

Series LPV/F

aerating and deaerating valve  
for gauge and low pressure

Angle valve

LPV-A/F

Inline valve

LPV-D/F



## Keep for future use!

This operating manual must be strictly observed before transport, installation, operation and maintenance

Subject to change without notice.

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## Relevant documents

- ◆ Data sheet
- ◆ EG-Declaration of conformity
- ◆ Manufacturer Declaration ATEX Directive 2014/34/EU
- ◆ Manufacturer Declaration TA-Luft
- ◆ Drawing of weights 9530-00-4070

- ◆ Form for Safety Information Concerning the Contamination QM 0912-16-2001\_en

## 1 Technical data

### Manufacturer:

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### Designation :

Direct-acting aerating and deaerating valves, for gauge and low pressure, weight-loaded,

Approved for vapours/gases **and** liquids:

Series **LPV-A/F** → design angle valve

Series **LPV-D/F** → design inline valve

Certified to Clean Air Act (TA Luft)

Strength and tightness (P10, P11) of the pressure-bearing body tested to DIN EN 12266-1.

Gas-tight (P12) in the seat to DIN EN 12266-1, leak rate A

Face to face LPV-A/F DN 50/80 and 80/100,  
 DIN EN 558-1 basic series 8, ISO 5752 series 8

Face to face LPV-D/F:

DIN EN 558-1 basic series 8, ISO 5752 series 1

Flange connecting dimensions: DIN EN 1092-2, type B  
 (ISO 7005-2 Type B) PN 16 or flanges drilled to ASME B16.5  
 Class 150

### Materials:

Body material: Ductile cast iron EN-JS 1049 to DIN EN 1563 (0.7043 DIN 1693)

Lining material: PFA/PTFE .../F  
 On request: antistatic .../F-L

### Test pressure :

| LPV-A/F, LPV-D/F all nominal sizes |                  |
|------------------------------------|------------------|
| Test gauge pressure                | +20 to +120 mbar |
| Test low pressure                  | -20 to -120 mbar |

Fine adjustment in 5 mbar steps is possible by adding/removing weights.

**Temperature range :** 60 °C to +200 °C

See pressure-temperature diagram in **Section 1.5.**

### Valve size inlet/outlet in mm:

LPV-A/F 50/80, 80/100, 100/150  
 LPV-D/F 50, 80, 100

### Weight: (figures without weights)

|         |         |                 |
|---------|---------|-----------------|
| LPV-A/F | 50/80   | approx. 26 kg   |
| LPV-A/F | 80/100  | approx. 39 kg   |
| LPV-A/F | 100/150 | approx. 72 kg   |
| LPV-D/F | 50      | approx. 23.1 kg |
| LPV-D/F | 80      | approx. 60,2 kg |
| LPV-D/F | 100     | approx. 59,4 kg |

### Dimensions and individual parts:

LPV-A/F see **Section 10.3** and **10.5.**

LPV-D/F see **Section 10.4** and **10.6.**

### Installation position : vertical

A direction arrow on the shell indicates the direction of flow. See **Section 6.6.**

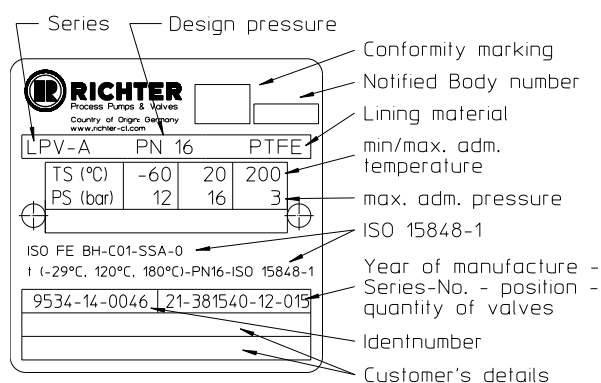
## 1.1 Type plate, conformity and body markings

The stainless steel name plate is undetachably riveted to the body.

Another stainless steel tag plate riveted to the valve indicates the test pressure.

If the operator attaches his identification, it must be ensured that the valve matches the application in question.

### Example of type plate with conformity marking:



### Example plate test pressure



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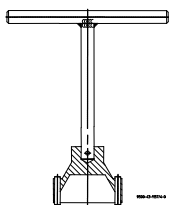
**Body identification :**

The following are visible on the body according to DIN EN 19 and AD 2000 A4:

- ◆ Nominal size
- ◆ Rated pressure
- ◆ Body material
- ◆ Manufacturer's identification
- ◆ Melt number/Foundry identification
- ◆ Foundry date
- ◆ Arrow for direction of flow

**1.2 Screw-in tools for seats**

| Nominal size |        | Article No.  |
|--------------|--------|--------------|
| [mm]         | [inch] |              |
| 50           | 2"     | 9568-96-1016 |
| 80           | 3"     | 9568-96-1017 |
| 100          | 4"     | 9568-96-1018 |

**1.3 Tightening torques**

All screws greased, tighten in diametrically opposite sequence!

The tightening torques for pipe screws and body screws mentioned must not be exceeded. For an exception, see **Section 8**, Flange connection valve / pipe is leaking.

The following tightening torques are recommended.

**Pipe screws**, flanges to ISO/DIN

| Flange<br>Nominal size<br>[mm] | screws<br>[ISO/DIN] | Tightening<br>torque<br>[Nm] |
|--------------------------------|---------------------|------------------------------|
| 25                             | 4 x M12             | 10                           |
| 50                             | 4 x M16             | 26                           |
| 80                             | 8 x M16             | 25                           |
| 100                            | 8 x M16             | 35                           |
| 150                            | 8 x M20             | 65                           |

**Pipe screws**, DIN/ISO flanges drilled to ASME

| Flange<br>Nominal size |        | screws<br>[ASME] | Tightening torque |          |
|------------------------|--------|------------------|-------------------|----------|
| [mm]                   | [inch] |                  | [Nm]              | [in-lbs] |
| 25                     | 1"     | 4 x ½"           | 8                 | 70       |
| 50                     | 2"     | 4 x ⅝"           | 25                | 220      |
| 80                     | 3"     | 8 x ⅝"           | 45                | 400      |
| 100                    | 4"     | 8 x ⅝"           | 35                | 310      |
| 150                    | 6"     | 8 x ¾"           | 80                | 710      |

**Screws body / inlet nozzle**

| Valve type    | screws  | Tightening torque |          |
|---------------|---------|-------------------|----------|
|               |         | [Nm]              | [in-lbs] |
| LPV-A 50/80   | 4 x M12 | 25                | 220      |
| LPV-A /100    | 8 x M10 | 20                | 177      |
| LPV-A 100/150 | 8 x M16 | 25                | 220      |

**Screws for body / bonnet**

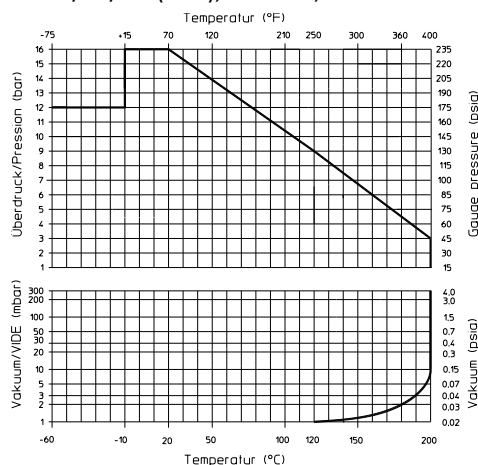
| Valve type               | screws  | Tightening torque |          |
|--------------------------|---------|-------------------|----------|
|                          |         | [Nm]              | [in-lbs] |
| LPV-A 50/80,<br>LPV-D 50 | 4 x M12 | 25                | 220      |
| LPV-A 80/100             | 4 x M12 |                   |          |
| LPV-A 100/150            | 8 x M12 |                   |          |
| LPV-D 80                 | 8 x M12 |                   |          |
| LPV-D 100                | 8 x M12 |                   |          |

**1.4 Pressure-temperature diagram**

When used in the minus temperature range, the regulations applicable in the country in question must be observed.

The diagram shows the max. admissible pressure / temperature loading of the body.

2014/68/EU (PED), AD2000, DIN EN 16668



9500-43-1128/4-0

DIN EN ISO 15848-1 certificate valid from -29°C to 200°C

## 2 Notes on safety

This operating manual contains fundamental information which is to be observed during installation, operation and maintenance.

It must be read before installation and commissioning!

For aerating and deaerating valves, which are used in potentially explosive areas, see **Section 3**.

Installation, operation and maintenance are to be performed by qualified staff.

The area of responsibility, authority and supervision of the staff must be regulated by the customer.



### General hazard symbol!

People may be put at risk.



**Safety symbol!** The ball valve and its function may be put at risk if this safety symbol is not observed.

It is imperative to observe warnings and signs attached directly to the valve and they are to be kept fully legible.

**Non-observance of the notes on safety may result in the loss of any and all claims for damages.**

Non-observance may involve the following hazards :

- ◆ Failure of important functions of the valve/plant.
- ◆ Risk to people from electric, mechanical and chemical effects.
- ◆ Risk to the environment through leaks of hazardous substances.

### 2.1 Intended use

Richter exhaust and venting valves of the series LPV-A/F and LPV-D/F are pressure-maintaining components with safety function in accordance with the Pressure Equipment Directive (DGRL). They protect the pressure equipment if the admissible pressure limit is exceeded.

The valves are suitable for vapours, gases and non-boiling liquids of group 1 in acc. with the Pressure Equipment Directive (DGRL).

They have a corrosion-resistant plastic lining.

The valves are used to

- ◆ fill and empty tanks (aeration)
- ◆ to protect lined vessels against vacuum.
- ◆ to protect vessels with a layer of nitrogen.
- ◆ to protect reactor columns.

If the **gauge pressure** function is desired, the valve is connected to the pressure system with the inlet flange. In the case of the **low-pressure** function the valve is connected to the pressure system with the outlet flange.

If the medium contains solids, the manufacturer must be consulted on whether the valve is suitable for the application in question.

**Solids** can lead to increased wear, damage to sealing surfaces or to a reduction in the service life of the valve.

aerating and deaerating valves have been set at the works to the desired test pressure, tested and lead-sealed.

If the operating parameters are subsequently changed, the set pressure can be modified by adding/removing weights. See **Section 6.5** and **9.4**.

In case of the valve is intended for operating data other than those intended, the customer must carefully examine whether the design of the valve, accessories and materials are suitable for the new application. (Please consult the manufacturer).

### 2.2 For the customer / operator

If a aerating and deaerating valve is used, the operator must ensure that

- ◆ hot or cold valve parts are protected by the customer against being touched
- ◆ the valve has been properly installed in the pipe system
- ◆ the operating conditions stipulated in the data sheet are not exceeded in continuous operating mode.

This is not the manufacturer's responsibility.

Loads caused by earthquakes were not allowed for in the design.

Fire protection to DIN EN ISO 10497 is not possible (plastic lining and plastic components).

### 2.3 Improper operation

The operational safety of the valve supplied is only guaranteed if it is used properly in accordance with **Section 2.1** of this operating manual.



The operation limits specified on the name plate and in the pressure-temperature diagram must under no circumstances be exceeded.

See also improper operation and their consequences in **Section 7.4**.

### 3 Safety notes for applications in potentially explosive areas based on the Directive 2014/34/ EC (ATEX)

The valves are intended for use in a potentially explosive area and are therefore subject to the conformity assessment procedure of the directive 2014/34/EC (ATEX). As part of this conformity assessment, an ignition hazard analysis to EN 13463-1 to satisfy the fundamental safety and health requirements was conducted with the following result:

- ♦ **The valves do not have any ignition source of their own.**
- ♦ **The valves are not covered by the scope of application of the ATEX directive and therefore do not need to be identified accordingly.**
- ♦ **The valves may be used in a potentially explosive area.**

It is imperative to observe the individual points of intended use for application in a potentially explosive area.

#### 3.1 Intended use

Improper operation, even for brief periods, may result in serious damage to the valve.

In connection with explosion protection, potential sources of ignition (overheating, electrostatic and induced charges, mechanical and electric sparks) may result from these inadmissible modes of operation; their occurrence can only be prevented by adhering to the intended use.

Furthermore, reference is made in this connection to the Directive 95/C332/06 (ATEX 118a) which contains the minimum regulations for improving the occupational health and safety of the workers who may be at risk from an explosive atmosphere.

A difference is made between two cases for the use of chargeable liquids (conductivity  $< 10^{-8}$  S/m):

#### 1. Chargeable liquid and non-conductive lining

Charges can occur on the lining surface. As a result, this can produce discharges inside and outside the valve.

##### a) Discharges inside the valve

However, these discharges inside the valve cannot cause ignitions if the valve is completely filled with medium.

If the valve is not completely filled with medium, e.g. during evacuation and filling, the formation of an explosive atmosphere must be prevented, e.g. by superimposing a layer of nitrogen. It is recommended to wait 1 hour before removing the valve from the plant in order to permit the elimination of static peak charges.

This means that, to safely prevent ignitions, the valve must be completely filled with medium at all times or else a potentially explosive atmosphere must be excluded by superimposing a layer of inert gas.

##### b) Discharges outside the valve

At the points where the non-conductive lining e.g. protrudes on the sealing surfaces to the outside or gets contact with the atmosphere on the outside, it may lead to discharges from the lining to nearby valves or attachments.

To safely avoid explosion hazards and accidents, therefore, the atmosphere surrounding the valve must not be explosive.

#### 2. Chargeable liquid and conductive lining

No hazardous charges can occur as charges are discharged direct via the lining and shell (surface resistance  $< 10^9$  Ohm, leakage resistance  $< 10^6$  Ohm).

If non-conductive versions of individual components are installed in the valve, it may restrict the permitted ATEX zone and explosion subgroup when operating the valve despite the conductive lining of the armor plating (see "Technical rules for hazardous substances: Avoidance of ignition hazards due to electrostatic charges" (TRGS 727)).

In these cases, consult the manufacturer.

**Static discharges of non-conductive linings are only produced through the interaction with a non-conductive medium and are therefore the responsibility of the plant operator.**

**Static discharges are not sources of ignition which stem from the valves themselves!**

- ♦ The temperature of the medium must not exceed the temperature of the corresponding temperature class or the maximum admissible medium temperature as per the operating manual.
- ♦ If the valve is heated (e.g. heating jacket), it must be ensured that the temperature classes prescribed in the Annex are observed.
- ♦ To achieve safe and reliable operation, it must be ensured in inspections at regular intervals that the valve is properly serviced and kept in technically perfect order.
- ♦ Increased wear to the valve can be expected with the conveyance of liquids containing abrasive constituents. The inspection intervals are to be reduced compared with the usual times.
- ♦ Actuators and electric peripherals, such as temperature, pressure and flow sensors etc., must comply with the valid safety requirements and explosion protection provisions.
- ♦ The valve must be grounded.  
This can be achieved in the simplest way via the pipe screws using tooth lock washers.  
Otherwise grounding must be ensured by different measures e.g. a cable link.
- ♦ Plastic-lined valves must not be operated with carbon disulphide.

## 4 Safety note for valves, certified to Clean Air Act (TA-Luft)

On request, this valve can be supplied compliant with the German Clean Air Code.

Certificate / Manufacturer Declaration Validity is dependent on the operating instructions being read and observed.

In particular, servicing must be conducted at regular intervals, and the bolted connections relevant for tightness must be inspected and retightened if necessary.

## 5 Transport, storage and disposal



It is imperative, for all transport work, to observe generally accepted engineering practice and the accident prevention regulations.



The valve is supplied with flange caps. Do not remove them until just before installation. They protect the plastic surfaces against dirt and mechanical damage.

Handle the goods being transported with care. During transport the valve must be protected against impacts and collisions.

Directly after receipt of the goods, the consignment must be checked for completeness and any in-transit damage.

Do not damage paint protection.

### 5.1 Storage

If the valve is not installed immediately after delivery, it must be put into proper storage.

It should be stored in a dry, vibration-free and well-ventilated room at as constant a temperature as possible. Elastomers are to be protected against UV light.

In general, a storage period of 10 years should not be exceeded.

Store the valve in an upright position and secure it from falling over!

In case of prolonged storage individual packing with a desiccant may be necessary. Pay attention to local site.

### 5.2 Return consignments



Valves which have conveyed aggressive or toxic media must be well rinsed and cleaned before being returned to the manufacturer's works.

It is **imperative** to enclose a **safety information sheet / general safety certificate** on the field of application with the return consignment.

Pre-printed forms are enclosed with the installation and operating manual.

Safety precautions and decontamination measures are to be mentioned.

### 5.3 Disposal

Parts of the valve may be contaminated with medium which is detrimental to health and the environment and therefore cleaning is not sufficient.



Risk of personal injury or damage to the environment due to the medium!

- ◆ Wear protective clothing when work is performed on the valve.
- ◆ Prior to the disposal of the valve:
  - Collect any medium, etc. which has escaped and dispose of it in accordance with the local regulations.
  - Neutralise any medium residues in the valve.
- ◆ Separate valve materials (plastics, metals, etc.) and dispose of them in accordance with the local regulations.

## 6 Installation

The installation conditions to the AD 2000 Code A2 (on pressure vessels) and TRD721 are to be observed. They are major preconditions for the safe operation of the valve.

- ◆ Examine valve for in-transit damage, damaged aerating and deaerating valves must not be installed.
- ◆ Before installation the valve and the connecting pipe must be carefully cleaned to remove any dirt, especially hard foreign matter.
- ◆ Solids jeopardise the soft, plastic, high-precision sealing surfaces of the seat and plug and permanent leaks of the valve may occur.
- ◆ During installation, pay attention to the correct tightening torque, aligned pipes and tension-free assembly.
- ◆ Changes in length of the pipes due to temperature are to be allowed for, e.g. through the installation of expansion joints.
- ◆ Remove the flange covers.
- ◆ Position and align the valve. Then tighten the pipe screws with a torque wrench in diametrically opposite sequence.

For tightening torques, see **Section 1.4.**

### 6.1 Sizing of the outlet line



The admissible pressure loss in the inlet line must not exceed 3% of the set pressure of the aerating and deaerating valve.

The determination of the pressure loss relates to the maximum flow of the valve at 110% of the set pressure and 110% of the certified coefficient of discharge.

- ◆ An excessive pressure loss at the inlet of the aerating and deaerating valve can cause rapid opening and reseating of the valve or chattering.
- ◆ Chattering results in a reduction in the discharge capacity and may cause an inadmissible rise in pressure in the system and damage to the seat sealing surfaces.
- ◆ **The inlet line must never be smaller than the nominal diameter of the low-pressure safety valve inlet.**
- ◆ Lay supply lines as short as possible.
- ◆ Install, if at all possible, the valve directly on the container to be protected.
- ◆ At least chamfer the container nozzle in the inlet or even better provide with a radius.
- ◆ An inlet nozzle with a tapered design has the best shape in terms of flow.

### 6.2 Sizing of the outlet line



Outlet lines are to be sized so that reliable functioning of the valve is ensured under all expected operating conditions.

The medium is to be discharged so that there is no risk to people and the environment. The statutory provisions (e.g. accident prevention regulations, and the equivalents of the German Pollution Control Act or the German Clean Air Code) as well as local regulations (works standards) are to be observed.

- ◆ There must be no possibility of the safety valves becoming ineffective due to shut-off elements.

#### 6.2.1 Admissible back pressure

- ◆ **The outlet line must never be smaller than the nominal diameter of the aerating and deaerating valve outlet.**
- ◆ The max. admissible back pressure is 15% of the test gauge pressure. It must not be exceeded. A reduction in the blowdown capacity is thus avoided.

#### 6.2.2 Drainage of condensate

Lay horizontal pipes with a gradient away from the valve so that the liquid medium cannot accumulate in the valve body and that, in the case of gases, no condensate collects in the body.

If outlet lines are laid with a geodetic level difference (e.g. for vapours or gases with a 90° vertical upright pipe bend out of the valve), the bend must not be located directly downstream of the valve.

A horizontal pipe section with a gradient must firstly be installed downstream of the valve.

A draining facility must be provided at the lowest point in the pipe. This opening for the drainage of condensate must be lower than the flow chamber of the body.

Lines for the drainage of condensate are to have adequate cross sections. They are to be laid with a gradient and must ensure safe drainage of the medium.

### 6.2.3 Discharge conditions and reaction forces

#### At low temperatures:



Outlet lines must be protected against freezing. This applies in particular if gas cooling as a result of expansion is to be expected or lines are laid outdoors.

#### With crystallising media:



In the case of media which tend to crystallise, solidify or stick, appropriate action must be taken to ensure that the solidification process cannot take place in the inlet or outlet lines or in the body (e.g. installed rupture disc, insulation, heating). e.g. installed rupture disc, insulation, heating

## 6.3 Valve connecting dimensions

The main dimensions are contained in the sectional drawing in **Section 10**.

## 6.4 Flange caps and gaskets

- Contamination of or damage to the sealing surfaces is best avoided if the protective caps remain on the flanges until just before installation.

If plastic sealing surfaces, e.g. on mating flanges made of metal or enamel, can be damaged, use PTFE-lined seals with a metal inlay. These gaskets are available as special accessories in the Richter range.

## 6.5 Weights

The test pressure is varied with max. 5 weights, either plastic-lined with metal core (20 mbar each) or of solid PTFE (5 or 10 mbar each).

The weights are marked with the appropriate mbar values.

The round cord **522** secures the weights **239** in the groove of the plug **204** together with the retainer ring **544**.

The test pressure of the valve depends on the back pressure in the valve outlet (see **Fig. 1**).

Set pressure = test pressure + back pressure

#### Example:

Test pressure = 100 mbar  
Back pressure = 10 mbar  
Set pressure = 110 mbar

See also enclosed **Drawing 9530-00-4070**

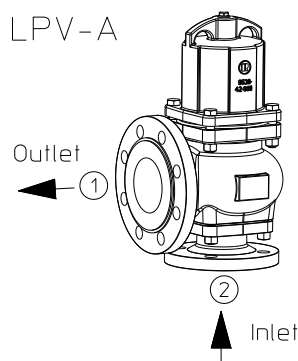
## 6.6 Direction of flow and installation position

The direction of flow must be observed when installing the valve. It is indicated by a direction arrow on the valve body.

Always install the overflow valve with the plug in a vertical position.

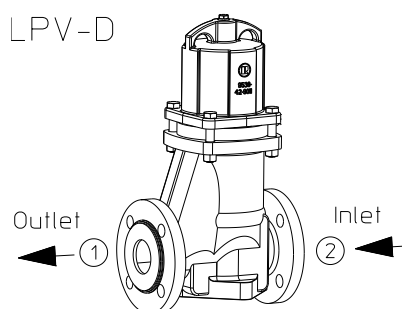
A mix-up of the inlet and outlet will result in the valve becoming ineffective.

LPV-A



- ① Vessel connection for underpressure application
- ② Vessel connection for overpressure application

LPV-D



9530-13-102\_en1-0

**Fig. 1**

## 6.7 Grounding

The valve must be grounded. This can be achieved in the simplest way via the pipe screws using tooth lock washers. One pipe screw per flange is underlaid with toothed disks.

At the customer's request a setscrew M6 with a hex. nut and washer will be provided at each flange as an additional grounding connection.

Otherwise grounding must be ensured by different measures e.g. a cable link.

## 7 Operation

### 7.1 Initial commissioning

Normally, the valves have been tested for leaks with air or water.



Unless otherwise agreed there could be residual amounts of water in the flow section of the valve. This could result in a possible reaction with the medium.

**The max. operating pressure of the plant must generally be less than the reseating pressure of the LPV.**

To prevent leaks, all connection screws should be retightened after the initial loading of the valve with operating pressure and operating temperature.

For tightening torques, see [Section 1.4](#).

### 7.2 Shutdown

- ◆ The local regulations are to be observed when dismantling the valve.



Prior to undoing the flange connection ensure, that the plant is depressurised and emptied.

- ◆ Prior to starting any repair work, the valve is to be thoroughly cleaned. Medium residue may be in the valve even if it has been properly drained and flushed.
- ◆ After dismantling, immediately protect the valve flanges against mechanical damage by using flange caps. See also [Section 6.4](#).

### 7.3 Recommissioning

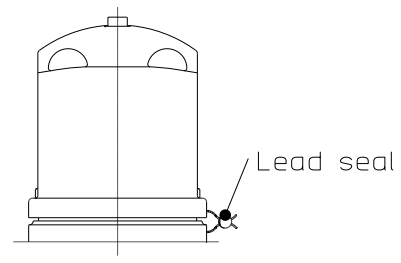
When the valve is recommissioned, it must be ensured that all appropriate steps, as described in [Sections 6](#) and [7.1](#), are repeated.

### 7.4 Improper operation and their consequences

- ◆ The test pressure, checked by the manufacturer, an approved authority or the supervisory company responsible is secured against unauthorised adjustment by a lead seal.
- ◆ A broken lead seal must be replaced without delay. This can either be done by the manufacturer, the approved authority or the supervisory company responsible.



**It is emphasised that in the case of the operating company adding the lead seal itself, it automatically assumes full responsibility for any operational hazard and resulting damage.**



**Fig. 2**

- ◆ The travel set at the manufacturer's works ensures reliable operation of the valve. It is forbidden to arbitrarily alter the travel or to totally block the valve.
- ◆ During operation of the valve, no hard foreign matter may be found between the seat and the plug of the valve.
- ◆ If foreign matter is deposited on the sealing surfaces during reseating of the valve, the valve is probably not tight. Damage may also occur to the plastic sealing surfaces.

## 8 Malfunctions

### ♦ Safety valve is leaking

Is there foreign matter between the seat and plug?

Is there any wear or damage to the seat or plug?

If so, it is necessary to rework the sealing surfaces of the seat and plug or replace these components.

### ♦ The valve stroke is not reached.

Check of dimensions as per dimensional drawing required. See **Section 10**.

### ♦ Medium is escaping at the bonnet

Are the screws **901/1** and **902/2** tightened with hex. nuts **920/2**?

Check tightening torques of the bonnet screws with a torque wrench! See **Section 1.4**.

If the leak continues, the recommended tightening torques may be exceeded by 10%.

If it still proves impossible to stop the leak, then the lining is damaged. Dismantle the valve and check.

### ♦ Flange connection ball valve/pipe is leaking

Check the torque of the pipe screws with a torque wrench. (see **Section 1.4**) If tightness is not achieved, the recommended torque may be exceeded by 10%.

If this also fails to stop the leak, dismantle and inspect the valve.

## 9 Maintenance



Aerating and deaerating valves must be checked for operability at regular intervals according to the national regulations (in Germany: UVV - pressure vessels, VBG 17 § 32 and TRD 601 sheet 2, paragraph 3.4).

- ♦ The intervals for regular checks are to be laid down by the customer in line with the operating conditions.
- ♦ The operability is checked in the dismantled state on a suitable test bed.
- ♦ All repair work is to be performed by qualified personnel using the appropriate tools.
- ♦ For the arrangement, designation and item numbers of all parts of the valve, see **Section 10**.
- ♦ Spare parts are to be ordered with all the details in acc. with the valve identification.
- ♦ Only original spare parts may be installed.

### 9.1 Screw connections

- ♦ To prevent leaks, a regular check of the connection screws should be made in line with the operating requirements.  
For tightening torques, see **Section 1.4**.
- ♦ To prevent screw connections from becoming loose in the event of pressure fluctuations or plant vibrations, we recommend the installation of expansion joints or pulsation dampers.

### 9.2 Cleaning



Prior to starting any repair work, the valve is to be thoroughly cleaned. Even if the valve has been properly emptied and rinsed, residual medium may still be found in the valve, e.g. between the lining and body or in the bonnet.

Plastic parts may absorb medium which gradually emerges from the material after cleaning.



Wear the prescribed protective clothing!

Aerating and deaerating valves, which have been cleaned with water or other media must be dried before re-assembly of the parts and installation of the valve in the plant.

### 9.3 Modification of the aerating and deaerating valve

If modifications to the valve are required, the manufacturer must always be consulted.

**Examples:** Conversion to changed test gauge pressure, replacement of the weights.

After approval by the manufacturer, these modifications can be performed either by the manufacturer or by the customer under the guidance of a technical supervisory agency or any other approval authority.

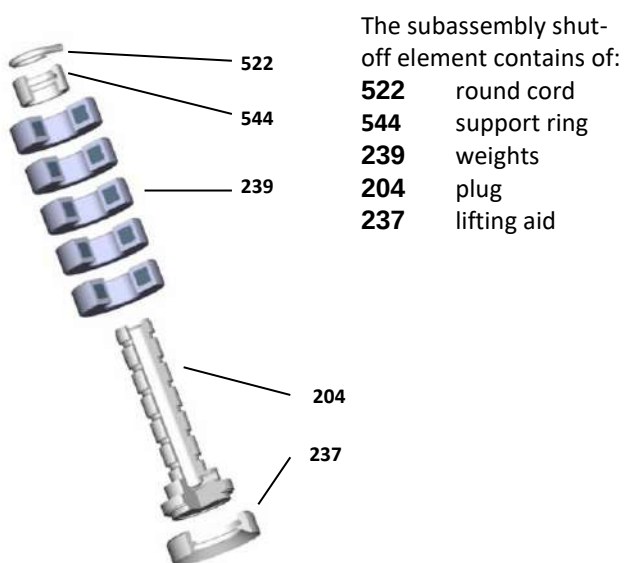
## 9.4 Adjustment of the test pressure

- ◆ Unscrew bonnet **112**.
- ◆ Remove subassembly shut-off element.
- ◆ Remove retainer ring **544** and round cord **522**.
- ◆ Push number of weights **239**, depending on the test pressure, onto the plug **204**.  
See [Section 6.5](#).
- ◆ Secure with round cord **522** and retainer ring **544**.
- ◆ Install subassembly shut-off element in the body **100**.
- ◆ Screw on bonnet **112** and tighten.
- ◆ Check test pressure.
- ◆ Have valve lead-sealed.
- ◆ The data specified in the data sheet are to be observed.

## 9.5 Replacement of components

- ◆ Always replace the seat **205** and plug **204** completely.
- ◆ Reworking of the seat and plug requires specialised knowledge of the materials, their processing and special lapping wheels. It is therefore recommended to have this work carried out by the manufacturer.
- ◆ After dismantling, check all parts for wear and damage.
- ◆ Spare parts are to be ordered with all the details in acc. with the valve identification.
- ◆ Only use original spare parts.

### 9.5.1 Subassembly shut-off element



### 9.5.2 Dismantling of the plug

- ◆ Undo screws **901/1** (on the LPV 100/150 **902/2**) and **920/2** from body **100** and bonnet **112** and remove.
- ◆ Remove bonnet **112**.
- ◆ Remove subassembly shut-off element (without seat).
- ◆ Remove retainer ring **544** and round cord **522**.
- ◆ Remove weights **239**.
- ◆ Unscrew lifting aid **237**.

### 9.5.3 Dismantling of the seat

- ◆ Dismantle bonnet **112** and subassembly shut-off element from the body **100**. See [Section 9.5.2](#).
- ◆ Only LPV-A/F: Undo screws **902/1** and **920/1** from inlet nozzle **122** / body **100** and remove.
- ◆ Remove seat **205**.
- ◆ Only LPV-D/F: For the dismantling and installation of the seat it is necessary to use the screw-in tool. See [Section 1.3](#).

### 9.5.4 Installation of the seat

- ◆ Centre the new or reworked seat **205** in the body **100**.
- ◆ Only LPV-A/F: Then insert the inlet nozzle **122** into the centring of the body **100**.
- ◆ The components must be smooth running, i.e. can be centred without any constraining forces.
- ◆ If necessary, the inlet nozzle is to be turned through 90°.
- ◆ First tighten the attachment nuts **920/1** hand-tight and then with a torque wrench evenly and in diametrically opposite sequence.



It is imperative to observe the prescribed torques for the connection body / inlet nozzle!

See [Section 1.4](#).

- ◆ Only LPV-D/F: Screw-in the seat using the screw-in tool. See [Section 1.3](#).

### 9.5.5 Installation of the plug

- ◆ All parts are to be thoroughly cleaned before assembly.
- ◆ Screw lifting aid **237** onto the new or reworked plug **204**.
- ◆ Push number of weights **239**, depending on the test pressure, onto the plug **204**.
- ◆ Secure with round cord **522** and retainer ring **544**.
- ◆ Install subassembly shut-off element in the body **100**.

- ◆ Only LPV-D/F DN 50: Attach the centering ring **549** onto the body centering.
- ◆ Insert guide of the bonnet into the plug and place on the flange.
- ◆ First tighten the attachment nuts **920/2** hand-tight and then with a torque wrench evenly and in diametrically opposite sequence.



It is imperative to observe the prescribed torques for the connection body / bonnet!  
See [Section 1.4](#).

## 9.6 Tests

Following the assembly of the valve, the stroke and the test pressure must be checked. See also [Section 7.4](#).

### 9.6.1 Stroke

Only LPV-A/F: Using a depth gauge through the inlet nozzle, measure the distance in the centre between the plug and the sealing strip on the flange both in the closed and fully opened state.

The valve stroke is derived from the difference between the two dimensions. See [Section 10.2](#).

Only LPV-D/F: Valve stroke is determined from the dimensions in [Section 10.2](#).

### 9.6.2 Test pressure



This test should take place on a test bench with a neutral medium such as air or water. Regarding their suitability and precision, the pressure gauges must conform to the requirements of current national regulations (in Germany: e.g. VdTÜV data sheet "Safety Valve 100" of the Association of the German Technical Supervisory Boards).

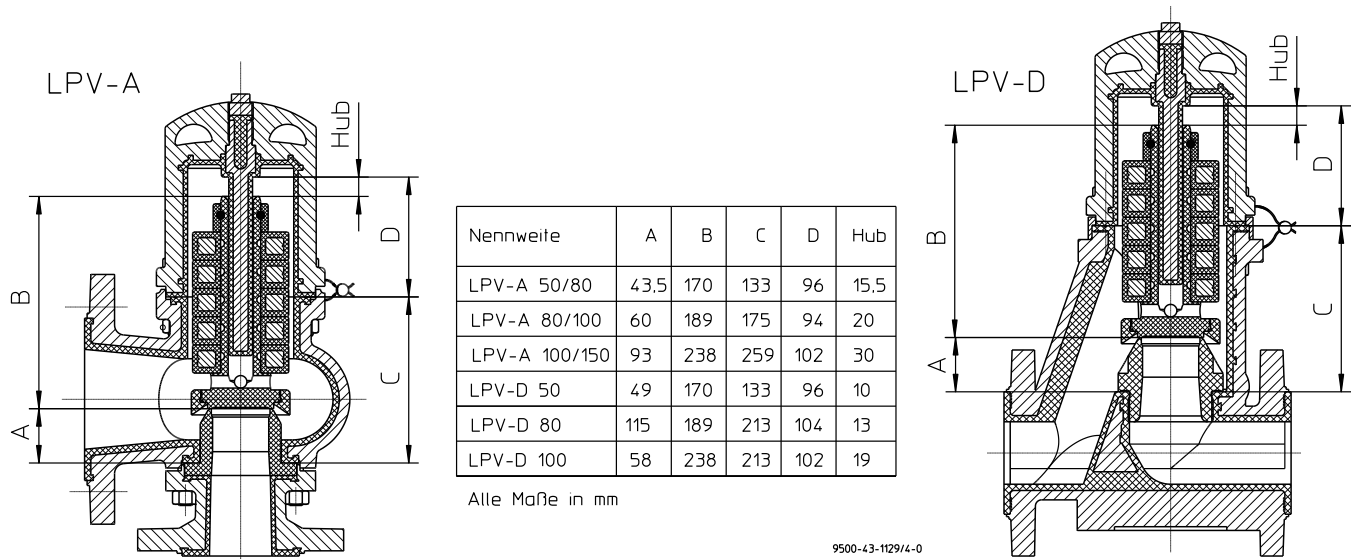
- ◆ All pressure tests should be carried out in compliance with DIN EN 12266-1 or API 527.
- ◆ It is recommended to perform a bubble test with a 5 mm diameter hose positioned 5 mm below the surface of water. The other end of the hose is sealed to the outlet of the valve by means of a stopper.
- ◆ To check the test pressure, the pressure in the valve inlet is slowly increased until the valve commences to open.
- ◆ To check the reseating pressure, the pressure in the valve inlet is slowly decreased until the valve is bubble-tight.

## 10 Drawings

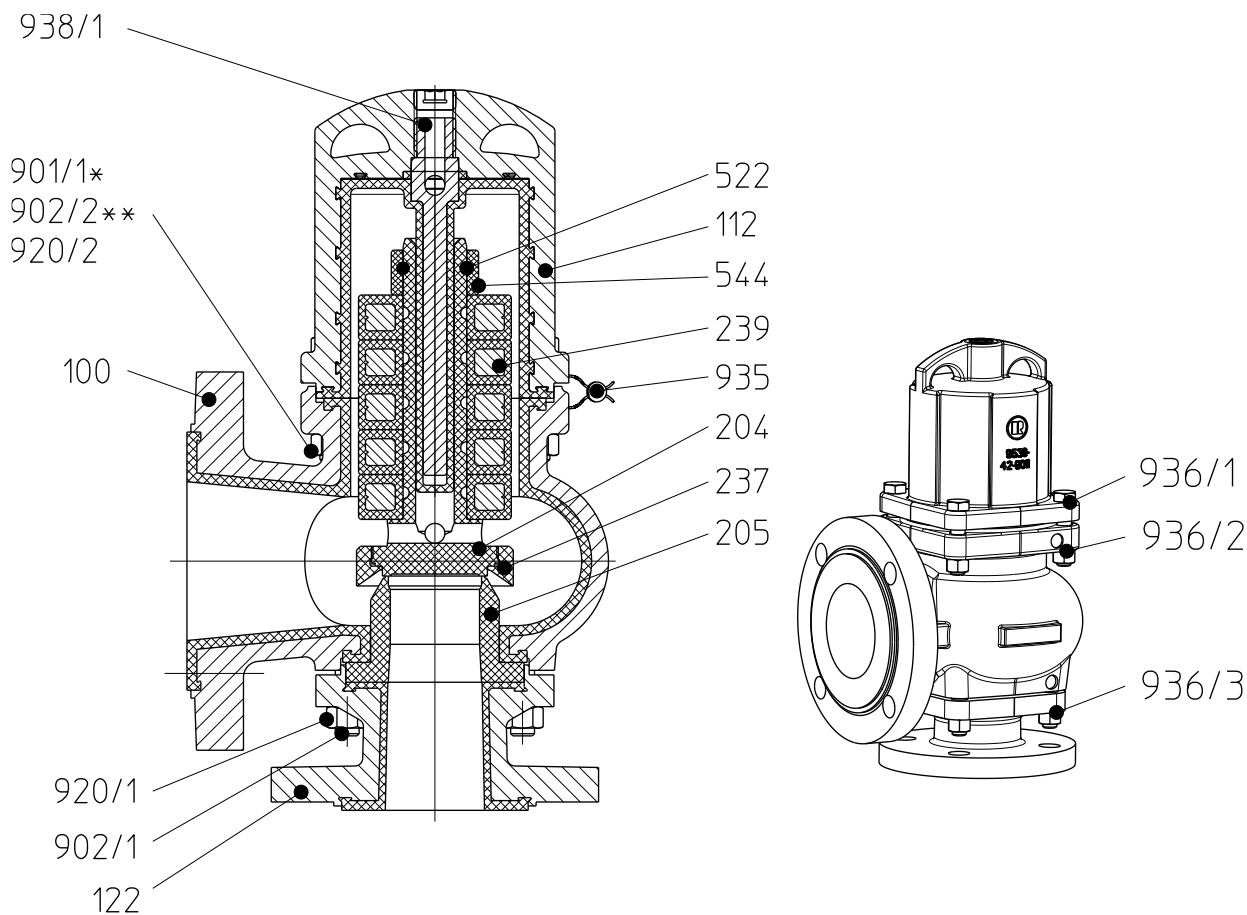
### 10.1 Legend

|            |              |              |                      |
|------------|--------------|--------------|----------------------|
| <b>100</b> | Body         | <b>549</b>   | centering ring       |
| <b>112</b> | bonnet       | <b>901/1</b> | Hex. screw           |
| <b>122</b> | inlet nozzle | <b>902/x</b> | stud screw           |
| <b>204</b> | plug         | <b>920/x</b> | hex. nut             |
| <b>205</b> | Seat         | <b>920/3</b> | hex. nut, plain      |
| <b>237</b> | lifting aid  | <b>935/x</b> | lead seal            |
| <b>239</b> | weight       | <b>936/x</b> | tooth lock washer    |
| <b>522</b> | round cord   | <b>938/1</b> | hex. head screw plug |
| <b>544</b> | support ring |              |                      |

10.2 Dimension drawing stroke control



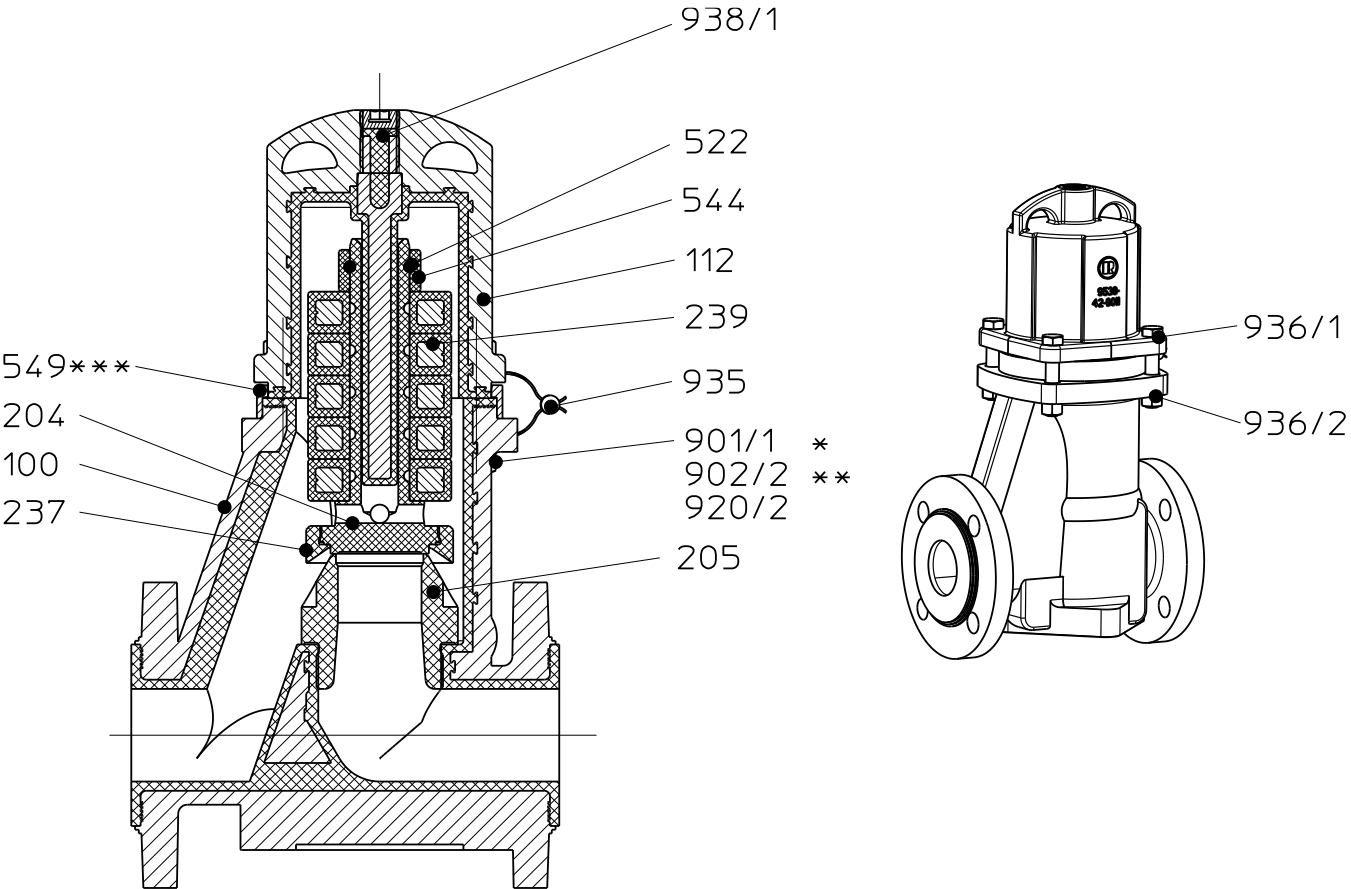
10.3 Sectional drawing LPV-A/F



\* nur DN50/80 und DN80/100  
only DN50/80 and DN80/100  
seulement DN50/80 et DN80/100

\*\* nur DN100/150  
only DN100/150  
seulement DN100/150

10.4 Sectional drawing LPV-d/F

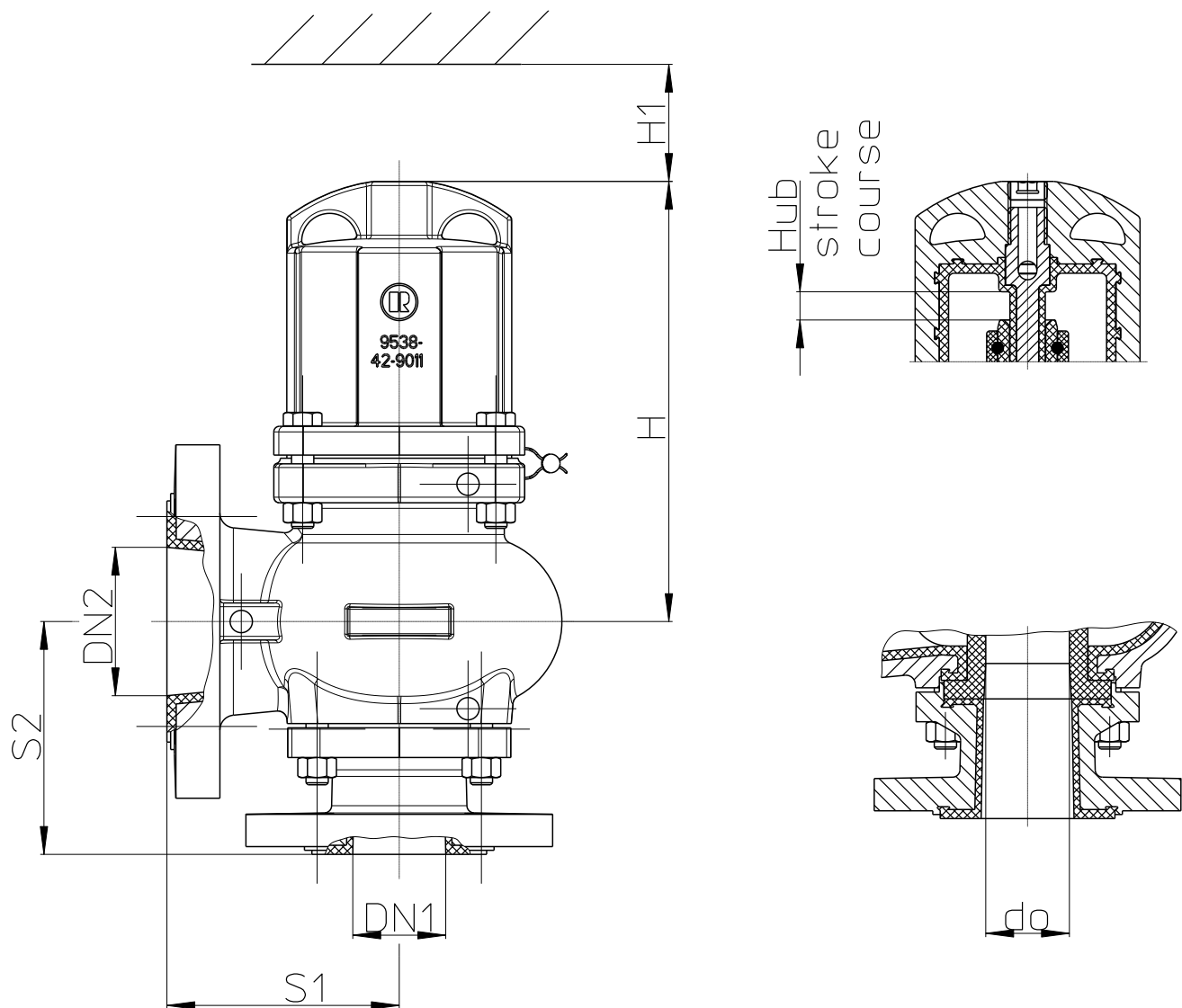


\* nur DN50/DN80,  
only DN50/DN80,  
seulement DN50/DN80

\*\* nur DN50,  
only DN50,  
seulement DN50

\*\*\* nur DN100,  
only DN100,  
seulement DN100

10.5 Dimensional drawing LPV-A/F



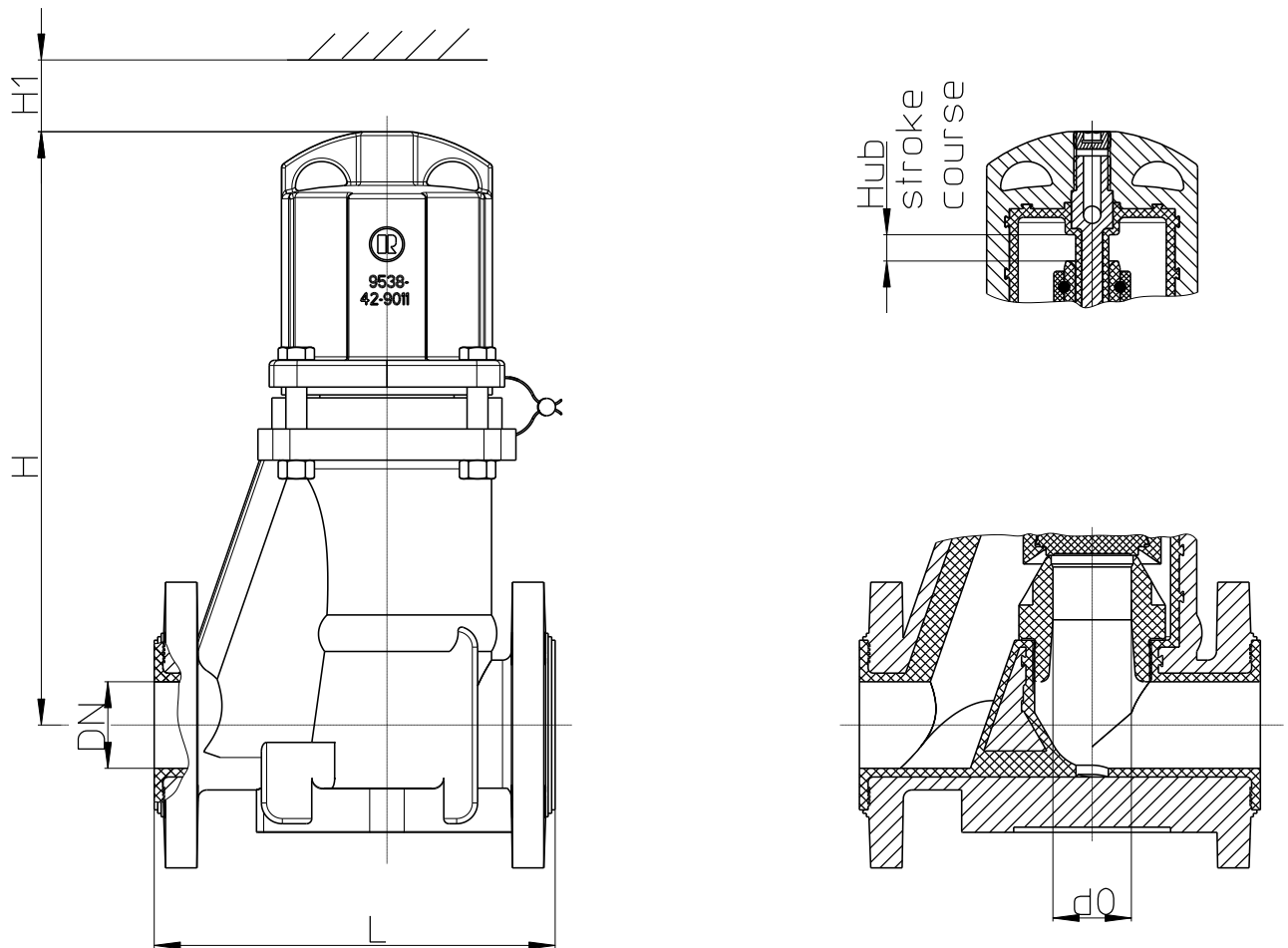
| Nominal size | DN1 | DN2 |                  | S1            | S2            | do           | H              | H1            | Stroke         |
|--------------|-----|-----|------------------|---------------|---------------|--------------|----------------|---------------|----------------|
| DN 50/80     | 50  | 80  | [mm]<br>([inch]) | 125<br>(4.92) | 125<br>(4.92) | 45<br>(1.77) | 245<br>(9.65)  | 120<br>(4.72) | 15.5<br>(0.61) |
| DN 80/100    | 80  | 100 | [mm]<br>([inch]) | 155<br>(6.10) | 155<br>(6.10) | 60<br>(2.36) | 274<br>(10.79) | 140<br>(5.51) | 20<br>(0.79)   |
| DN 100/150   | 100 | 150 | [mm]<br>([inch]) | 200<br>(7.87) | 220<br>(8.66) | 90<br>(3.54) | 342<br>(13.46) | 180<br>(7.09) | 30<br>(1.18)   |

All dimensions in mm

Flange connecting dimensions:

DIN EN 1092-2, type B (ISO 7005-2, type B) PN 16 or flanges drilled to ASME 16.5 Class 150

## 10.6 Dimensional drawing LPV-D/F



| Nominal size |                  | L              | do           | H              | H1            | Stroke       |
|--------------|------------------|----------------|--------------|----------------|---------------|--------------|
| DN 50        | [mm]<br>([inch]) | 230<br>(9.06)  | 45<br>(1.77) | 345<br>(13.58) | 120<br>(4.72) | 10<br>(0.39) |
| DN 80        | [mm]<br>([inch]) | 310<br>(12.20) | 60<br>(2.36) | 485<br>(19.09) | 140<br>(5.51) | 13<br>(0.51) |
| DN 100       | [mm]<br>([inch]) | 350<br>(13.78) | 90<br>(3.54) | 495<br>(19.49) | 180<br>(7.09) | 19<br>(0.75) |

all dimensions in mm

Flange connecting dimensions:

DIN EN 1092-2, type B (ISO 7005-2, type B) PN 16 or flanges drilled to ASME 16.5 Class 150

**CE** **Konformitätserklärung** nach EN ISO/IEC 17050  
**Declaration of Conformity** according to EN ISO/IEC 17050

|                                                                                                          |                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Produkt<br><i>Product</i>                                                                                | Kunststoffausgekleidete Be- und Entlüftungsventile<br><i>Plastic lined aerating and deaerating valve</i>                                                  |
| Bauart<br><i>Design</i>                                                                                  | Be- und Entlüftungsventil<br><i>Aerating and deaerating valve</i>                                                                                         |
| Baureihe<br><i>Serie</i>                                                                                 | LPV-A, LPV-D                                                                                                                                              |
| Nennweite<br><i>Size</i>                                                                                 | DN 50, 80, 100                                                                                                                                            |
| Seriennummer<br><i>Series number</i>                                                                     | ab/from 01.02.2023                                                                                                                                        |
| EU-Richtlinie<br><i>Directives UE</i>                                                                    | 2014/68/EU Druckgeräterichtlinie<br>2014/68/EU Pressure Equipment Directive                                                                               |
| Angewandte<br>Technische Spezifikation<br><i>Applied Technical Specification</i>                         | DIN EN 16668, AD2000<br>DIN EN ISO 12100                                                                                                                  |
| Überwachungsverfahren<br><i>Surveillance Procedure</i>                                                   | 2014/68/EU<br>Zertifizierungsstelle für Druckgeräte<br>der TÜV Nord Systems GmbH & Co. KG<br>Große Bahnstraße 31<br>D-22525 Hamburg<br>Notified Body 0045 |
| Konformitätsbewertungs-<br>verfahren 2014/68/EU<br><i>Conformity assessment<br/>procedure 2014/68/EU</i> | Modul H<br>Zertifikats Nr. 0045/202/1411/Z/00470/22/D/001(00)                                                                                             |
| Kennzeichnung<br><i>Marking</i>                                                                          | 2014/68/EU <b>CE</b> 0045                                                                                                                                 |

Das Unternehmen Richter Chemie-Technik GmbH bescheinigt hiermit, dass die o.a. Baureihen die grundsätzlichen Anforderungen der aufgeführten Richtlinien und Normen erfüllen.  
*Richter Chemie-Technik GmbH confirms that the basic requirements of the above-specified directives and standards have been fulfilled.*

Kempen, 10.07.2023

  
Barbara Wladarz  
Managing Director

  
Gregor Kleining  
Director Global Engineering

**Konformitätserklärung  
Declaration of Conformity**

**FDA & 2014/68/EU**

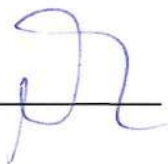
|                                 |                                                                                                  |
|---------------------------------|--------------------------------------------------------------------------------------------------|
| Produkt                         | PFA ausgekleidete Sicherheitsventile, Be- und Entlüftungsventile und Überströmventile            |
| Product                         | <i>PFA lined safety valves, aerating and deaerating valve and overflow valves</i>                |
| Bauarten                        | Sicherheitsventil, Be- und Entlüftungsventil, Überström- und Druckhalteventil                    |
| Design                          | <i>Diaphragm safety valve, aerating and deaerating valve, overflow and pressure relief valve</i> |
| Baureihen                       | KSE, KSE-C, LPV-A, LPV-D, GU, GUT                                                                |
| Series                          |                                                                                                  |
| Richtlinie                      | FDA Regulation 21 CFR §177.15 50                                                                 |
| Directive                       | 2014/68/EU, EU Nr. 10/2011, EU Nr. 1935/2004, 84/500/EWG, 2005/31/EG                             |
| Mediumberührte Werkstoffe       | PFA                                                                                              |
| Materials of media-wetted parts | PTFE                                                                                             |

Das Unternehmen Richter Chemie-Technik GmbH bescheinigt hiermit, dass in medium berührten Teilen der o.a. Baureihen Materialien verwendet wurden, welche die Vorschriften der FDA Regulation 21 CFR §177.15 50, die Verordnungen 2014/68/EU, EU Nr. 10/2011, EU Nr. 1935/2004, 84/500/EWG und 2005/31/EG erfüllen bzw. dafür die allgemeinen Unbedenklichkeitsbescheinigungen des Herstellers/Lieferanten oder Prüflabors vorliegen. Entsprechende Einzelnachweise sind vorhanden.

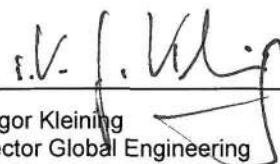
The company, Richter Chemie-Technik GmbH, herewith certifies that in medium-wetted parts of the above-mentioned series materials were used which satisfy the provisions of the FDA Regulation 21 CFR §177.15 50 and Directives 2014/68/EU, EU no. 10/2011, EU Nr. 1935/2004, 84/500/EWG and 2005/31/EG or for which general compliance certificates of the manufacturer/supplier/test laboratory are available. Relevant *individual proof can be provided*.

Kempen, 15.09.2023

Barbara Wladarz  
Managing Director



Gregor Kleining  
Director Global Engineering



**Herstellererklärung ATEX**  
**Richtlinie 2014/34/EU**  
**Manufacturer's Declaration ATEX**  
**Directive 2014/34/EU**

**Alle Richter Armaturen inkl. Absperr-, Regel- und Sicherheitsventile**  
**All Richter Valves incl. Shut-off, Control and Safety Valves**

Die oben bezeichneten Armaturen wurden einer Risikoanalyse nach der Richtlinie 2014/34/EU mit folgendem Ergebnis unterzogen:

*The valves specified above underwent a risk analysis according to Directive 2014/34/EU with the following result:*

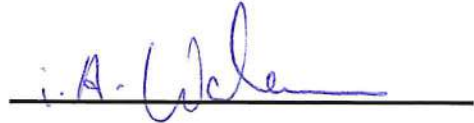
- **Richter Armaturen besitzen keine eigenen potentiellen Zündquellen. Die Armaturen können sowohl manuell als auch mechanisch/elektrisch angetrieben werden.**  
**Die Armaturen fallen nicht in den Anwendungsbereich der ATEX-Richtlinie 2014/34/EU und dürfen deshalb auch nicht danach gekennzeichnet werden.**  
*Richter valves do not have their own potential sources of ignition. The valves can be actuated manually as well as mechanically/electrically.*  
*ATEX Directive 2014/34/EU is not applicable to these valves. Therefore, it is not allowed to mark the valves according to that Directive.*
- **Die Armaturen dürfen in explosionsgefährdeten Bereichen eingesetzt werden.**  
*The valves can be used in potentially explosive atmospheres.*
- **Dennoch müssen für den Armatureneinsatz in explosionsgefährdeten Bereichen Sicherheitshinweise bzgl. des Explosionsschutzes beachtet werden. Richter hat hierzu die Betriebsanleitungen um den Zusatz „Sicherheitshinweise für den Einsatz in explosionsgefährdeten Bereichen in Anlehnung an die Richtlinie 2014/34/EU“ erweitert.**  
*However, when using the valves in potentially explosive atmospheres, specific safety notes on explosion protection must be observed. Here, Richter has extended their operating manuals to include the supplement „Safety notes for applications in potentially explosive atmospheres based on Directive 2014/34/EU“.*

Ergänzender Hinweis: *Supplementary note:*

- **Elektrische/mechanische Antriebe müssen einer eigenen Konformitätsbewertung nach ATEX unterzogen werden.**  
*Electric/mechanical actuators must undergo a separate conformity assessment.*

Kempen, 01.09.2021

  
Gregor Kleining  
Director Global Engineering

  
Ivo Watermann  
ATEX Beauftragter

## **Herstellererklärung / Manufacturer's Declaration**

### **TA-Luft / German Clean Air Act**

#### **Richter Be- und Entlüftungsventile und Überströmventile Richter the aerating and deaerating valves and overflow valves**

Hiermit erklären wir, dass die Be- und Entlüftungsventile und Überströmventile der Baureihen  
*Hereby we declare that the aerating and deaerating valves and overflow valves of the series*

#### **GU, GUT, LPV-A, LPV-D**

die Anforderung der Leckagerate  $L_B (\leq 10^{-4} \text{ mg/s}\cdot\text{m})$  gemäß Ziffer 5.2.6.4 der Technischen Anleitung zur Reinhaltung der Luft (TA-Luft) von 2021 erfüllen.

Grundlage sind die Prüfungen sowie deren Bewertung und Qualifikation nach DIN EN ISO 15848-1 vom TÜV Süd Industrie Service GmbH.

Voraussetzung für die Gültigkeit der Herstellererklärung ist das Beachten und Einhalten der Betriebsanleitung.

*meet the requirement of the leakage rate  $L_B (\leq 10^{-4} \text{ mg/s}\cdot\text{m})$  according to clause 5.2.6.4 of German Clean Air Act (TA-Luft) of 2021.*

*This is based on the tests as well as their evaluation and qualification according to DIN EN ISO 15848-1 by TÜV Süd Industrie Service GmbH.*

*A prerequisite for the validity of the manufacturer's declaration is that the operating instruction manuals are observed and complied with.*

Kempen, 10.07.2023

Barbara Wladarz  
Managing Director



Gregor Kleining  
Director Global Engineering



08.01.2015

## Declaration of no objection

Dear Sirs,

The compliance with laws for the industrial safety obligates all commercial enterprises to protect their employees and/or humans and environment against harmful effects while handling dangerous materials.

The laws are such as: the Health and Safety at Work Act (ArbStättV), the Ordinance on Harzadous Substances (GefStoffV, BIOSTOFFV), the procedures for the prevention of accidents as well as regulations to environmental protection, e.g. the Waste Management Law (AbfG) and the Water Resources Act (WHG)

An inspection/repair of Richter products and parts will only take place, if the attached explanation is filled out correctly and completely by authorized and qualified technical personnel and is available.

In principle, radioactively loaded devices sent in, are not accepted.

Despite careful draining and cleaning of the devices, safety precautions should be necessary however, the essential information must be given.

The enclosed declaration of no objection is part of the inspection/repair order. Even if this certificate is available, we reserve the right to reject the acceptance of this order for other reasons.

Best regards

RICHTER CHEMIE-TECHNIK GMBH

## **Safety Information / Declaration of No Objection Concerning the Contamination of Richter-Pumps, -Valves and Components**

### **1 SCOPE AND PURPOSE**

Each entrepreneur (operator) carries the responsibility for the health and safety of his employees. This extends also to the personnel, who implements repairs with the operator or with the contractor.

Enclosed declaration is for the information of the contractor concerning the possible contamination of the pumps, valves and component sent in for repair. On the basis of this information for the contractor is it possible to meet the necessary preventive action during the execution of the repair.

Note: The same regulations apply to repairs **on-site**.

### **2 PREPARATION OF DISPATCH**

Before the dispatch of the aggregates the operator must fill in the following declaration completely and attach it to the shipping documents. The shipping instructions indicated in the respective manual are to be considered, for example:

- Discharge of operational liquids
- remove filter inserts
- lock all openings hermetically
- proper packing
- Dispatch in suitable transport container
- Declaration of the contamination fixed **outside!!** on the packing

# Declaration about the Contamination of Richter Pumps, -Valves and Components



The repair and/or maintenance of pumps, valves and components can only be implemented if a completely filled out declaration is available. If this is not the case, delay of the work will occur. If this declaration is not attached to the devices, which have to be repaired, the transmission can be rejected.

## Every aggregate has to have it's own declaration.

This declaration may be filled out and signed only by authorized technical personnel of the operator.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------|-----------------------|-----------------------|-----------|-----------------------|-----------------------|-------------------------|-----------------------|-----------------------|-------------------------------|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------|-----------------------|-----------------------|
| Contractor/dep./institute :                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       | Reason for transmitting * Please mark the applicable                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| Street :                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       | <b>Repair:</b> <input type="radio"/> subject to fee <input type="radio"/> Warranty                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| Postcode, city :                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       | <b>Austausch:</b> <input type="radio"/> subject to fee <input type="radio"/> Warranty                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| Contact person :                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       | <input type="radio"/> Exchange/ Replacement already initiated/received                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| Phone :                                      Fax :                                                                                                                                                                                                                                                                                                                                                                                                                 |                       | <b>Return:</b> <input type="radio"/> Leasing <input type="radio"/> Loan <input type="radio"/> for credit note |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| <b>End user :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| <b>A. Details of Richter-product:</b>                                                                                                                                                                                                                                                                                                                                                                                                                              |                       | <b>Failure description:</b>                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| Classification:                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| Article number:                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| Serial number:                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| <b>B. Condition of the Richter-product:</b>                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | no <sup>1)</sup>      | yes                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| Was it in operation ?                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="radio"/> | <input type="radio"/>                                                                                         | <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 35%;"></td> <td style="width: 10%; text-align: center;">no<sup>1)</sup></td> <td style="width: 10%; text-align: center;">yes</td> </tr> <tr> <td>toxic</td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> <tr> <td>caustic</td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> <tr> <td>flammable</td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> <tr> <td>explosive<sup>2)</sup></td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> <tr> <td>mikrobiological<sup>2)</sup></td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> <tr> <td>radioactive<sup>3)</sup></td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> <tr> <td>other pollutant</td> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> </table> |    | no <sup>1)</sup> | yes                   | toxic                 | <input type="radio"/> | <input type="radio"/> | caustic | <input type="radio"/> | <input type="radio"/> | flammable | <input type="radio"/> | <input type="radio"/> | explosive <sup>2)</sup> | <input type="radio"/> | <input type="radio"/> | mikrobiological <sup>2)</sup> | <input type="radio"/> | <input type="radio"/> | radioactive <sup>3)</sup> | <input type="radio"/> | <input type="radio"/> | other pollutant | <input type="radio"/> | <input type="radio"/> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | no <sup>1)</sup>      | yes                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| toxic                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="radio"/> | <input type="radio"/>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| caustic                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <input type="radio"/> | <input type="radio"/>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| flammable                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <input type="radio"/> | <input type="radio"/>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| explosive <sup>2)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                            | <input type="radio"/> | <input type="radio"/>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| mikrobiological <sup>2)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="radio"/> | <input type="radio"/>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| radioactive <sup>3)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                          | <input type="radio"/> | <input type="radio"/>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| other pollutant                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="radio"/> | <input type="radio"/>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| Drained (product/operating supply item) ?                                                                                                                                                                                                                                                                                                                                                                                                                          | <input type="radio"/> | <input type="radio"/>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| All openings hermetically locked!                                                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="radio"/> | <input type="radio"/>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| Cleaned ?                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <input type="radio"/> | <input type="radio"/>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| If yes, with which cleaning agent:                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| and with which cleaning method:                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| <sup>1)</sup> if "no", then forward to D.<br><sup>2)</sup> Aggregates, which are contaminated with microbiological or explosive substances, are only accepted with documented evidence of an approved cleaning.<br><sup>3)</sup> Aggregates, which are contaminated with radioactive substances, are not accepted in principle.                                                                                                                                    |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| <b>C. Details of the discharged materials (must be filled out imperatively)</b>                                                                                                                                                                                                                                                                                                                                                                                    |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| 1. With which materials did the aggregate come into contact ? Trade name and/or chemical designation of operational funds and discharged materials, material properties, e.g. as per safety data sheet (e.g. toxic, inflammable, caustic)                                                                                                                                                                                                                          |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| X Trade name:                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Chemical designation: |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| a)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| b)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| c)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| d)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| <table border="1" style="width: 100px; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">no</td> <td style="width: 50%; text-align: center;">yes</td> </tr> <tr> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> <tr> <td style="text-align: center;"><input type="radio"/></td> <td style="text-align: center;"><input type="radio"/></td> </tr> </table> |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | no | yes              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| no                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | yes                   |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| <input type="radio"/>                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="radio"/> |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| <input type="radio"/>                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="radio"/> |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| 2. Are the materials specified above harmful to health ?                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| 3. Dangerous decomposition products during thermal load ?                                                                                                                                                                                                                                                                                                                                                                                                          |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |
| If yes, which ones?                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |                       |                       |                       |                       |         |                       |                       |           |                       |                       |                         |                       |                       |                               |                       |                       |                           |                       |                       |                 |                       |                       |

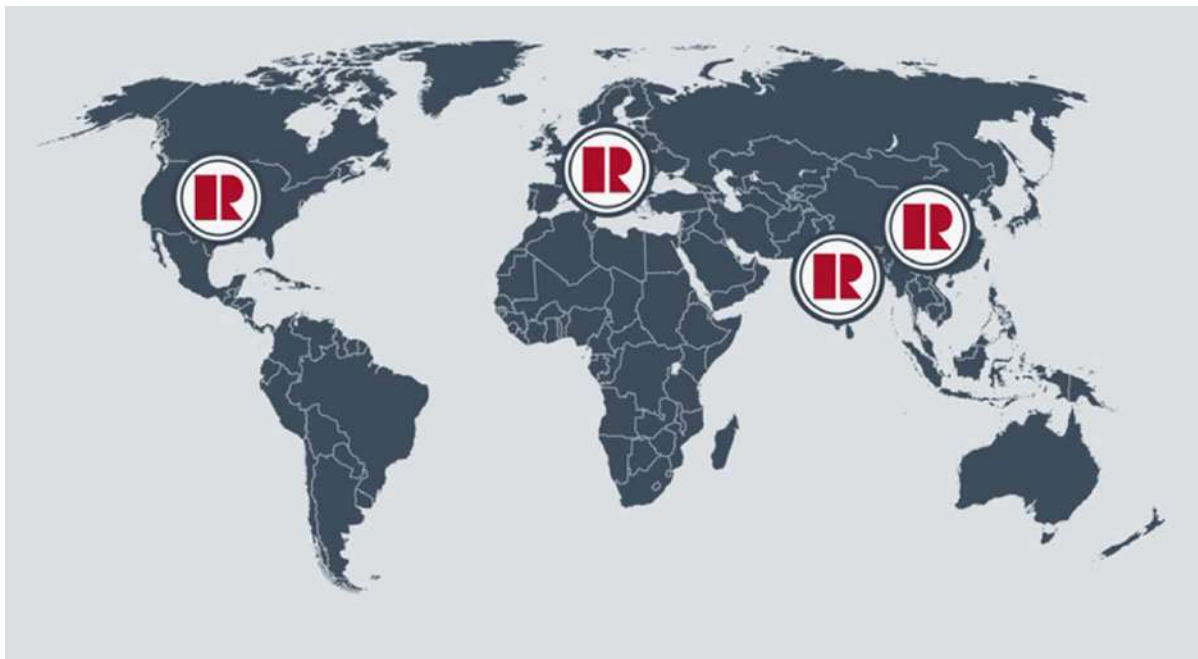
**D. Mandatory declaration:** We assure that the data in this explanation are truthful and complete and as a signatory I am able to form an opinion about this. We are aware that we are responsible towards the contractor for damages, which results from incomplete and incorrect data. We commit ourselves to exempt the contractor from claims for damages of thirds resulting from incomplete or incorrect data. We are aware that we are directly responsible towards thirds, irrespective of this declaration, which belongs in particularly to the employees of the contractor consigned with the handling repair of the product.

Name of the authorized person  
(in block letters):

Date

Signature

Company stamp



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Subject to change without notice.  
These installation and operating instructions must be kept!

**Edition 09/2023**  
**Revision 6.0**  
**9530B010-en**