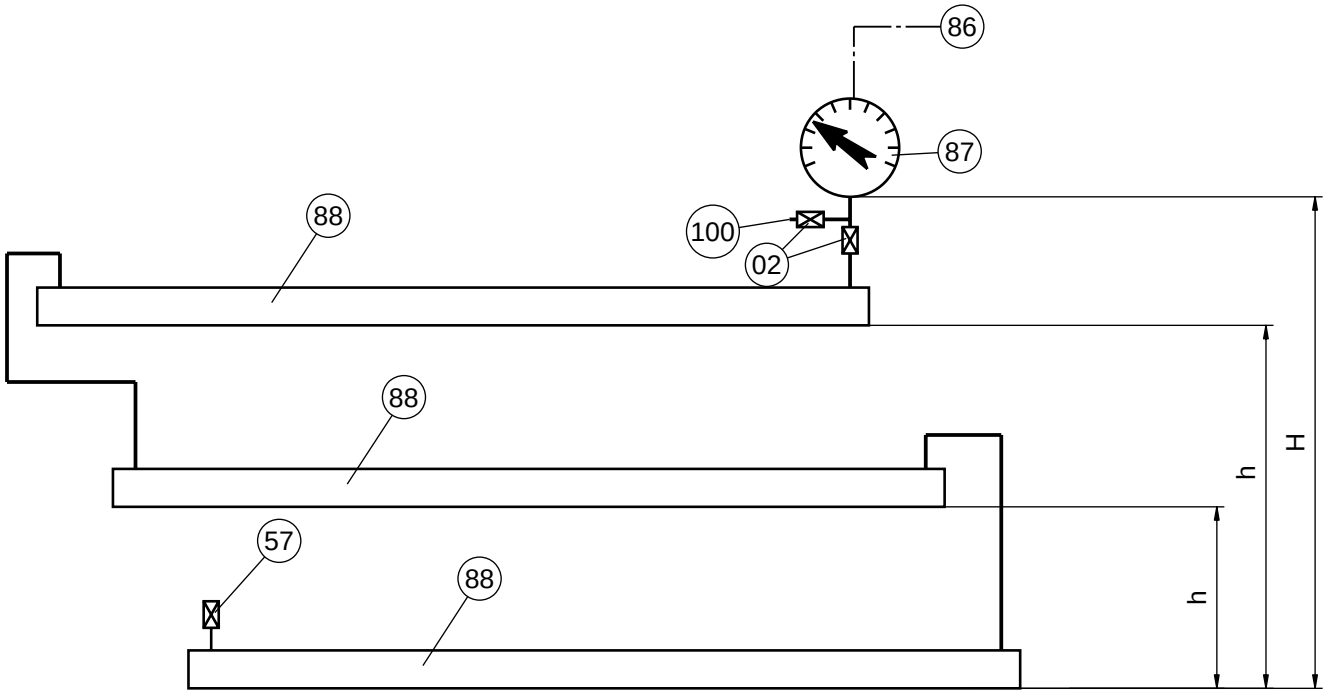
M2 - 100 380



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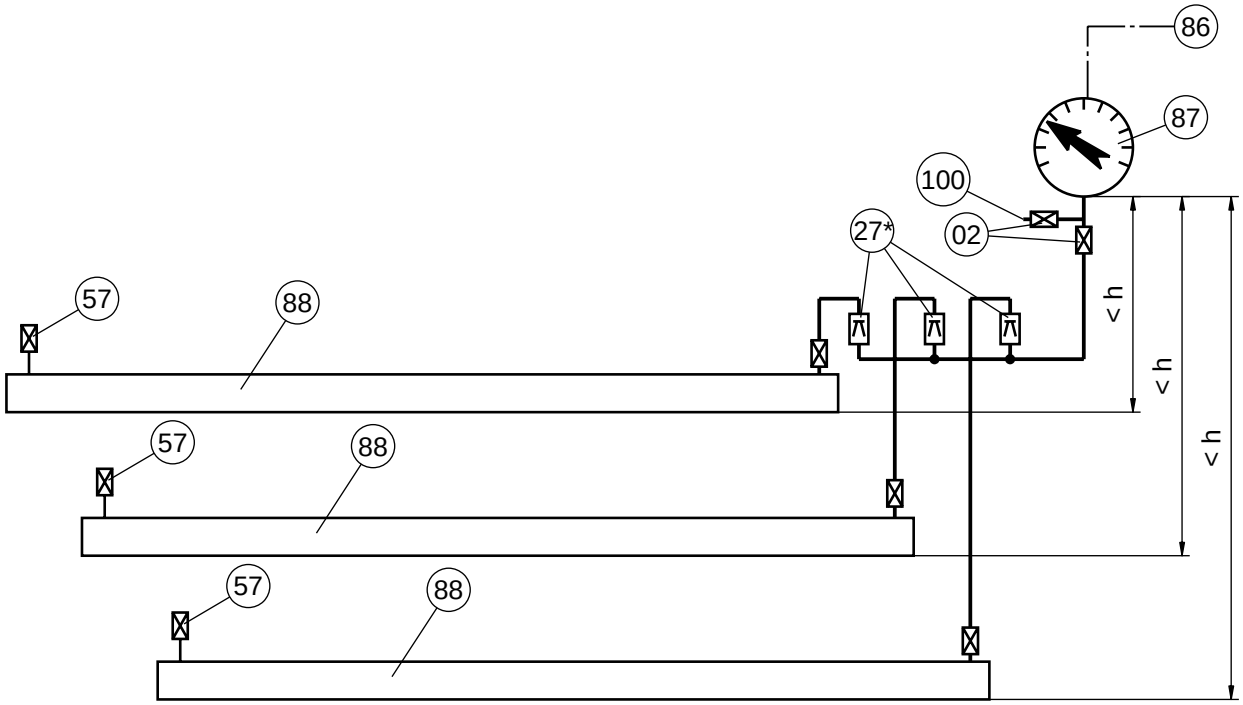

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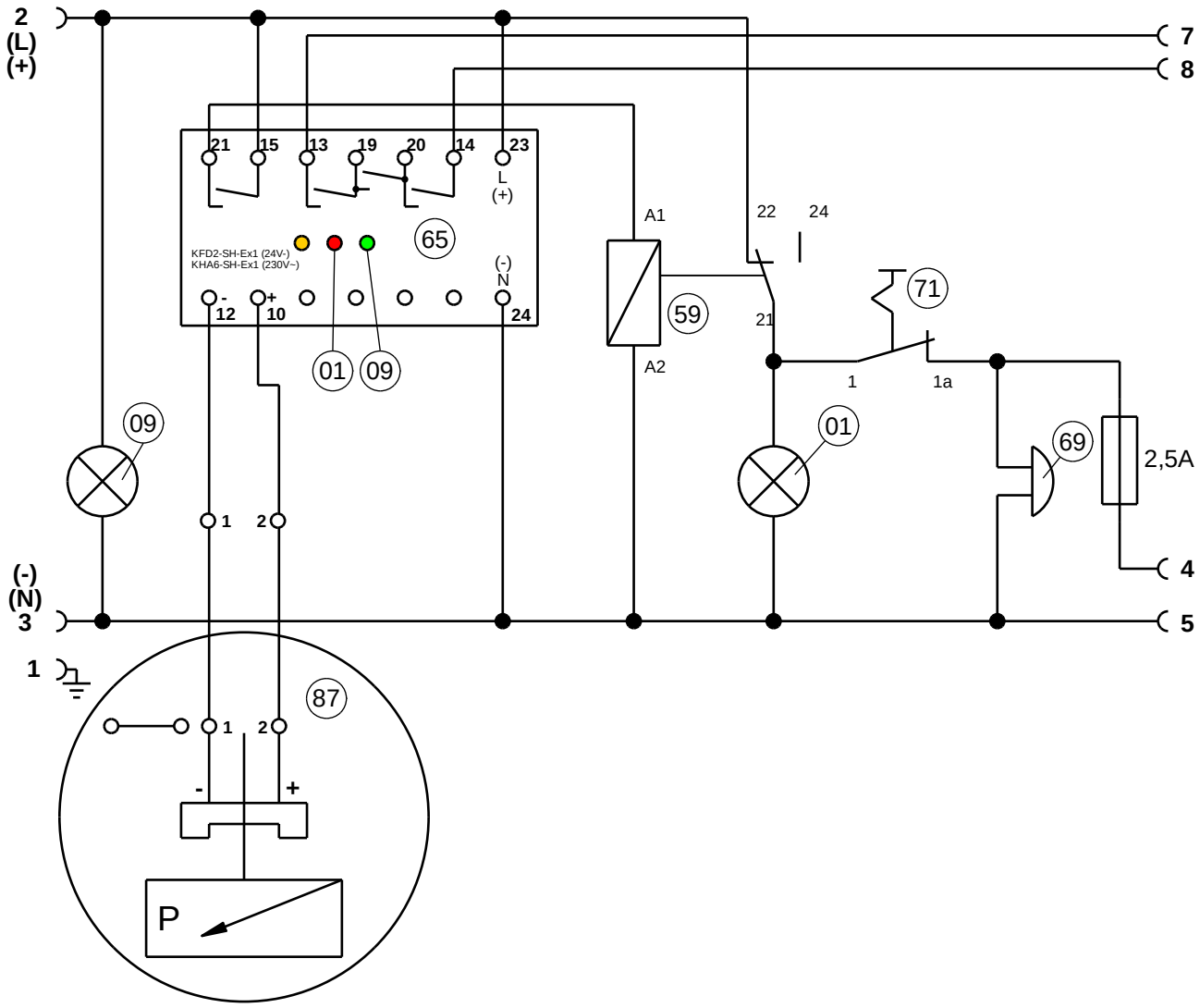
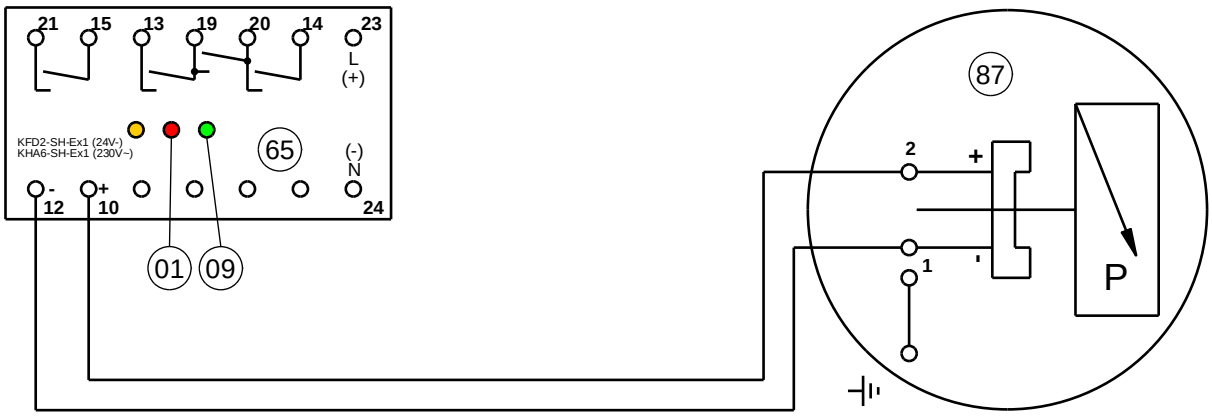
M3 - 100 380





16.06.2015

SGB

SL - 854 100

A.1 Ensuring the Alarm

(1) To ensure the alarm, the interstitial space volume must be reduced by incoming liquid to V = 52 %.

(2) Based on the alarm pressure (alarm ON), the interstitial space (in case of a leak) can be filled up to a height h_1 with respect to the tank low point.

$$h_1 = \frac{p_{AE}}{g \cdot \rho}$$

with:

h_1 Height in m

p_{AE} Alarm pressure: 35 500 Pa

ρ Density in kg/m^3

g Gravitation constant: 9.81 m/s^2

(3) The interstitial volume V_1 at a fill level of h_1 is determined by calculating (or gauging the capacity by liters), while taking into account the tank geometry.

(4) The alarm is considered ensured if the following condition is met:

$$V < \frac{V_1}{V_0} \cdot 100\%$$

with:

V volume to be displaced in %

V_1 Interstitial space volume from the low point of the interstitial space to height h_1 in m^3

V_0 total interstitial space volume in m^3

E.1 Tank in accordance with DIN 6618 T2:1989

Tank diameter [mm]	Tank height [mm]	Max. density of the stored material kg/dm^3
1600	2 820	≤ 1,90
	3 740	≤ 1,90
	5 350	≤ 1,50
	6 960	≤ 1,12
2000	5 400	≤ 1,52
	6 960	≤ 1,15
	8 540	≤ 0,92
2500	6 665	≤ 1,22
	8 800	≤ 0,92
2900	8 400	≤ 0,97
	9 585	(≤ 0,63)
	12 750	(≤ 0,61)
	15 950	(≤ 0,48)

Values in parentheses () are not meaningful, but are included for the sake of completeness.

Technical Data

1. General data

Storage temperature range		-40° C to +90° C
Operating temperature range		-20° C to +60° C
Volume of buzzer		> 70 dB(A) in 1 m
Protection type of housing, indicating unit		IP 30
Protection type of leak detector (contact manometer)		IP 65
Indicating range		0 to -1000 mbar
With coloured marking:	red (= alarm)	0 to -350 mbar
	green (= normal operation)	-350 to -700 mbar
	red hatched (= vacuum too high)	-700 to -1000 mbar
Bursting pressure		at least 50 bar
Pneumatic explosion protection for gas group		II C
Contact design		SN

2. Electrical data

Input capacity (without external signal)	230 V – 50 Hz – 10 W
Switch contact load, terminals 4 and 5	max. 2,5 A
Switch contact load, voltage-free contacts	230 V – 50 Hz – 1 A
External fuse protection of the leak detector	max. 10 A
Over-voltage category	2

3. Ex data for control unit

Mark/Type of protection	II (1) G [EEx ia] IIC
Voltage U_o	9,56 V
Electric current I_o	16,8 mA
Power P_o	41 mW (head curve linear)

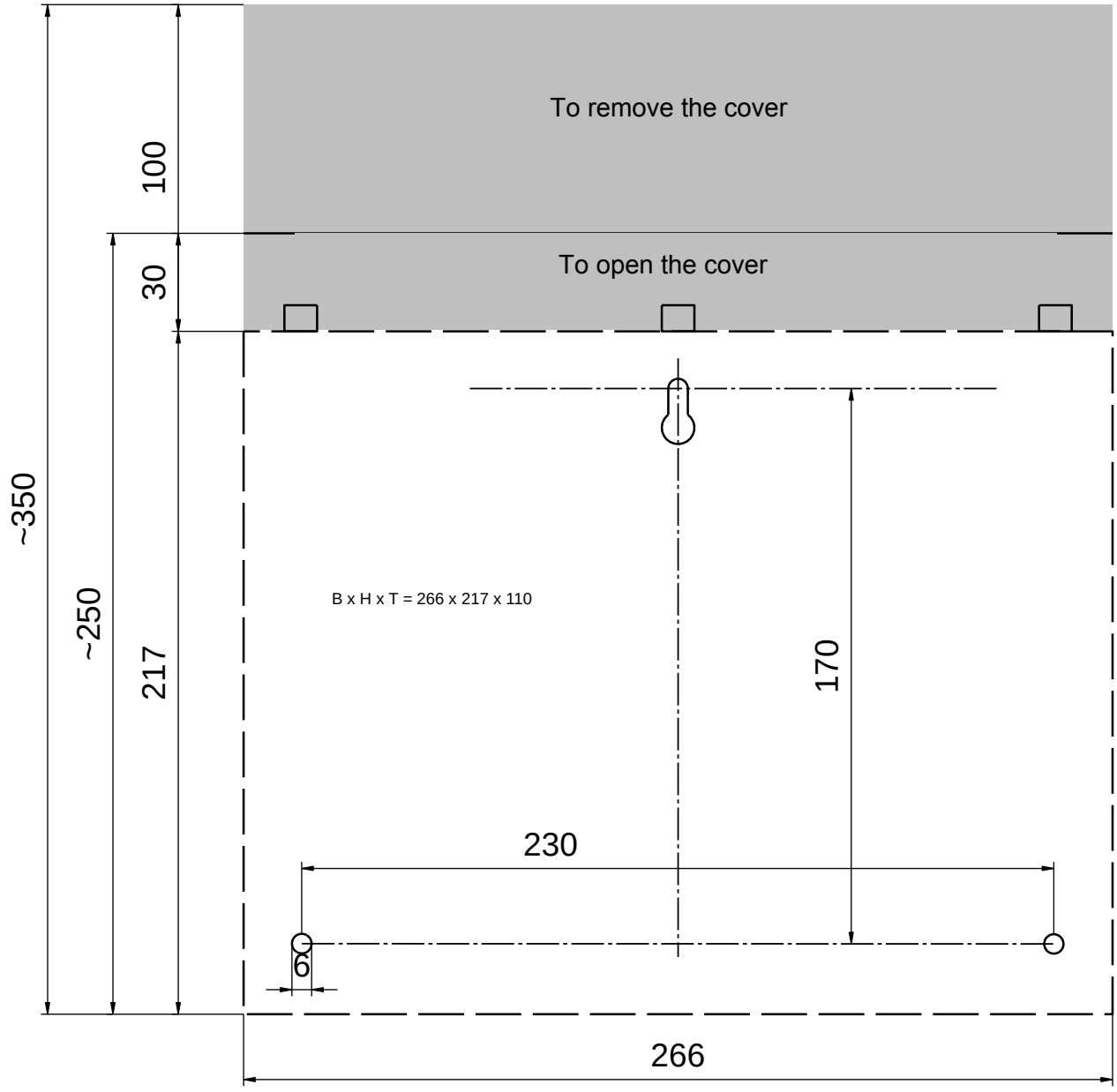
4. Ex data for contact manometer

Mark/Type of protection	II 2 G EEx ia IIC T6*
With flame arrester	can be mounted on zone 0 installations
Voltage U_i	16 V
Electric current I_i	25 mA
Power P_i	64 w
Capacitance C_i	60 nF
Inductance L_i	100 µH

***** Maximum admissible ambient temperature in ° C when used in temperature class

T6:	66° C
T5:	81° C
T4 to T1:	100° C

NOTE: The proof of intrinsic safety must be provided.



18-11-2003

SGB

Dimension/Drilling

EC DECLARATION OF CONFORMITY

We,

SGB GmbH
Hofstraße 10
57076 Siegen, Germany,

hereby declare in sole responsibility that the leak detectors

VLX 350/SA-Ex

comply with the essential requirements of the EC directives listed below.

This declaration shall lose its validity if the device is modified without consulting us.

Number / short title	**Satisfied regulations**
2004/108/EC EMC Directive	EN 61 000-6-3: 2007 EN 61 000-6-2: 2005 EN 61 000-3-2: 2006 + A1 : 2008 + A2 : 2009 EN 61 000-3-3: 2008
2006/95/EC Low Voltage Directive	EN 60 335-1: 2012 EN 61 010-1: 2010 EN 60 730-1: 2011
94/9 EEC Equipment in Potentially Explosive Atmospheres	EN 1127-1: 2011 PTB 00 ATEX 2043 PTB 00 ATEX 2049 X PTB 03 ATEX 4003 X The ignition hazard analysis did not result in any additional hazards, taking into account the EC type examination certificates for the components used. The item described above of the declaration conforms to the relevant harmonization legislation of the Union: Directive 94/9/EEC (to 19 April 2016) and directive 2014/34/EEC (from 20 April 2016).

Compliance is declared by

ppa. Martin Hücking
(Technical Director)

Declaration of Performance (DoP)

Number: **007 EU-BauPVO 06-2014**

1. Distinct identification code of the product type:

   Class I
   Vacuum leak detector

2. Type, batch or serial number or other label for the identification of the building product according to article 11 para. 4:

   VLX 350/SA-Ex:
   Vacuum leak detector for containers and pipes

3. Purpose of use or purposes of use of the building product intended by the manufacturer according to the applicable harmonized technical specification:

   Vacuum leak detector, which is intended for application in double-walled, underground or above-ground, pressurized or unpressurized tanks or pipelines for liquids/fluids hazardous to water

4. Name, registered trade name or registered brand and contact address of the manufacturer according to article 11 para. 5:

   SGB GmbH
   Hofstraße 10
   57076 Siegen
   Germany
   Tel.: +49 271 48964-0
   Fax.: +49 271 48964-6
   E-mail: sgb@sgb.de

5. If applicable, name and contact address of the agent authorised with the tasks according to article 12 para. 2:

   n/a

6. System or systems for the evaluation and inspection of the reliability of performance of the building product according to appendix V of the Building Products Regulation:

   System 3

7. In the case of the declaration of performance, which applies to a building product, which is covered by a harmonised standard:

   TÜV Nord Systems GmbH & Co.KG, CC Tankanlagen, Große Bahnstraße 31, 22525 Hamburg, Germany
   ID number of the notified test laboratory: 0045

   conducted a type approval test according to system 3 and issued the following test report:

   Test report no.: PÜZ 8112692865

8. Declared performance:

Essential features	**Perfor-mance**	**Harmonized technical spec-ification**
Pressure switch point	Passed	EN 13160-2: 2003
Reliability	10,000 Cycles	
Pressure test	Passed	
Volume flow rate test in the alarm switch point	Passed	
Function and leak tightness of the leak detection system	Passed	
Temperature resistance	-20° C .. +60° C	

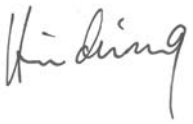
9. The performance of the product according to numbers 1 and 2 corresponds to the declared performance according to number 8:

Solely the manufacturer is responsible for the compilation of this declaration of performance according to number 4

Signed for the manufacturer and in the name of the manufacturer by:

ppa. Dipl.-Ing. M. Hücking, Director of Operations

Siegen, 15-09-2015



TÜV NORD
Systems

TÜV NORD Systems GmbH & Co. KG
PÜZ (testing, supervision and certification) — centre for containers, pipelines and pieces of equipment for systems with substances hazardous to water

Identification number: 0045

Große Bahnstraße 31, 22525 Hamburg
Tel: +49(0)40 8557-0
Fax: +49(0)40 8557-2295
hamburg@tuev-nord.de
www.tuev-nord.de

Certification

Subject of test:	**Under pressure leak detector type VLX../SA-Ex**
Client:	SGB GmbH Hofstraße 10 57076 Siegen
Manufacturer:	SGB GmbH
Type of test:	Initial examination of an under pressure leak detector type VLX../SA-Ex with leak indicator equipment and leak detector according to DIN EN 13160-1:2003/EN 13160-1:2010 and DIN EN 13160-2:2003 and BRL A, part 1, appendix 15.23 as a class I leak monitoring system
Testing period:	03/2015 to 09/2015
Testing location:	PÜZ testing lab TÜV NORD Systems GmbH & Co. KG
Test results:	**The under pressure leak detector VLX../SA-Ex corresponds with class I for leak monitoring systems according to DIN EN 131601:2003/EN 13160-1:2010 and fulfills the requirements of DIN EN 13160-2:2003 and BRL A, part 1, no. 15.43 with appendix 15.23. Regarding the area of application and installation, the specifications of the technical description “Document 602 800” as of 01/2009 apply**

Details on the test can be found in the test report PÜZ 8112692865 dated 03.09.2015.

Hamburg, 04.09.2015

Test laboratory supervisor

J.Straube

Dated 01/2013
STPÜZ-QMM-321-032-

Warranty

Dear customer,

You have purchased a high-quality leak detector from our company.

All of our leak detectors undergo a 100% quality control examination. The type plate with the serial number is only affixed after all test criteria have been complied with.

The **warranty period** for our leak detectors is **24 months**, beginning on the date of installation on site. The maximum warranty period is 27 months from our date of sale.

Our warranty will be effective only if the customer submits to us the functional report or test report on initial putting into service, prepared by a recognised company specialised in water and water protection systems, including the serial number of the leak detector.

The warranty shall not apply in the event of faulty or improper installation or improper operation, or if modifications or repairs are carried out without the manufacturer's consent.

Furthermore, our warranty is subject to our General Terms and Conditions, available on internet:
www.sgb.de/en/contact/imprint.html

In case of malfunction, please contact your local specialist company:

Stamp of the specialist company

Yours sincerely

SGB GmbH
Hofstr. 10
57076 Siegen
Germany

phone: +49 271 48964-0
fax: +49 271 48964-6
e-mail: sgb@sgb.de
web: www.sgb.de