



Operating instructions BA-PB1.02-01-3A-US Pneumatic BioCheck sampling valve acc. to 3A standard

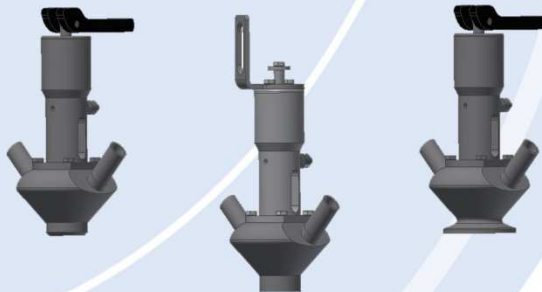
Article number:

7013X.XXXX.XX.XXXX.XX

7023X.XXXX.XX.XXXX.XX

7033X.XXXX.XX.XXXX:XX

(XXXX = Size – see order confirmation or type plate on valve)



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**SAFETY
INSTRUCTIONS**

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Keep these instructions.

The contents of these operating instructions and the product specifications are subject to modifications.

Printed on 12. October 2015

Below, the complete company name is replaced by "manufacturer",
and the complete machine name by "valve".

These operating instructions form part of the scope of supply, and also represent an important technical guideline for designated use of the device, and for achieving the complete functional benefit. Furthermore, within the context of product liability, they represent an essential source of information for the user and serve to protect **the user against injury and the valve against damage.**

1.1 Responsibilities

1.1.1 Manufacturer

The manufacturer has configured and designed the valve so that it reflects current requirements and the state of the art.

The valve was built by:

Gebr. Rieger GmbH & Co. KG

Kochertalstrasse 32

D-73431 Aalen

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Fax: +49 7361 570 251

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and its complete name is

BioCheck sampling valve

with the article numbers:

7013X.XXX.XX.XXX.XX

7023X.XXX.XX.XXX.XX

7033X.XXX.XX.XXX.XX

(XXXX = Size – see order confirmation or type plate on valve)

1.1.2 Owner

The owner shall exclusively comply with these operating instructions and the designated use of the valve. If you cannot resolve the problems that arise by referring to these operating instructions, please contact the manufacturer. We will be happy to help you.

1.1.3 Warranty

If worn parts are replaced with similar parts, but not ones which are recommended by the manufacturer in the operating instructions or in the spare parts list, Gebr. Rieger GmbH & Co. KG shall not be liable for any resulting damage.

1.1.4 Validity

If the valve is converted without authorization, Gebr. Rieger GmbH & Co. KG shall no longer be regarded as the manufacturer of the device. In such cases, all elements of the procedure for CE marking shall be repeated. The liability, warranty and guarantees shall be immediately and irrevocably invalidated if you undertake any of the following steps without obtaining prior written approval from the manufacturer:

- Conversion and/or modification of the valve
- Use of the valve for a different purpose
- Removal or bypassing of safety elements
- Modification of the product feed, e.g. line pressure, in a manner which has not been described and/or is not permitted
- Processing of products that are of a different material, shape and size to that in the description
- Interference with the original condition of the device

1.2 Legal information about these operating instructions

1.2.1 Liability, warranty, guarantee

The valve is the intellectual property of the manufacturer. All rights to the device, the valve principle, the corresponding drawings, etc. are reserved by the manufacturer and are subject to copyright legislation and associated industrial rights (e.g. the Copyright Act in Germany), in the relevant version.

1.2.2 Copyright

- According to copyright legislation, competition legislation and the German Civil Code (BGB), the duplication of all technical documentation associated with the valve is only permitted with the prior written permission of the manufacturer. Contraventions shall entail compensation in damages.
- All rights reserved.
- The documents may not be shown to unauthorized third parties.
- If documentation from suppliers is involved, the regulations of the copyright legislation apply accordingly.
- The aforementioned regulations and provisions also apply to the operating instructions and to the spare parts list.

1.2.3 Translation

- On delivery to the countries of the EEA, the instructions shall be translated accordingly into the language of the country of use. In case of discrepancies in the translated text, the original instructions (German) shall be used for clarification, or else the manufacturer shall be contacted.

NOTICE

The detailed scope of supply can also be seen in the order confirmation

1.3 What you should know about these operating instructions**1.3.1 Structure of the technical documentation**

This technical documentation of the valve consists of:

- Operating instructions
- Spare parts list
- Suppliers' documents / third-party documentation

1.3.2 Related documents

- Supplier documentation
- Statutory provisions on accident prevention, health and safety and environmental protection
- Company working instructions as well as maintenance and servicing instructions of the owner.

1.3.3 Significance of these operating instructions

- The operating instructions form part of the valve.
- The operating instructions shall be available to the operating and maintenance personnel at all times.
- The safety information contained in the operating instructions shall be complied with
- The operating instructions remain valid over the entire service life of the device.
- The operating instructions shall be maintained and updated if necessary.
- The operating instructions shall be passed on to each subsequent operator or user of the device.



We reserve the right to make technical modifications in the course of further development. We will be happy to make additions and improvements to these operating instructions.

Thank you in advance for your cooperation.

1.3.4 How to contact us

Gebr. Rieger GmbH & Co. KG

Kochertalstrasse 32

D-73431 Aalen

Tel.: +49 7361 57020

Fax: +49 7361 570 251

<http://www.rr-rieger.de>

E-mail: info@rr-rieger.de

Please have all necessary information to hand when contacting Gebr. Rieger GmbH & Co. KG, including:

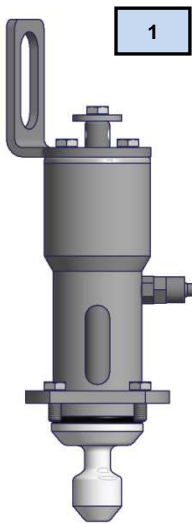
Valve number and valve type

1.4 Scope of supply

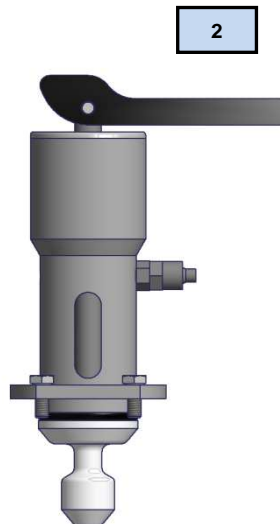
1.4.1 Valve

The valve consists of the following components:

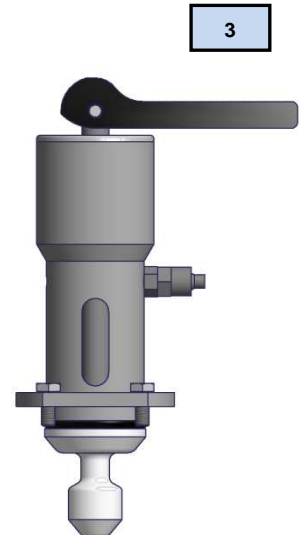
One actuator (depending on order) and one housing (depending on order), optionally also other housing variants.



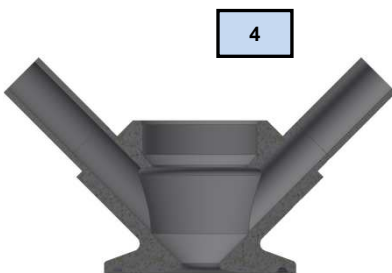
Pneumatic with holder for proximity switches



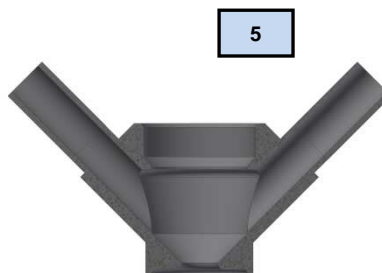
Pneumatic with opening lever (self-locking)



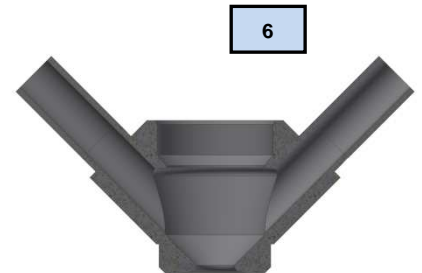
Pneumatic with opening lever (for open position)



Housing with tri-clamp connection DIN 32676



Housing for pipeline



Housing for tank

**Betriebsanleitung
BA-PB1.02-01-3A-DE
Pneumatische BioCheck-
Probenahmeventil
nach 3A Standard**

Artikelnummer:

7013X.XXXX.XX.XXXX.XX

7023X.XXXX.XX.XXXX.XX

7033X.XXXX.XX.XXXX.XX

(XXXX = Baugröße – siehe Auftragsbestätigung oder Typenschild auf Ventil)

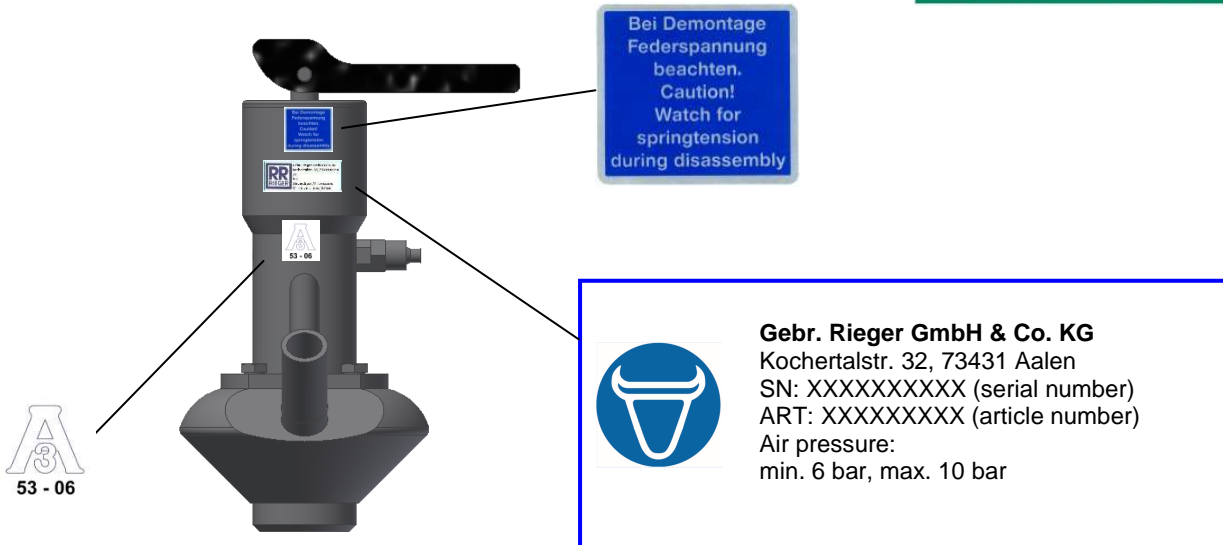


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1.5 Identification of the valve

You can identify the valve based on the designation.

SAFETY INSTRUCTIONS



The following information has been added to the valve:

- Rieger logo 
- Type designation Type (as specified in the order)
- Material number 76020.2880.15.0118.32 example)
- Serial number SN (determined on delivery)
- Year of manufacture 2013
- 3A identification



No type plates or warning notices may be removed from the valve.

1.5.1 Important information in case of queries about the sampling valve

Information in these operating instructions only applies to the BioCheck sampling valve PB1.02-01-3A, the type and configuration of which is specified on the title page.

Correct specification of the following items is important for all queries:



- Nominal diameter - outlets**
- Seal material**
- Housing material**
- Connection types (tank, pipeline, tri-clamp, etc.)**
- Actuator accessories (feedback, self-closing lever, lever with open position, etc.)**

2. Safety information

2.1 Owner's duty of care

The valve has been built according to the state of the art and the generally accepted technical safety rules. This means the valve is safe to operate, although the valve can pose a danger if it is not operated by personnel who have been trained or are at least technically competent, and/or if it is used incorrectly or in a manner that is not in accordance with its designated use.

SAFETY INSTRUCTIONS

Anyone who is tasked with startup, operation, maintenance and repair of the valve in the company of use is obliged to read and comply with the operating instructions, and above all the safety information.

Read the operating instructions before startup.

NOTICE

Illumination intensity:
The owner shall ensure adequate and uniform illumination in all areas of the system. The recommended illumination intensity is 300 lux (maintained illuminance; in Germany ASR 7/3 applies).

In accordance with the company safety regulation, the owner shall provide safety training for its personnel at least once a year.

⚠ DANGER

These dangers can be:

Danger due to hot housing surfaces during production and cleaning.
 Danger of scalding and chemical burns on parts of the body due to liquids escaping from the leakage connection or flushing connections.
 Generally speaking, anti-splash drainage devices are to be attached at the leakage connection.

From escaping liquids and gases or cleaning fluids due to the valve or its connection in the system not being leak-tight. Ongoing visual inspections must therefore be performed to this end. If leakage occurs when the valve is closed, replace the sealing set that comes into contact with the product.

When the actuator or the complete valve is removed from the system, emerging liquids or gases can give rise to injuries.
 Do not disassemble until you are absolutely certain that the system is free from pressurized liquid and gas.
 Danger of crushing or amputation of limbs.
 Do not reach into the valve housing or the closing head retainer during pneumatic actuation.
 Never open the pneumatic actuator during maintenance. Danger of serious or fatal injury due to spring tension in the actuator. Always send the actuator to Gebr. Rieger for maintenance work.
 However, the user of the valve may not rely solely on the operating instructions. He or she must also find out how to handle the valve correctly and safely. Reference should be made to health and safety regulations, accident prevention regulations and instructions from the employers' professional liability insurers in this regard.

It should be clearly emphasized that the manufacturer's duty to provide instruction is limited.

The owner is primarily responsible for finding out how to handle the valve correctly and safely.

NOTICE

In the EEA (European Economic Area), the national implementation of the Framework Directive (89/391/EEC) and the corresponding individual Directives shall be complied with in their current valid version, and in particular the Directive (2009/104/EC) concerning the minimum safety and health requirements for the use of work equipment by workers at work. In Germany, the Ordinance on Industrial Safety and Health of October 2002 shall be complied with.

According to the Machinery Directive 2006/42/EC, the valve is an incomplete machine and may only be installed by specialist companies.

Range of application exactly as stated in the current version of the operating instructions.

Comply with the safety information and warnings in the operating instructions.

Use the valve in accordance with the technical data stated on the data sheet.

The owner shall comply with the local statutory provisions for:

**SAFETY
INSTRUCTIONS**

- Safety of personnel (accident prevention regulations)
- Safety of work equipment (protective equipment and maintenance)
- Product disposal (waste legislation)
- Material disposal (waste legislation)
- Cleaning (cleaning agents and disposal)
- Environmental protection regulations

2.2 General safety information

2.2.1 Operation and operating modes

The work described in the Operation and operating modes chapter of these instructions is presented in such a way as to be understood by an **instructed person or by a specialist**.

2.2.1.1 Expert

Someone who has been instructed by a specialist in the tasks which have been allocated to them and the possible dangers of incorrect behavior, with on-the-job experience if necessary, as well as instruction regarding the necessary protective equipment and protective measures.

2.2.2 Transport, installation and assembly, maintenance, malfunction/cause/rectification

The work described in the Transport, installation and assembly, maintenance, malfunction/cause/rectification chapter of these instructions is presented in such a way as to be understood by a **specialist**. The housing supports have very sharp edges. It is essential to wear suitable protective gloves when transporting and installing the valve.

2.2.2.1 Specialist

Someone with suitable training and experience, enabling them to recognize risks and avoid dangers.
Definition based on EN 60204-1: 2006

NOTICE

In accordance with the company safety regulation, the owner shall provide safety training for its personnel at least once a year. All materials and seal elements are adapted to these operating parameters and the media that come into contact with the valve. Risks due to non-designated use or failure to comply with the operating parameters are the sole responsibility of the valve operator.

IMPORTANT!

Unauthorized changes to the valve design influence the designated function and are prohibited.

The owner shall ensure that:

- The valve is only used in accordance with its designated use.
- The valve is only operated if in perfect, functional condition, and in particular that the safety devices are regularly checked for their functional capability.
- Only appropriately qualified and authorized personnel operate, maintain and repair the valve.
- Before the valve is used, a check is undertaken to ensure that only the authorized person is within the operating area of the valve, and no-one can be injured by operation of the valve.
- The valve is checked for visible damage before startup, in order to ensure that it is only operated in perfect condition.
- Defects that are found shall be immediately reported to the supervisor.
- None of the safety instructions and warnings added to the valve have been removed or are illegible.
- The complete operating instructions are always kept in a legible condition and are available at the place where the valve is used.
- The personnel is regularly instructed in all relevant matters relating to health and safety at work and environmental protection, as well as knowing and complying with the operating instructions and, in particular, the safety information they contain.
- The personnel is trained and monitored with regard to compliance with the safety measures, including the duty to wear personal protective equipment.
- The valve may only be connected to pipelines which are pressureless during connection. The maximum pressure of the product line and CIP line is 8 bar.
- All pneumatic connections are leak-tight.
- Tension and compressive stresses on the pipeline connections of the housing are excluded.
- A continuous risk assessment of the workplaces is undertaken, including with regard to the temperature conditions of the medium and the place of use (falling). The measures shall be laid down in the company instructions, and the personnel shall be instructed accordingly (plant engineer or owner).
- Dangers are excluded where high pressures can occur. This is because high pressures can lead to sudden failure or damage to the lines and connections.
- Fire protection equipment such as appropriate hand-held fire extinguishers is provided in the specified number and size at easily reached points, and the employees are instructed in fire protection.
- Warning instructions from the documentation of suppliers' modules shall be complied with, and integrated into the workplace-related risk assessments.

2.3 Noise

The noise emission level of the device is less than or equal to 70 dB(A)

2.4 Basic safety measures during normal operation



SAFETY INSTRUCTIONS

The valve may only be operated by trained and authorized personnel who are familiar with the operating instructions and are able to work accordingly.

Before using the valve, please check and ensure that:

- Only the authorized person is in the working area of the valve.
- No-one can be injured by actuation of the valve.

2.5 Basic safety measures during maintenance and servicing

WARNING

Danger from hot surface during production and cleaning
The valve may only be maintained once it has cooled down.
Clean the valve first before any maintenance.
All supply lines must be depressurized.



During maintenance and servicing, make sure that:

- All maintenance and servicing work is only performed after the valve has cooled down.
- Cleaning is performed before maintenance.
- Only genuine spare parts are used.
- The parameters listed in the "Technical data" chapter, such as pressure, temperature, type of use, etc., are observed without exception.
- The inspection and maintenance intervals specified in the operating instructions are complied with.
- Before maintenance or repair work is undertaken, access to the working area of the valve is prevented for unauthorized persons.
- Only suitable tools are used when replacing genuine spare parts (e.g. installation tools from Gebr. Rieger).
- Before maintenance and repair work, measures are taken to ensure that all parts of the valve which may have to be touched have cooled down to room temperature.
- Cleaning agents that represent an environmental pollution hazard are disposed of correctly.
- The operating, maintenance and service personnel are thoroughly familiar with all safety and warning instructions, and that these instructions are followed.
- The necessary protective equipment is made available to operating, maintenance and repair personnel, and is used.

2.6 Complying with environmental protection regulations



RECYCLING

During all work on and with the valve, it is essential to comply with statutory obligations regarding waste avoidance and correct recycling/disposal.

In particular during installation, repair and maintenance work, water-polluting substances such as

- cleaning fluids containing solvents must not contaminate the soil or flow into the drainage system.

These substances must be stored, transported, collected and disposed of in suitable containers.

2.7 Safety at the valve

2.7.1 Personal protective equipment

SAFETY INSTRUCTIONS

Wear protective goggles
Wear protective clothing
Wear safety boots

2.7.2 Safety impairment of the valve

The safety of the valve/fixture can be impaired if:

- Conversions or changes are made to the valve.
- Additional equipment is used on the valve that is different from that provided by or approved by the manufacturer.
- Spare parts are used which are different from those provided by the manufacturer.
- Intervals for maintenance and care are not complied with as specified in the operating instructions.

WARNING

The following are prohibited:

Failing to tie back long hair, and wearing jewelry including rings.
Modifying or deactivating safety devices such as the leakage valve or rendering them inoperable.
Painting over or removing signs, information notices, etc.
Operation of the valve by unauthorized and unskilled persons.
Operation of the valve with damaged components, e.g. if the leakage display indicates seal damage.

2.8 Important information about safety

These operating instructions use special symbols to draw attention to points that are important with regard to safety and accident prevention. Their meanings are as follows:

SAFETY INSTRUCTIONS

- Warning of injury to personnel



Warning of a direct danger.
Consequences of failure to comply: Fatal or serious injuries



Warning of a possible, very dangerous situation.
Possible consequences of failure to comply: Fatal or serious injuries



Warning of a possible dangerous situation.
Possible consequences in case of disregard: slight or minimal injuries

- Other instructions



Identifies a helpful tip



This symbol identifies information and measures for disposal of the device.

3. Machine description

3.1.1 Designated use

The **BioCheck sampling valve PB** allows samples to be taken easily and safely from closed systems such as containers and pipelines.
 During the design of this sterile fitting, particular emphasis was placed on achieving an aseptic but also highly compact design, as a result of which integration into not only sterile but also into CIP/SIP circuits can be achieved without difficulty, and above all without contamination.

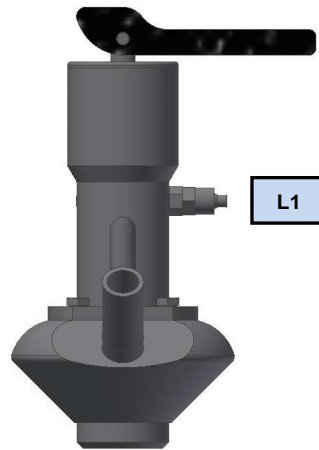
3.1.2 Non-designated use



Incorrect use of the valve can entail serious injuries.
Persons under the influence of drugs may not operate the valve.

Damage and/or injury caused by use not in accordance with the designated use, or by incorrect operation, are not covered by the warranty obligations. The risk is borne exclusively by the user/owner.

3.2 Air connections at the valve

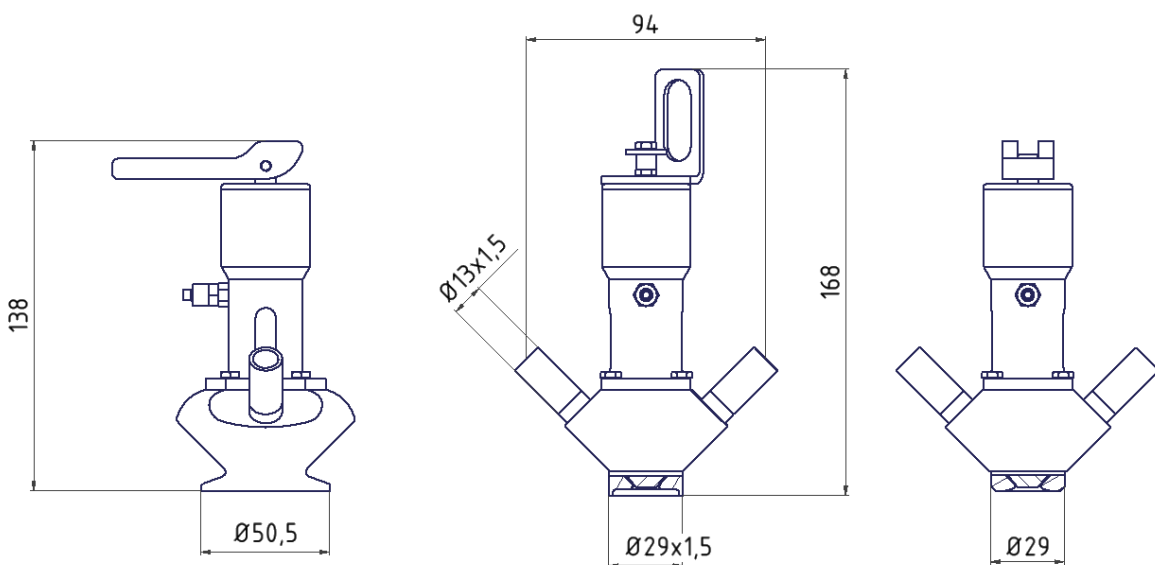


When air is applied:

L1 = Valve opens

3.3 Technical data for the valve

- Year of manufacture: 2013
- Structural dimensions: See below
- Weight: 1.1 kg



3.3.1 Technical data for stainless steels

- Parts in contact with product: 1.4435(ASI 316L)
- Parts not in contact with product: 1.4301 (AISI 304)

3.3.2 Technical data for seal materials

- In contact with product: Teflon bellows PTFE

3.3.3 Technical data for line pressure

- Product pressure on lines: max. 8 bar
- IMPORTANT!
- A pressure reducer must be connected in between if there is a greater pressure in the line.

3.3.4 Technical data for product temperature depending on the seal material

- Continuous operating temperature: 121 °C (PTFE)
- Sterilization temperature: 135 °C for short periods (approx. 20 min.)
- Ambient temperature: max. 60 °C

3.3.5 Technical data for surfaces

- Surfaces in contact with the product: $Ra \leq 0.8 \mu m$
- Optional: Electropolished
- Surfaces not in contact with the product: Bare metal $Ra \leq 1.6 \mu m$, polished

3.3.6 Pneumatic connection

In order to avoid air leaks, only use pneumatic connection parts which are sealed by means of an O-ring against the flat surface.

Screw-in fitting: M5

Control air:

Control air pressure: min. 6 bar – max. 10 bar,
max. 80 °C.

Solid material content in the control air:

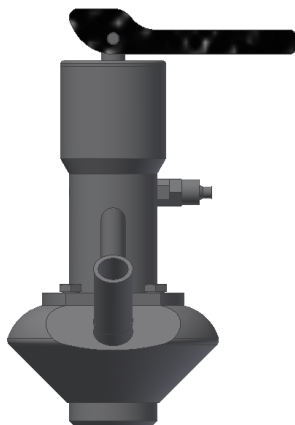
ISO 8573-1: 2001
Quality category 3

Particle size max. 5 μm
Particle density max. 5 mg/m³
(Quality category 3)
Water content at +2 °C
(Technically dry - quality category 3)
Oil content max. 25 mg/m³ oil
(Oil-free - quality category 3)

3.3.7 Valve functions



Application of air (L1) opens the sampling valve.
 When the air connection is closed and vented again, the valve once again closes under spring force.
 The valve "open position" can be indicated by means of a proximity switch (provided by the client).



Valves with an opening lever in the "self-locking" configuration can also be opened manually using the lever in addition to pneumatic actuation.
 If the lever is then released, the valve closes once again under spring force.



Valves with an opening lever in the "open position" configuration can also be opened manually using the lever in addition to pneumatic actuation. If the lever is moved through 180° the valve remains open even after the lever is released, and does not close until the lever has been moved back to its original position.

The application range of the valve, as well as the materials that come into contact with the product, must always be matched with the operating conditions. This shall be established by the owner and coordinated with the manufacturer.

3.3.8 Valve connection piping



Housing installation position: Overhead to horizontal
Outflow downwards

Take account of draining of the valve and pipeline.

Valve connection: Weld end

Comply with the guidelines for welding in the housing.

WARNING

Failure to comply can result in the risk of severe or fatal injuries to personnel.

DANGER

Failure to comply can result in the risk of severe or fatal injuries to personnel.

CAUTION – Clean the valve before startup.

Check the following before startup:

- Have all screw fittings been firmly tightened and are they leak-tight?
- Have all the piping and hose connections been secured?
- Are the piping and screw fittings used authorized for the intended pressure range?
- Are the electrical installations adequately protected against any splash water?
- Is the maximum pressure specified on the type plate complied with?

It is essential to comply with the following switch-off procedure before cleaning, maintenance or repair work (only by specialist personnel).

- Deenergize the higher-level system/machine/device and take measures to prevent it from being switched back on.
- Shut off the pneumatic system.
- Close the shut-off valve.
- Check whether the system is depressurized.
- Secure the shut-off valve to prevent it from being reopened.

Shut off the media supply, depressurize the pipelines and then drain them, if necessary also clean or flush (take particular care in case of hazardous substances).

Check that media inflow is reliably prevented, insert dummy plugs if necessary. Make sure that you allow time for cooling if the media temperatures are above 80 °C (176 °F).

3.3.9 General data

- Ambient temperature range lower limit temperature: +5 °C
- Ambient temperature range upper limit temperature: +60 °C

3.4 Service life

The service life of the valve is approx. 10 years when using drinking water. In case of aggressive products and high temperatures, the service life is correspondingly shorter (except for spare parts in contact with the product).

4. Technical description

Sampling valves are used for taking samples easily and safely from closed systems such as containers and pipelines.

Advantages:

- BioCheck sampling valves in nominal diameters DN 6, DN 8 and DN10 are excellently suited for aseptic applications.
- BioCheck valves can be installed overhead.
- A seal change can be performed without special tools - this means the valve only has **short downtimes**.
The modular system allows a simple change between hand wheel and pneumatic actuator with lever. The valves are designed for an operating pressure of 8 bar (higher on request) and operating temperatures of 121 °C (135 °C for short periods).

Function

- When designing the sampling valves, particular emphasis was placed on aseptic as well as highly compact design, thereby allowing integration both into sterile and CIP/SIP circuits without complicated procedures, and above all without contamination.
- Media connections: Weld ends, tri-clamp, BioConnect, Ingold connections and other connections on request.
- Sampling and flushing connections: Weld ends DN10.
- The pneumatic sampling systems can be opened by means of a pneumatic connection, as well as with a hand lever in models that are equipped with this.
- Following sampling (valve closed by spring force), the valve housing can be flushed and sterilized in housing types with two connections.

The valve consists of the following components:

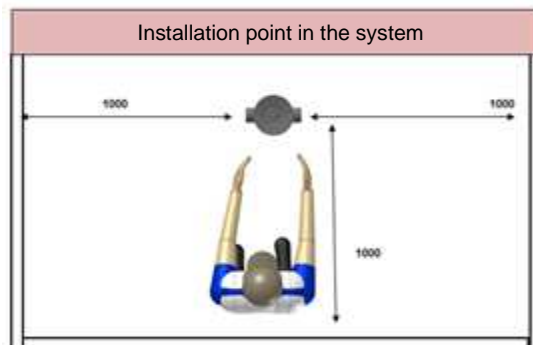
<p>Pneumatic with holder for proximity switches</p>	<p>Pneumatic with opening lever (self-locking)</p>	<p>Pneumatic with opening lever (for open position)</p>
<p>Housing with tri-clamp connection DIN 32676</p>	<p>Housing for pipeline</p>	<p>Housing for tank</p>

5. Workplace for operating personnel/space required for maintenance work

SAFETY INSTRUCTIONS

Before the valve may be used, the working area must be freely accessible for the operator. The owner shall ensure that no other persons are able to enter the working area during installation (maintenance).

The operator shall be secured accordingly if there is a risk of falling from the installation location. The owner of the system is responsible for providing this protection. Adequate illumination shall be provided.



6. Transport

Gebr. Rieger products are precision products, and must be handled with appropriate care during transport.

The manufacturer transports and delivers the valve in a partially assembled condition. Final assembly is carried out by the end user.

The actuators must be removed from the valve housing before the housing is welded in (see disassembly of the actuators).
Weld in the housing without distortion (see installation guidelines).
Reinstall the actuators (see installation instructions).
Functional and leak test

IMPORTANT!

The final installation of the valve may only be performed by qualified and authorized personnel.

NOTICE

The valve weighs 1.1 kg

6.1 Transport and packaging (also for spare and replacement parts)

Products from Gebr. Rieger GmbH & Co. KG are carefully checked and packaged before delivery, nevertheless it is impossible to rule out damage in transit.

6.2 Delivery (including spare and replacement parts)

Incoming check:

- Check for completeness with reference to the delivery note.

In case of damage

- Check the delivery for damage (visual check).

In case of complaint

If the delivery has been damaged in transit:

- Immediately contact the last freight carrier. - Keep the packaging
(to allow possible examination by the freight carrier, or for sending back)

NOTICE

In case of transportation damage, please contact Gebr. Rieger.

Packaging for sending back

In order to be sent back, the valve parts shall be packaged in such a way as to prevent damage during correct transport.

If you have any questions about this, please contact Gebr. Rieger GmbH & Co. KG.

6.3 Temporary storage

The freight packaging of the device as well as its spare and replacement parts has been designed for a storage period of 3 months starting from delivery.

6.4 Storage conditions

Enclosed and dry room with a room temperature of +10 °C to +25 °C.
 The relative humidity may not exceed 60%.
 Seals shall be stored without exposure to ozone or sunlight

6.5 Functional test

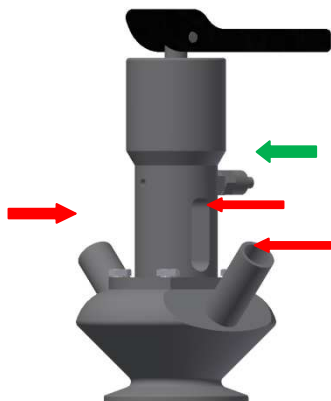
NOTICE

Clean the system before the first product run.



The stroke movement can be checked by moving the valve spindle and observing that it opens and closes smoothly.

6.6 Leak test before startup and after any maintenance, as well as during ongoing operation



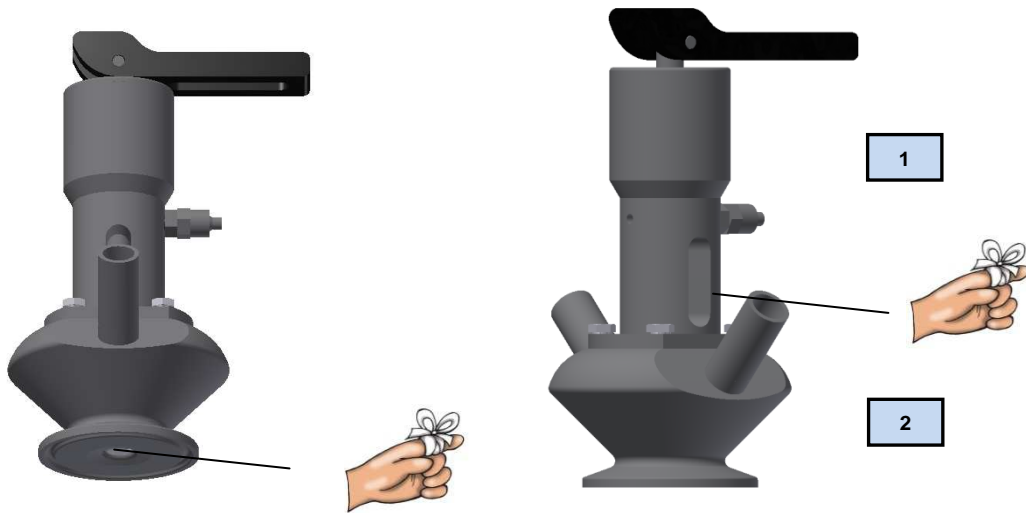
- Look and check that the seal and bellows are free from leaks.
- A defective seal and bellows must always be replaced together.
- Check the housing for damage.
- Check the actuator for damage.
- Are all screw connections firmly tightened?
- Are all pneumatic hose connections leak-tight?
- Are the piping and screw fittings used authorized for the intended pressure range?
- Is the maximum pressure specified on the type plate complied with?



DANGER

- **Never reach into any valve openings – RISK OF ACCIDENT**
Limbs could be crushed.

7. Structure and function



Component structure of the valve:

1 = Pneumatic actuator complete **2** = Housing

Mode of function

Sampling:

1. Open the valve pneumatically or using the hand lever
2. Lock the valve – move the hand lever into position or pneumatically
3. Clean the valve with steam or hot water

Sterilization:

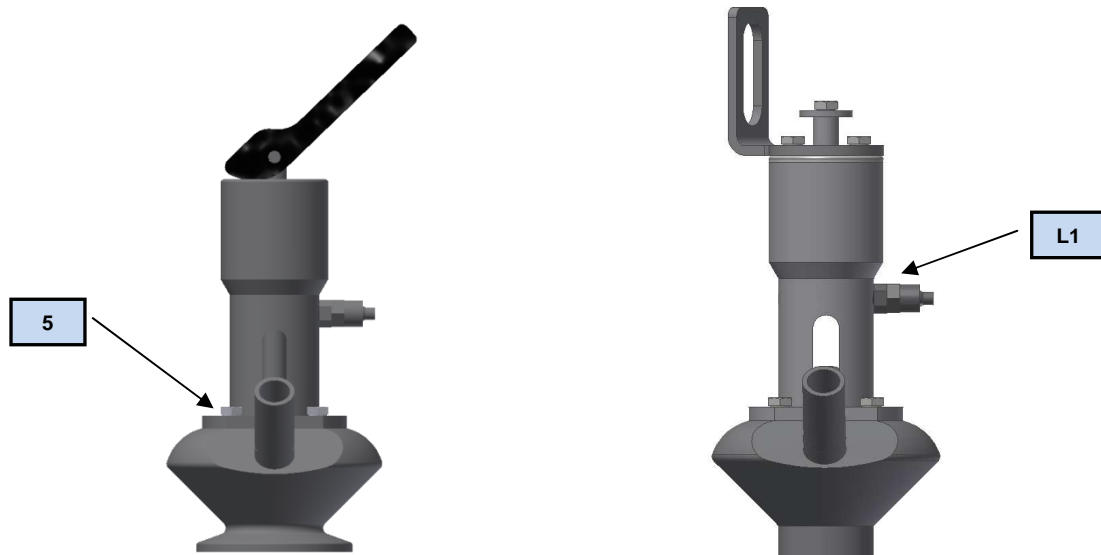
1. Sterilization is performed with the valve closed
2. Connect the steam or disinfectant solution at the upper valve port
3. Safely transport away the steam or disinfectant solution via the lower valve port, e.g. using a hose
4. Allow steam or hot water to flow through the valve for 1 to 3 minutes
5. Close the upper port

Flow coefficient (m³/h) based on
 - Room temperature 20 °C
 - Water
 - 1 bar pressure loss
 - Tolerance +/-10%

Stroke %	Stroke cm	Flow coefficient
10%	0.03	0.181
20%	0.06	0.439
30%	0.09	0.683
40%	0.12	0.874
50%	0.15	1.018
60%	0.18	1.185
70%	0.21	1.355
80%	0.24	1.501
90%	0.27	1.582
100%	0.30	1.635

7.1 Instructions for installing the valve in a pipeline

It is necessary to remove all installed components from the valve housing before welding work.
The pneumatic actuator must be removed as follows before the housing is welded into the pipeline:



- 1. Close the air connection L1 at an external air supply. The valve position is then "Open", or open the valve using the hand lever.
This makes it easier to take the actuator out of the valve housing
- 2. Unscrew the bolts of the actuator no. 5.
- 3. Pull the entire assembly "pneumatic actuator with spindle and PTFE bellows" out of the housing in the axial direction.
- 4. Close the compressed air connection L1. Important:
The actuator moves outwards.
- 5. Release the compressed air hose L1 from the actuator.

CAUTION

The housing is installed in accordance with the design configuration of the pipeline system and the technical data of the connection variants. Before starting installation, ascertain and determine the connection axes. Refer to the dimension drawings for the installation dimensions. Provide space and/or room both for operation and maintenance. Prevent any tension and compressive stresses on the housing. Make sure that the flange connections and pipe connections are leak-tight.

WARNING

Important: The pipe ends of the body have very sharp edges, it is essential to wear protective gloves.

7.1.2 Guidelines for welding in the valve housing

NOTICE	Only authorized personnel (EN287-1) are permitted to perform welding work.
Scope of application:	Weld connections of weld-in fittings with pipes acc. to DIN 11850 Series 1, 2, 3
Welding process	TIG (tungsten inert gas welding)
Weld type	Weld preparation acc. to DIN 2559 (square joint shape / for square butt welds) Welds according to EN 25817 evaluation group B (high) I seams on pipe connections to the valve housing must be D18.1 and EHEDG Dok.9 and executed 35 according to AWS / ANSI.
Weld preparation	Saw off the pipe ends flat and at right angles, and deburr them. (pipe saw 70037). Adjust the body weld end so it is flush with the pipeline both radially and axially (centering fixture).
Welding	Always close the body prior to welding since it may otherwise become twisted. Purge the body on the inside with forming gas to displace the oxygen from the system. Tack-weld at 3 or 4 tacking points. Use a TIG welding process with synchronizing (Manual or orbital automatic welding)

NOTICE	No gap may form on the flat weld ends because escaping forming gas can impair the corrosion resistance of the weld preparation
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- Weld additives

Material allocation

Material of welding parts	Suitable weld additive		
	1.4430	1.4440	1.4519
1.4404	X		
1.4435	X	X	X
1.4571	X	X	

- Weld into a container

	<ul style="list-style-type: none"> • Make a hole in the container wall with the outside diameter of the housing (max. surplus dimension: 0.2 mm). • Align the housing. • Tack-weld the housing on at least 4 points evenly spaced apart, and with sufficient holding force (see illustration). • The welding current intensity must be adapted to the wall thickness of the container and the housing. • Weld each joint (fillet welds) on opposites sides in segments no. 1 to no.4. Leave sufficient time for cooling down between the individual subsections, in order to avoid distortion due to overheating. • First make the weld on the outside of the container, then the one inside the container.
	<ul style="list-style-type: none"> • Welding into a pipeline with square butt weld

7.2 Disassembly of the actuator for cleaning and maintenance work

⚠ DANGER

It is essential to comply with the following switch-off procedure before cleaning, maintenance or repair work (only by specialist personnel).

Failure to comply can result in danger of severe or fatal injury to personnel.

Deenergize the higher-level system/machine/device and take measures to prevent it from being switched back on.

Shut off the pneumatic system.

Close the shut-off valve.

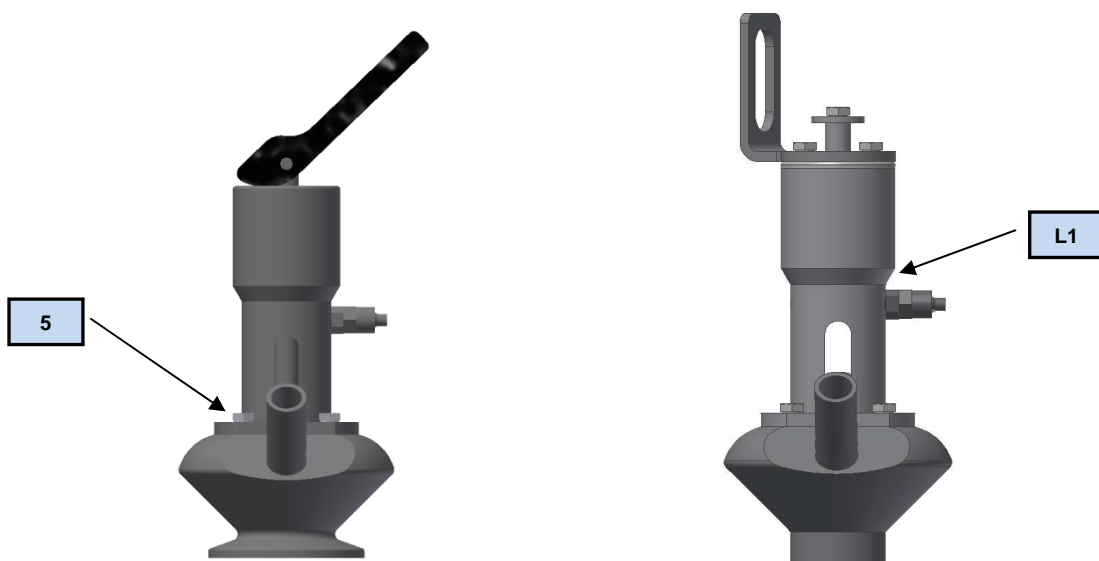
Check whether the system is depressurized.

Secure the shut-off valve to prevent it from being reopened.

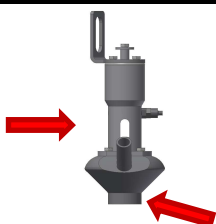
Shut off the fluid supply, relieve the pressure in the pipelines and then vent, clean if necessary or rinse (take particular care in case of hazardous substances).

Check that media inflow is reliably prevented, insert dummy plugs if necessary.

Make sure that you allow time for cooling if the media temperatures are above 80 °C (176 °F).



- 1. Close the air connection L1 at an external air supply. The valve position is then "Open", or open the valve using the hand lever. This makes it easier to take the actuator out of the valve housing.
- 2. Unscrew the bolts of the actuator no. 5.
- 3. Pull the entire assembly "pneumatic actuator with spindle and PTFE bellows" out of the housing in the axial direction.
- 4. Close the compressed air connection L1. Important: The actuator moves outwards. Release the compressed air hose L1 from the actuator.



⚠ DANGER

Never reach into any valve openings – RISK OF ACCIDENT

Limbs can be crushed or sheared off.

Never open the pneumatic actuator yourself – RISK OF ACCIDENT.

7.2.1 Disassembly of the PTFE bellows for maintenance work

- Check all visible seals for damage (renew if necessary).
- Thoroughly clean the inside area of the housing, the actuator mounting and the parts in contact with the product.
- Unscrew the PTFE bellows from the spindle.
- Remove the silicone O-ring.
- Place all of this onto a soft, lint-free base.



7.2.2 Replacing spare parts

- Always renew the PTFE bellows and O-ring together.

Important: Avoid damaging the PTFE bellows when guiding in the actuator.

NOTICE

The maintenance/cleaning chapter is only intended for specialists. Maintenance, cleaning and repair work may only be performed by specialist personnel. The manufacturer does not accept any liability for damage caused by incorrect or external action. Should questions or uncertainties arise during maintenance, do not hesitate to contact us prior to commissioning in case of any doubt.

7.3. Lubrication schedule

Sealing material (FDA)	Grease type
EPDM, FPM (Viton), HNBR	Paraliq GTE 703
VMQ (Silicone)	Do not grease

Running surfaces: Geralin P1

Any other greases may corrode the sealing elements.

Do not use mineral or animals fats. Check all visible seals for damage (renew if necessary).

Clean body area, actuator mounting and all product-contacting parts of the valve disc.

To avoid damage to the O-rings, these should be handled appropriately.

We recommend replacing the O-rings and sleeve bearings every maintenance cycle!

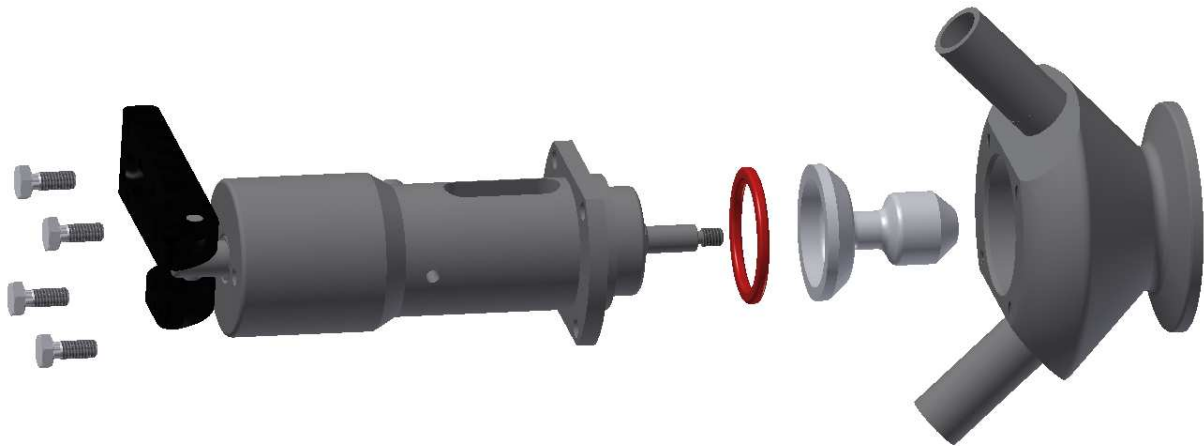
Lubricate the guides and sealing elements with grease to make mounting them easier and prevent damage.

Types of grease: ⇒ Paraliq GTE 703 (sealing elements) ⇒ Geralin P1 (running surfaces)

If another grease is used, there is a danger that the sealing elements may be corroded.

Do not use mineral or animals fats. Secure threaded connections with glue (Observe gluing guidelines). Do not reuse any used seals as they cannot be guaranteed to function properly.

7.4 Installation of the serviced valve



- Push the O-ring onto the actuator.
- Screw the PTFE bellows onto the spindle by hand.
- Insert the valve actuator into the housing, during which it should be in the "open" position. (Open using hand lever or with the air connection)
- Screw hexagon bolts into the housing.
- Close the actuator.
- Clean and sterilize the housing.
- Check the valve for leaks.
- Apply slight pressure to the spindle projecting from the actuator so that it is possible for the bellows to connect optimally with the housing seat during installation.

**DANGER**

The actuator unit may only be opened and maintained
in the Gebr. Rieger company.

IMPORTANT: Spring tension

Danger of serious or fatal injury if opened independently

Now check the following:

- Have all screw fittings been firmly tightened and are they leak-tight?
- Are all pneumatic hose connections leak-tight?
- Are the piping and screw fittings used authorized for the intended pressure range?
- Are the electrical installations adequately protected against any splash water?
- Is the maximum pressure specified on the type plate complied with?
- Before startup, flush the valve with a suitable medium (see cleaning chapter).

8. Description of the device and operation



Sampling:

1. Open the valve pneumatically or with the hand lever.
2. Close the valve – change over the hand lever position or pneumatically.
3. Clean the valve with steam or hot water.

Sterilization:

4. Sterilization is performed with the valve closed.
5. Connect the steam or disinfectant solution at the upper valve port.
6. Safely transport away the steam or disinfectant solution via the lower valve port, e.g. using a hose.
7. Allow steam or hot water to flow through the valve for 1 to 3 minutes.
8. Close the upper port.

NOTICE

It is essential to carry out the switch-off procedures before any maintenance and cleaning work. If the specified measures do not prove successful, please contact a specialist company or the manufacturer.

9. Maintenance and servicing intervals

In order to permit trouble-free operation of the sampling valve, it is essential for it to be cleaned and maintained at regular intervals.

NOTICE

Extremely high switching frequencies may considerably shorten the service life of the compression springs however.

Following maintenance work, reinstall all removed individual parts correctly.

Important:

Unauthorized conversions or changes impair the safety of the operating personnel and the valve, and are not permitted.

- Spare parts must be in accordance with the technical requirements of the machine manufacturer.
- Always use genuine Rieger spare parts. Gebr. Rieger will not accept any liability for damage caused if spare parts obtained elsewhere are used.

9.1 Maintenance/inspection

The valve does not have to be maintained separately. However, a visual check for leak-tightness and function should be performed periodically between the repair intervals.

9.2 Cleaning



⚠ DANGER

Store the cleaning agents in accordance with the applicable safety guidelines.
Comply with the safety regulations in the data sheet from the cleaning agent manufacturer when handling cleaning agents.
Always wear rubber gloves and protective goggles during cleaning.
Ensure you do not touch the double seal valve or the pipeline during the processing of hot media, or during the sterilization procedure.

9.2.1 Cleaning and CIP

- Flush the valve with a suitable medium before startup.
- Regularly flush the cavities inside the valve using a suitable medium.
- For example, do this when there is a product changeover, downtimes, etc. These intervals shall be defined by the owner.
- At the end of production, flush immediately otherwise seals could become gummed. (particularly if the products contain sugar.)
- Comply with the safety data sheets of the cleaning agent manufacturer.
- Only use cleaning agents which will not attack or abrade the seals and stainless steel.
- The sampling valve together with the corresponding pipeline must be cleaned perfectly in built-in condition.
- The necessary cleaning times, temperatures and cleaning agent concentrations depend on the degree of contamination, and must be adapted accordingly.

⚠ WARNING

The concentrations and temperatures recommended by the cleaning agent manufacturer must not be exceeded.
In case of damage caused by failure to comply with these operating instructions, incorrect startup, handling or external intervention, the warranty and guarantee offered by the manufacturer will become invalidated.

Only now is the valve capable of being used.

9.2.2 Cleaning agents

Bear the following points in mind when selecting the cleaning agents:

- Do not use abrasive cleaning agents.
- Only use cleaning agents that will not attack the seals and the stainless steel.
- Ensure correct and proficient handling and disposal.
- Comply with the safety data sheets from the cleaning agent manufacturer.
- The sampling valve together with the corresponding pipeline must be cleaned perfectly in built-in condition.
- The necessary cleaning times, temperatures and cleaning agent concentrations depend on the degree of contamination, and must be adapted accordingly.
- The flow speed during cleaning must be at least 1.5 to 2.5 m/s.
- During the individual cleaning cycles, the upper and lower valve disks must be activated alternately by means of the compressed air connection L2 or L3.
- Opening duration approx. 1 to 2 seconds each, between 2 and 4 alternating strokes.
- Following cleaning, the sampling valve can be sterilized with disinfectant or sterile steam.

9.2.3 Table of cleaning agents

Cleaning/disinfectant agents It is essential to comply with the maximum values.	Maximum chloride content in the mixing water		Concentration from – to maximum in %	Maximum acting time in minutes	Maximum temperature °C
	V2A mg/l	V4A mg/l			
Sodium hydroxide NaOH cleaning agent	100	150	2-3	30-45	140
Hydrogen peroxide (H ₂ O ₂) product as booster for 1-2% NaOH (permanent injection or one-time addition of the lye solution)	100	150	Injection 0.1 Mixing 0.5	30	80
Acid cleaning agents Based on phosphoric acid H ₃ PO ₄	100	150	3	45	70
Acid cleaning agents Based on nitric acid HNO ₃	100	150	2	45	70
Acid cleaning agents based on the mixture of phosphoric acid and nitric acid	100	150	2	45	70
Acid disinfectant agents based on peracetic acid	100	150	0.2 – 1.0	20	25
Acid disinfectant agents based on peracetic acid	100	150	0.5	45	40
Acid disinfectant agent based on halogenated carboxylic acid/phosphoric acid or halogenated carboxylic acid/nitric acid	100	150	0.5 – 1.0	20	25
Neutral disinfectant agent based on hydrogen peroxide H ₂ O ₂	100	150	0.5 – 1.0	30	25
	80	120	0.3	60	70
Chlorine-alkaline cleaning/disinfectant agent (pH value > 11)	80	120	1.5	45	60
Bottle disinfection with peracetic acid, concentration specified in relation to pure peracetic acid	0 mg/l	5 mg/l	2000 mg/l	continuous	60
	0 mg/l	5 mg/l	4000 mg/l	continuous	30
Sterilization with hot water	100	150	-	90	140
Sterilization with steam, abs max. 1.5 bar	-	-	-	45	135
Flushing with cold water	100	150	-	-	-
Flushing with ozonized cold water only permitted with EPDM seals.	80	120	Up to 3 mg/l	60	25

10. Disassembly/disposal

10.1 Disassembly

Disassembly may only be performed by specialist personnel.
Make sure that the valve is cleaned and has cooled down before the start of disassembly work.

10.2 Disposal



RECYCLING

The valve is predominantly made from steel and plastic, and must be disposed of in accordance with the applicable local environmental protection regulations. During all work on and with the valve, it is essential to comply with statutory obligations regarding waste avoidance and correct recycling/disposal.

In particular during installation, repair and maintenance work, water-polluting substances such as

- cleaning fluids containing solvents

must not be allowed to contaminate the floor of the workshop or enter the drainage system. These substances must be stored, transported, collected and disposed of in suitable containers. Cleaning cloths used must be disposed of correctly due to the fire risk.

11. Malfunctions, causes and rectification

CAUTION

It is essential to carry out the switch-off procedures before any maintenance and cleaning work. If the specified measures do not prove successful, please contact a specialist company or Gebr. Rieger GmbH & Co. KG.

Malfunction	Cause	Rectification
Valve does not move	No compressed air Actuator defective	Switch on compressed air Check and replace if necessary
Valve leaking	Seal defective or worn	Renew seal

Notify the maintenance department if malfunctions in operation cannot be rectified by the operator. If necessary, notify an employee of Gebr. Rieger, or request assistance.

11.1 Emergency

In an emergency, shut off the product supply immediately.

11.2 Maintenance schedule

Only individual, authorized persons are allowed to work on the valve.

Maintenance and servicing work may only be performed by trained and expert personnel.

Activity	Person	Interval
Cleaning and sterilizing the valve	Operator	After every product throughflow
Entire valve	Operator	Before first use
Visual check for damage	Operator	Before first use
Check hoses and their connections for damage	Operator	Before first use
Check seals for deformation	Operator	On maintenance
Renew seals	Operator	See seal guidance values

11.3 Reference values for seals/plain bearings

We recommend the following as guidance values for changing **seals, PTFE bellows and plain bearings**:

- For fluids with solid components and temperatures from 80 °C to 100 °C, approx. every 3 to 6 months
- For fluids with solid components and temperatures of 60 °C, approx. every 12 months
- For fluids without solid components and temperatures of max. 95 °C, approx. every 24 months

11.4 Reference values for compression springs

It goes without saying that the specified values also assume chemical resistance of the seal material.

With regard to the **compression springs** in the actuators, we recommend renewal after every 5 years in service, at the latest.

We recommend renewing springs after 2 years if there are unusually high switching frequencies

