INSTALLATION AND OPERATING MANUAL

Series GUT/F

Overflow and pressure relief valve DN 25

spring-loaded

Keep for future use!

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

9530-071-en Revision 10 Edition 10/2011

RICHTER
Process Pumps & Valves

List of Contents

Relevant documents

- Data sheet
- Declaration of conformity acc. to the EC Pressure Equipment Directive 97/23/EC
- Manufacturer's Declaration German Clean Air Act (TA-Luft)
- Form for Safety Information Concerning the Contamination QM 0912-16-2001_en

On request:

- Pressure spring table
- Bellows operating ranges, TIS 0587-02-0006

1 Technical data

Manufacturer :

Richter Chemie-Technik GmbH
Otto-Schott-Str. 2
D-47906 Kempen
Telephone: +49 (0) 2152 146-0
Fax: +49 (0) 2152 146-190
E-Mail: richter-info@richter-ct.com
Internet: http://www.richter-ct.com

Designation :

Series GUT/F, overflow and pressure relief valve with an inline body.

They are direct-acting and spring-loaded and classified as standard valves as regards their opening characteristic.

Standard overflow valve, design and operation to German AD data sheet A2 (on pressure vessels), ISO 4126

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 alternatively:

- DIN EN 558-1 basic series 1, ISO 5752 series 1 with flanges DIN EN 1092-2, type B (ISO 7005-2 Type B) PN 16 or flanges drilled to ASME B16.5 Class 150
- ANSI/ISA-75.08.09-2004, class 150 with flanges ASME B16.5 Class 150, raised face
- ANSI/ISA-75.08.09-2004, class 300 with flanges ASME B16.5 Class 300, raised face

Materials :

Body material: Ductile cast iron EN-JS 1049 or ASTM A395

Lining material:	PFA/PTFE	.../F
On request:	antistatic PFA-L	.../F-L
	highly permeation-resistant	.../F-P
	Ultrapure PFA-HP	.../F-HP

Bellows: PTFE

Seat and Plug: modified PTFE
Option unmodified PTFE, Hastelloy

Temperature range : -60 °C to 180 °C

See pressure-temperature diagram in Section 1.4.

Valve size in mm

DN 25 in mm
1“ in Zoll, Cl 150
1“, in inches, Cl 300 on request

Weight : approx. 10,5 kg

Installation position :

A direction arrow on the shell indicates the direction of flow. See Section 6.5.

Dimensions and individual parts :

Please pay attention to the drawing in Section 10.

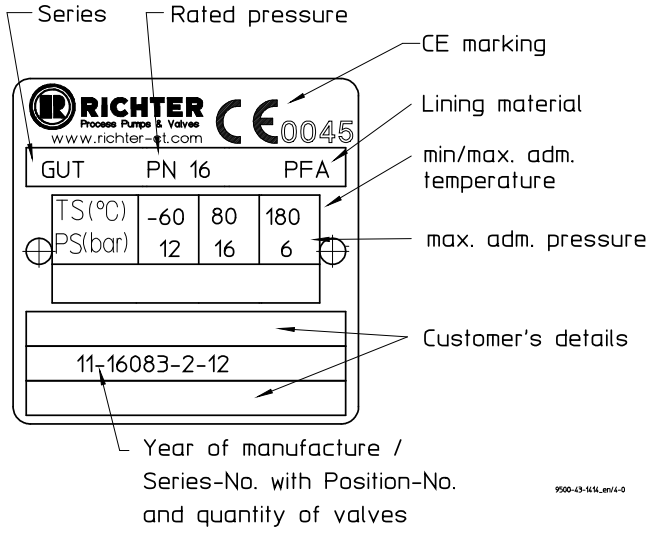
1.1 Type plate, CE and body markings, plate test pressure

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 CE marking:



Example: Plate for test pressure

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
- Cast date
- Arrow for direction of flow

1.2 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 nom. size	Screws	Tightening torque	
[mm]	[ISO/DIN]	[Nm]	[in-lbs]
25	4 x M 12	10	90

Pipe screws

flanges to ASME Class 150 or flanges ISO/DIN drilled to ASME Class 150

Flange nom.size		Screws	Tightening torque	
[mm]	[inch]	[ASME]	[Nm]	[in-lbs]
25	1“	4 x ½“	8	70

Pipe screws

Flansche nach ASME Class 300

Flange nom.size		Screws	Tightening torque	
[mm]	[inch]	[ASME]	[Nm]	[in-lbs]
25	1	4 x ⅝“	15	133

Cover screws ISO/DIN

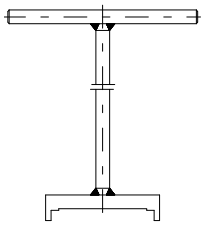
Flange nom. size		Screws	Tightening torque	
[mm]	[inch]	[ISO/DIN]	[Nm]	[in-lbs]
25	1“	4 x M 10	50	442

Cover screws ASME

Flange nom. size		Screws	Tightening torque	
[mm]	[inch]	[ASME]	[Nm]	[in-lbs]
25	1“	4 x ½“	50	442

1.3 Screw-in tool for valve seat

Nominal size		Article No.
[mm]	[inch]	
25	1“	9568-96-1001



1.4 Pressure-temperature diagram

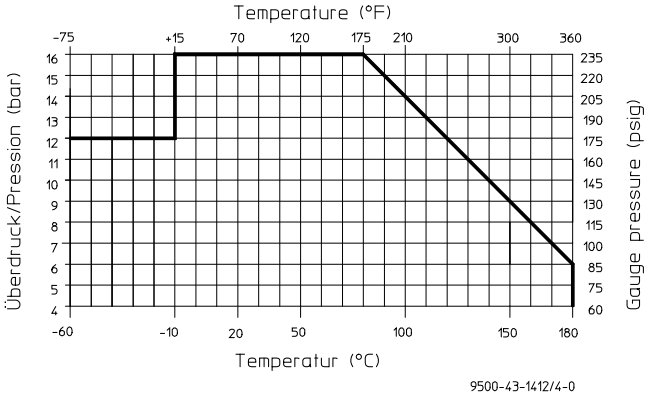
The diagram shows the max. admissible pressure / temperature loading of the body.

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

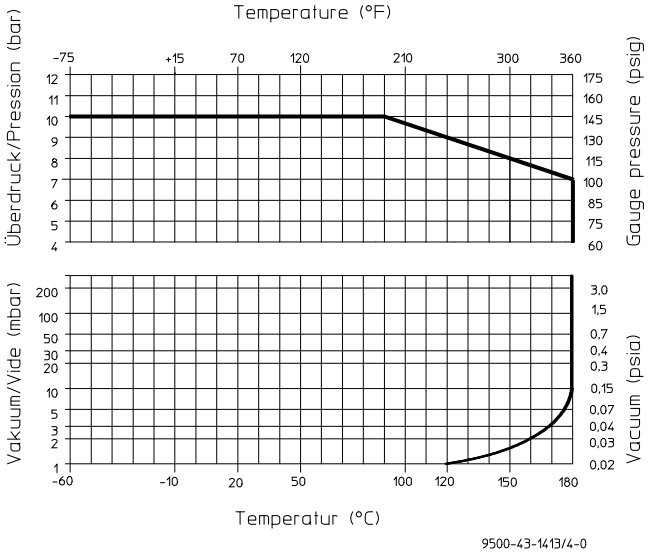
For applications under -10 °C (14 °F) to -60 °C (-76 °F) a special material must be selected for the spindle.

When used in the area of application of ASME or ANSI/ISA, the low temperature of ASTM A395 is limited to -20°F (-29°C).

Test pressure p1



Back pressure p2



2 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 overflow valves which are used in potentially explosive areas, see **Section 3**.

Installation and operation 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.

For example, non-observance may involve the following hazards:

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

2.1 Intended use

Richter overflow valves of the GUT series are pressure-maintaining components in accordance with the Pressure Equipment Directive (DGRL) for the passage of fluids at a given test pressure.

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

They have a corrosion-resistant plastic lining.

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

The overflow valves are set at the works to the desired set pressure, tested and lead-sealed.
Exact operating conditions of the overflow valve selected are documented in the **data sheet**. There you will find the performance characteristics such as the certified coefficient of discharge, flow area, set pressure, opening pressure, reseating pressure and materials.

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 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 94/9/ 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 94/9/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 improper 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 the valve. However, these discharges 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.

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).

The following special feature applies to the series with bellows (HV, HVR, BAV, KSE, KSEA, GU, GUT, PA):

The bellows are not offered in a conductive version, i.e. the restrictions under point 1. apply.

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 should be reduced compared with the usual times.
- 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

For all transport work, observe generally accepted engineering practice and the accident prevention regulations.

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

Handle the goods being transported with care. During transport protect the valve against impacts and collisions.

Transport the valve upright in a box or on a pallet on a soft surface and deposit gently on flat ground.

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

Do not damage paint protection.

5.2 Storage

If the valve is not installed immediately after delivery, store them properly.

The product should be stored in a dry and vibration-free, well ventilated room at as constant a temperature as possible.

Generally, a storage period of 10 years do not 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.

5.3 Return consignments

Valves which have conveyed aggressive or toxic media rinse and clean 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.

5.4 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 and do not install any damaged overflow valves.
- Before installation the valve and the connecting pipe must be carefully cleaned to remove any dirt, especially hard foreign matter.
- During installation, pay attention to the correct tightening torque, aligned pipes and tension-free assembly.

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 overflow valve.

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

- An excessive pressure loss at the inlet of the overflow valve can cause rapid opening and re-seating 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 overflow 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 overflow 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 overflow valve outlet.**
- The admissible back pressure in the valve outlet must not be exceeded in order to prevent destruction of the bellows or a reduction in the discharge capacity.

The Pressure-temperature-diagram in **Section 1.4** contain information of the manufacturer on admissible back pressures.

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.

wrong

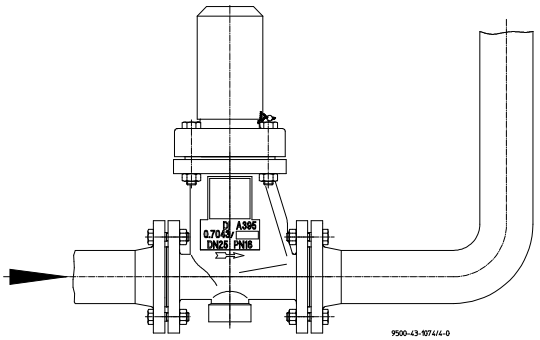


Fig. 3

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.

right

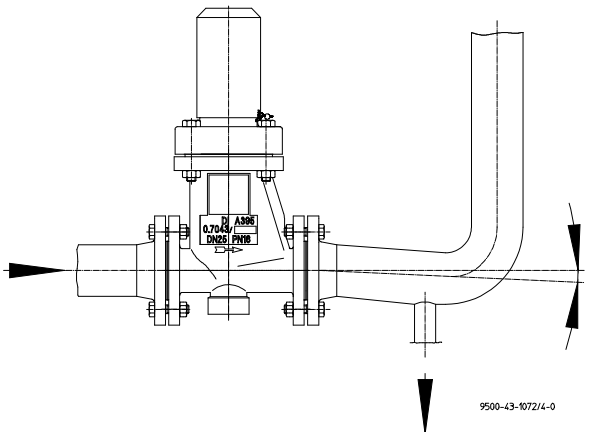


Fig. 4

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).

With gassing media:

In the case of gassing or vaporising liquids, adequately dimensioned flashtraps must be located in the direct vicinity of the valve.

6.3 Valve connecting dimensions

The main dimensions are contained in the dimensional drawing in **Section 10.3**.

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.

We recommend the installation of gaskets so that the sealing surfaces are not damaged by the mating flanges.

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 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.

- A mix-up of the inlet and outlet will result in the valve becoming ineffective and the bellows may be destroyed.
- Any fitting position can be chosen.

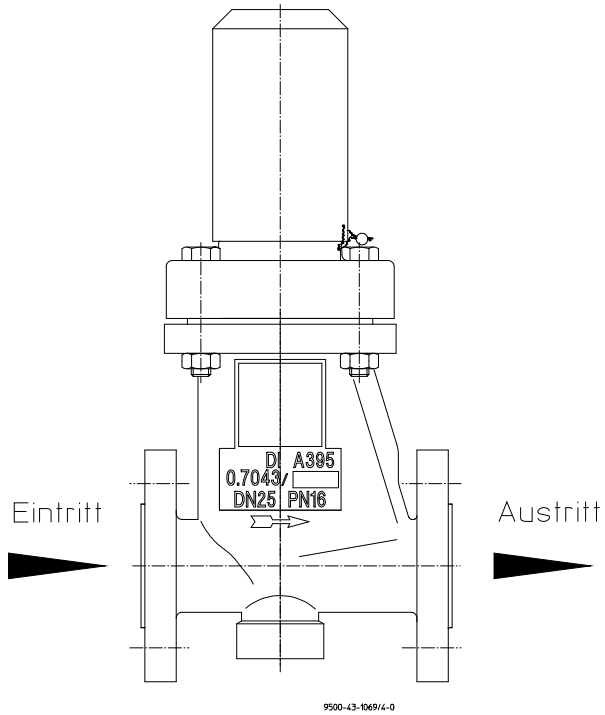


Fig. 5

6.6 Grounding

The valve must be grounded. The simplest solution is to use tooth lock washers which are placed under one pipe bolt of each flange..

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.

6.7 Installation

- The plant components to be protected are to be cleaned thoroughly prior to installation of the valve.
- Solids jeopardise the soft-sealing, high-precision surfaces of the seat and plug and permanent leaks could arise.
- The overflow valve must be installed so that no inadmissible mechanical or thermal stresses are transmitted from the attached pipes to the body.
- 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.

7 Operation

7.1 Initial commissioning

Normally, the valves have been tested for leaks with 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 operating medium.

To prevent leaks, all connection screws should be retightened after the initial loading of the valve with operating pressure and operating temperature. See **Section 9.3**.

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 the start of maintenance work, the valve must 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 recommissioning the valve, make sure that all the appropriate steps as described in **Section 6.1 to 6.7** and **Section 7.1** are repeated.

7.4 Improper operation and their consequences

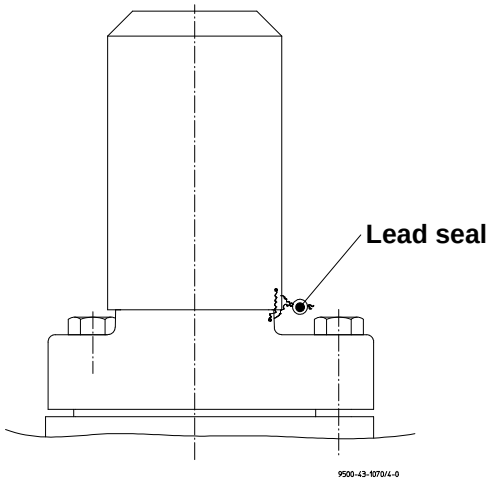


Fig. 7

- 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.

- 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

- Overflow valve is leaking

  Is there foreign matter between the seat and plug?

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

  Actuation of the lifting lever can help to regain the required sealing effect. If this does not succeed in stopping the leak, the sealing surface of the plug must either be reworked or the plug or seat must be replaced.

- The lift given in the test certificate is not achieved

  Are the bellows impeded in their movement by external influences (e.g. foreign matter, solidified medium between the folds etc.)?

  Has the insert sleeve **308** been screwed out of the thread of the bellows?

  For measuring the valve lift, see **Section 9.7.1**.

  If the required lift is still not attainable after elimination of the disorders, an examination at the manufacturer's is necessary.

- Medium is escaping at the bonnet

  Have the hex. nuts **920/1** not been tightened?

  If, after tightening the screws, tightness still cannot be restored, either the plastic lining or the bellows is damaged.

  The cause of cracked bellows could have been, for example, an inadmissibly high back pressure during operation of the overflow valve. Dismantle the overflow valve and have it repaired.

- Flange connection ball valve/pipe is leaking

  Check the torque of the pipe screws with a torque wrench (see **Section 1.2**). If tightness is not achieved, the recommended torque may be exceeded by 10%.

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

9 Maintenance

Overflow 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.
- 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 make in line with the operating requirements.
  For tightening torques, see **Section 1.3**.
- 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!

Overflow 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 overflow valve

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

Examples: Modification with changed test pressure, replacement of the spring or adaption to the mass flow by reducing the travel.

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 cap **207**.
- Undo groove nut **509/1**.
- Adjust the spring tension with the straining screw **581** to the specified test pressure.
- Counter straining screw **581** with the groove nut **509/1**
- Check test pressure.
- Screw on cap **207** and tighten.
- Have valve lead-sealed.
- The data specified in the test certificates are to be observed.

9.5 Important notes on dismantling / installation

First undo the straining screw **581**; the valve plug **204** is relieved**!**

- Then undo the screws between cover flange **105** and body **100**.
- The seat and plug could otherwise be destroyed. Read the precise instructions in **Section 9.6**.
- Always replace the seat and plug **pairwise** and always rework them **completely**.
- Reworking of the seat and plug requires specialised knowledge.
  It is therefore recommended to have this work carried out by the manufacturer.
- After dismantling, check all parts for wear and damage.
- Observe sectional drawings in **Section 10**.

9.6 Replacement of components

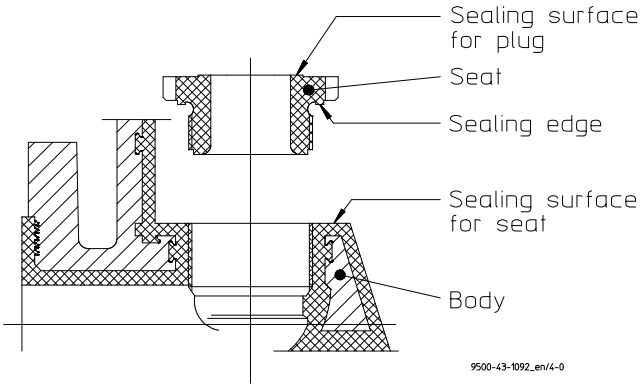


Fig. 8

9.6.1 Dismantling of the plug and seat

- Unscrew cap **207**.
- Undo groove nut **509/1**.
- Undo straining screw **581**.
- Do not turn the entire stem **800**! There is a risk of the insert sleeve **308** being unscrewed out of the bellows **206** or the folds being damaged!
- Ø Loosen the bolts **901/1, 936/1, 936/2** and **920/1** from body **100** and cover flange **105** and lift the cover flange with internals completely off.
- Grip the bellows **206** in the reinforced section. Unscrew and remove the plug 204.
- Unscrew seat **205** from the body **100** with a special wrench. See **Section 1.3**.

9.6.2 Installation of seat and plug

- The new seat must be carefully protected prior to assembly. The sealing edge and the sealing surface for the plug must not be damaged. See **Fig. 8**.
- All parts are to be thoroughly cleaned before assembly.
- Screw new or reworked seat **205** into the body **100** with a screwdriver.
- Screw new or reworked plug **204** onto the bellows thread hand-tight.
  Hold the bellows **206** at the reinforced section.
- First tighten the attachment nuts 920/1 hand-tight and then with a torque wrench evenly and in diametrically opposite sequence.
- Adjust the spring tension with the straining screw **581** to the specified test pressure.
- Counter straining screw **581** with the groove nut **509/1**
- Check test pressure.
- Screw on cap **207** and tighten.
- Have valve lead-sealed.

9.7 Tests

Following the assembly of the valve, the stroke and the test pressure must be checked.

9.7.1 Stroke

Lift check:

The measurement can be made with a slide calliper gauge and a depth indicator to DIN 862.

The lift is derived from the difference in the two heights. It must be at least as high as the lift given in the test certificate.

9.7.2 Test pressure

This test should take place on a test bench with a neutral medium such 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).

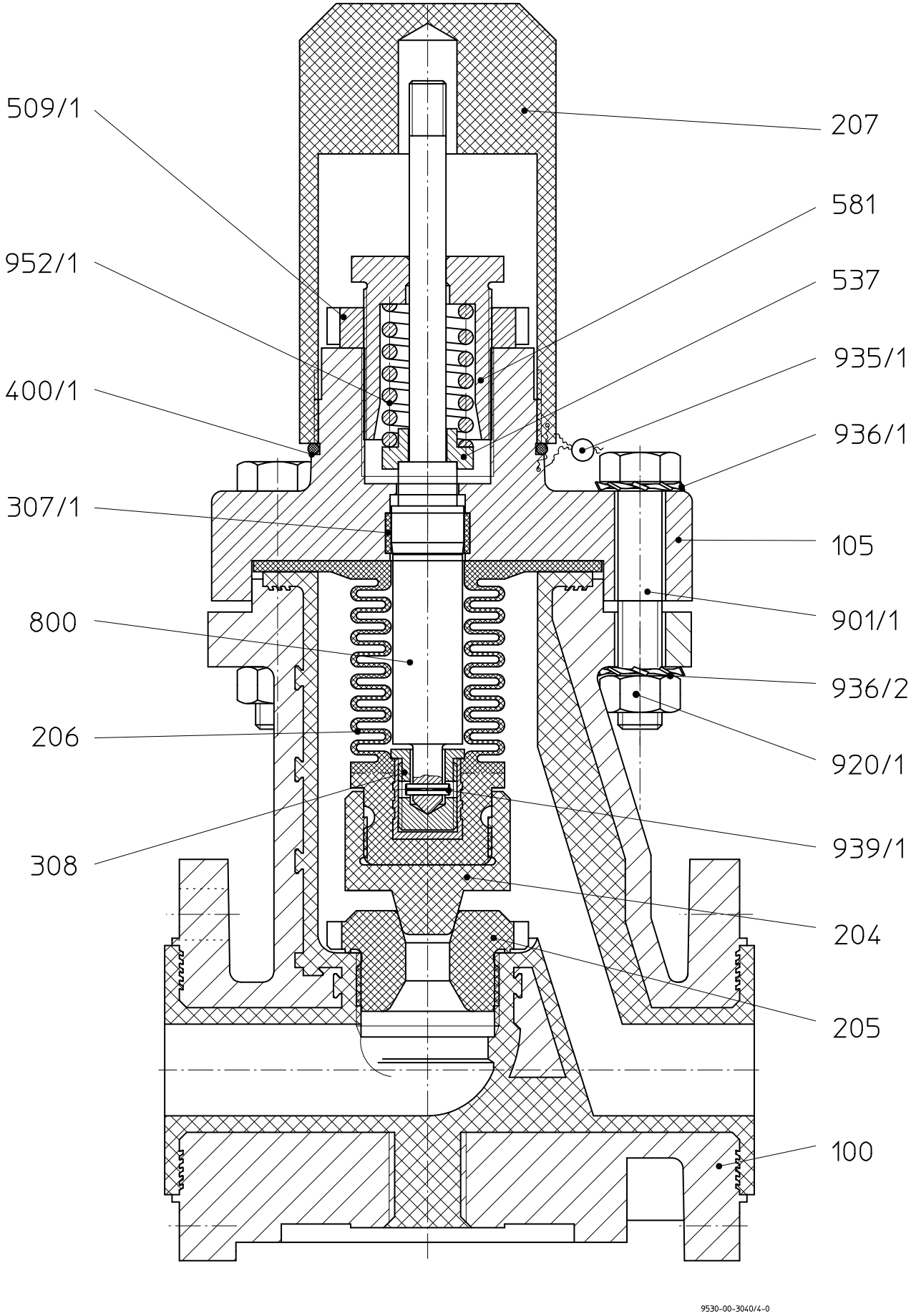
- All pressure tests should be carried out in compliance with DIN EN 12266-1 or API 527.
- It is recommended to perform a bubble test with a 5 mm diameter hose positioned 5 mm below the surface of water. The other end of the hose is sealed to the outlet of the valve by means of a stopper.
- To check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

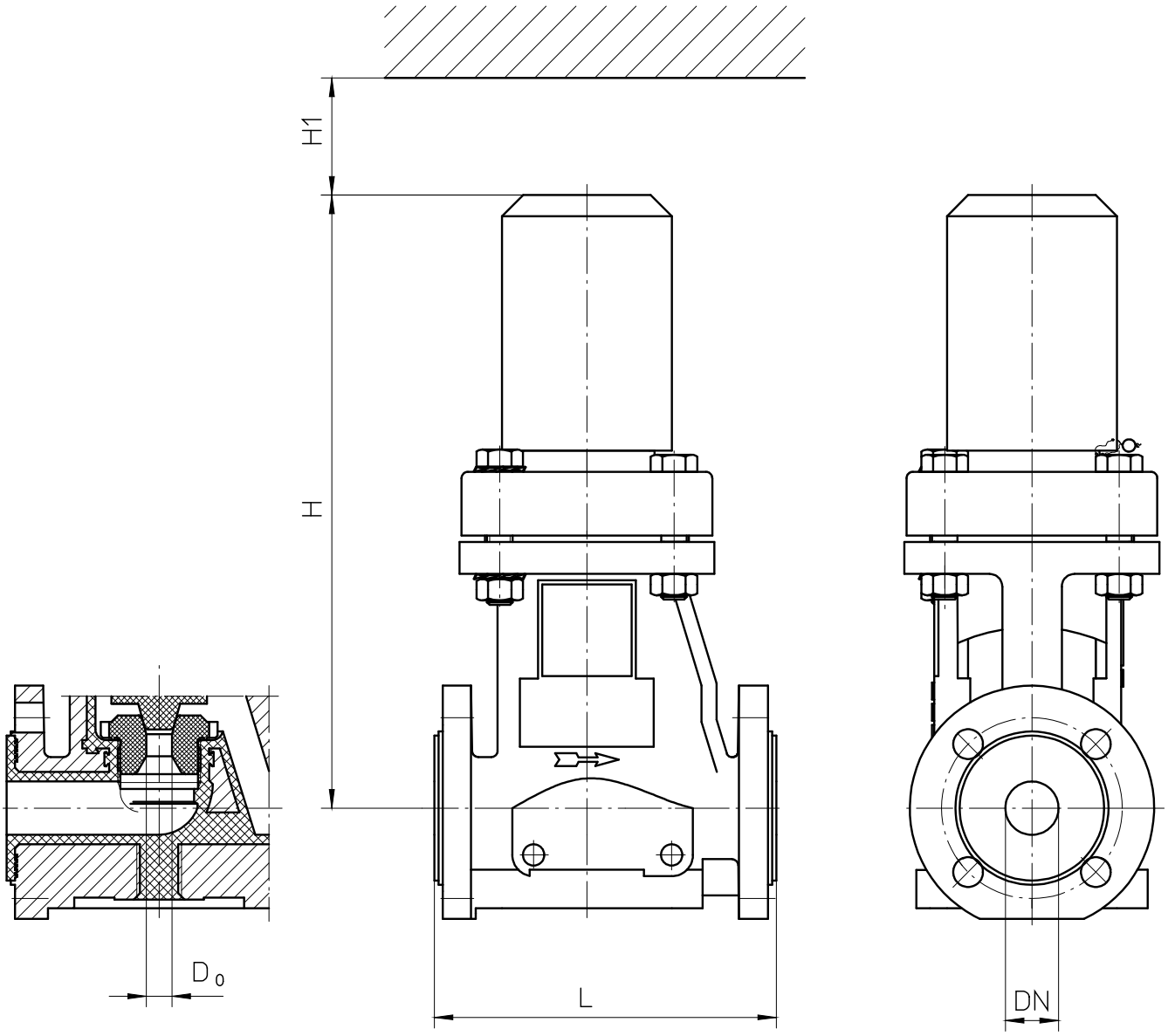
10.1 Legend

100	body
105	cover flange
204	plug
205	seat
206	bellows
207	cap
307/1	guide bush
308	insert sleeve
400/1	O-ring
509/1	groove nut
537	lower spring plate
581	straining screw
800	valve stem
901/1	hex. screw
920/1	hex. nut
935/1	lead seal
936/x	tooth lock washer
939/x	spring-type pin
952/1	pressure spring

10.2 Sectional drawing



10.4 Dimensional drawing



Nominal size								EN 558 series 1	ANSI/ISA-75.08.01 Class 150		ANSI/ISA-75.08.01 Class 300	
		D_0		H		H1		L	L		L	
mm	inch	mm	inch	mm	inch	mm	inch	mm	mm	inch	mm	inch
25	1“	12	0.47	290	11.42	110	4.33	160	184	7.25	197	7.75

Flange connecting dimensions:
Flanges acc. to DIN EN 1092-2, type B (ISO 7005-2, type B) PN 16 or flanges drilled to ASME 5, Class 150
Flanges acc. to ASME B16.5 Class 150 or 300, raised face

Richter Chemie-Technik GmbH
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RICHTER Process Pumps & Valves
A Unit of IDEX Corporation

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

Produkt *Product*	Überstromventile und Druckhalteventile *Overflow and pressure relief valve*
Baureihe *Serie*	GU, GUT
Nennweite *Size*	GUT - DN 25, 1“, GU - DN 40 bis DN 80, 1½“ bis 3“ *GUT - DN 25, 1“, GU - DN 40 to DN 80, 1½“ to 3“*
Seriennummer *Series number*	ab/*from* 29.12.2009
EU-Richtlinie *Directives UE*	97/23/EG Druckgeräterichtlinie *97/23/EC Pressure Equipment Directive*
Angewandte Technische Spezifikation *Applied Technical Specification*	DIN EN ISO 12100-2 AD 2000
Überwachungsverfahren *Surveillance Procedure*	97/23/EG Zertifizierungsstelle für Druckgeräte der TÜV Nord Systems GmbH & Co. KG Notified Body 0045
Konformitätsbewertungs-verfahren 97/23/EG *Conformity assessment procedure 97/23/EC*	Modul H
Kennzeichnung *Marking*	97/23/EG [1] ≥ DN 32, ≥ 1“ CE 0045 *97/23/EC [1] ≥ DN 32, ≥ 1“*

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

[1] Für nicht aufgeführte Nennweiten ist eine Kennzeichnung nicht zulässig.
For sizes not listed a marking is not permissible.

Kempen, 24.10.2011

G. Kleining
Leiter Forschung & Entwicklung
Manager Research & Development

A. Linges
Leiter Qualitätsmanagement
Quality Manager

RICHTER
Process Pumps & Valves
A Unit of IDEX Corporation

Herstellererklärung / *Manufacturer´s Declaration*

TA-Luft / *German Clean Air Act (TA-Luft)*

Richter Niederdruck Überströmventil
Richter Low-Pressure Safety Valve

Hiermit erklären wir, dass die Niederdruck Überströmventile der Baureihen
Hereby we declare, that the Low-Pressure Safety Valves of the series

GU, GUT, LPV-A, LPV-D

die Anforderung bezüglich der Gleichwertigkeit gemäß Ziffer 5.2.6.4 der Technischen Anleitung-Luft (TA-Luft vom 01.10.2002 / VDI 2440 Ziffer 3.3.1.3) erfüllen.

Grundlage sind die "Prüfgrundsätze für den Eignungsnachweis von Spindelabdichtungen in Armaturen als gleichwertig nach TA-Luft" des TÜV Süddeutschland Bau und Betrieb GmbH vom 22.09.1992.

Die Herstellererklärung beinhaltet den Eignungsnachweis einer inneren Flanschverbindung gemäß VDI 2440 hinsichtlich Dichtheit bzw. der Einhaltung der spezifischen Leckagerate nach TA-Luft $\lambda \leq 10^{-4} \frac{mbar \cdot l}{s \cdot m}$ und einer erweiterten Prüfung unter Betriebsbedingungen.

Voraussetzung für die Gültigkeit der Herstellererklärung ist das Beachten und Einhalten der Betriebsanleitung. Insbesondere sind regelmäßige Wartungsintervalle durchzuführen und die dichtheitsrelevanten Schraubverbindungen zu überprüfen und, wenn notwendig, nachzuziehen.

meets the requirement relating to the equivalence according to Section 5.2.6.4 of the German Clean Air Act (Clean Air Act dated 01.10.2002 / VDI 2440 Section 3.3.1.3).

The basics are the "Testing principles for the suitability verification of stem seals in valves as being equivalent in accordance to the German Clean Air Act of the TÜV Süddeutschland Bau und Betrieb GmbH dated 22 September 1992.

The manufacture´s declaration contains the suitability verification of an internal flange connection in accordance to VDI 2440 with regard to tightness and the observance of the specific leakage rate according to the German Clean Air Act $\lambda \leq 10^{-4} \frac{mbar \cdot l}{s \cdot m}$ *and an extended test under the above-mentioned operating conditions.*

Manufacturer´s declaration validity is dependent on the operating instructions being read and observed. In particular, service must be conducted at regular intervals and the bolted connection relevant for tightness should be inspected and retightened if necessary.

Kempen, 01.03.2010

Dipl.- Ing. Gregor Kleining
Leiter Forschung & Entwicklung
Manager Research & Development

Dipl. Wirt.- Ing. Alexander Linges
Leiter Qualitätsmanagement
Quality Manager

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
	Repair: ☐ subject to fee ☐ Warranty
Street :	**Exchange:** ☐ subject to fee ☐ Warranty
Postcode, city:	☐ Exchange/ Replacement already initiated/received
Contact person:	**Return**: ☐ Leasing ☐ Loan ☐ for credit note
Phone : Fax :	
End user :	

A. Details of Richter-product:

Classification:	**Failure description:**
Article number:	
Serial number:	**Equipment:**
	Application tool:
	Application process:

B. Condition of the Richter-product:	**no**[1]	**yes**	**no**
Was it in operation ?	☐	☐	
Drained (product/operating supply item) ?		☐	☐
All openings hermetically locked!		☐	
Cleaned ?		☐	☐
If yes, with which cleaning agent:			
and with which cleaning method:			

[1] if "no", then forward to **D**.

Contamination :	**no**[1]	**yes**
toxic	☐	☐
caustic	☐	☐
inflammable	☐	☐
explosive[2]	☐	☐
mikrobiological[2]	☐	☐
radioactive [3]		
other pollutant	☐	☐

[2] Aggregates, which are contaminated with microbiological or explosive substances, are only accepted with documented evidence of an approved cleaning.
[3] Aggregates, which are contaminated with radioactive substances, are not accepted in principle.

C. Details of the discharged materials (must be filled out imperatively)

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)	

	no	**yes**
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

FAX

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www.richter-ct.com

Fax No. ()

Pages (incl. cover sheet) ()

To:

()

Contact person:	Reference:	Extension:	E-Mail Address:	Date:
()	()	- ()	()	()

Your order No.: ()
Our Kom. No.: () **Serial No.: ()**

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

Enclosures

()