



**Operating instructions
BA-N1.001-DN25-100-GB
Hygienic mix proof valve N1
Valve seat can be pulsed into
both pipelines**

article number:30100.1X00.XXXX.32
(XXXX = size – see order confirmation or nameplate on valve)



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Copie of Original Operating and Installation Instructions
Keep in a safe place for future use

Contents

1. Contents	2
1.1. Responsibilities	5
1.1.1. Manufacturer	5
1.1.2. Operating company	6
1.1.3. Warranty	6
1.1.4. Validity	6
1.2. Legal notices about these operating instructions	6
1.2.1. Liability, warranty, guarantee	6
1.2.2. Copyright	6
1.2.3. Translation	6
1.3. What you should know about these operating instructions	7
1.3.1. Structure of the technical documentation	7
1.3.2. Other applicable documents	7
1.3.3. Significance of these operating instructions	7
1.3.4. How to reach us	7
1.4. Scope of supply	8
1.4.1. 1 x hygienic mix proof valve	8
1.4.2. 1 x technical documentation	9
1.5. Identification of the valve	10
1.5.1. Important information for inquiries regarding the mix proof valve	10
2. Safety instructions	11
2.1. Duty of care of the operating company	11
2.2. General safety instructions	13
2.2.1. Operation and operating modes	13
2.2.2. Transport, setup and assembly, maintenance, malfunctions/cause/remedy	13
2.3. Noise	14
2.4. Basic safety measures during normal operation	15
2.5. Basic safety measures during maintenance and service	15
2.6. Follow environmental protection regulations	16
2.7. Safety at the valve	16
2.7.1. Personal protective equipment	16
2.7.2. Safety impairment of the device	17
2.8. Important information about safety	17
2.9. Safety equipment	17
2.9.1. Proximity switches or control heads are provided and electronically set-up by the plant operating company. Alternatively, they can be purchased by Rieger from third parties. The control connection is made by the operating company or plant builder.	17

3. Machine description	18
3.1.1. Intended use	18
3.1.2. Use not in accordance with the intended use	18
3.2. Air connections at the valve	
3.3. Technical data of the valve	19
3.3.1. Technical data for stainless steels	20
3.3.2. Technical data for seal materials	20
3.3.3. Technical data for line pressure	20
3.3.4. Technical data for product temperature depending on seal material	20
3.3.5. Technical data for surfaces	20
3.3.6. Technical data for pneumatic connection	20
3.3.7. Valve functions	20
3.3.8. Valve connection piping	21
3.3.9. General data	22
3.4. Service life	22
4. Technical description	22
5. Workplace for operating personnel/space requirements for maintenance work	24
6. Transport and tests	25
6.1. Transporting the valve	25
6.2. Delivery (also for spare and replacement parts)	25
6.3. Temporary storage	26
6.4. Storage conditions	26
6.5. Functional test	26
6.6. Leak test	26
7. Construction and function	27
7.1. Instructions for installing the valve in a pipeline	28
7.1.2. Weld-in guidelines for the valve housing	30
7.2. Removing the drive for cleaning and maintenance work	31
7.2.1. Removing the valve disc for maintenance work	32
7.2.2. Removing spare parts on the valve disc	33
7.2.3. Installing new spare parts	33
7.3. Grease plan	34
7.4. Installing the valve disc	35
7.5. Assembling the maintained valve	36
8. Device description and operation	37
9. Maintenance and service intervals	39
9.1. Service/inspection	39
9.2. Cleaning	40
9.2.1. Cleaning and CIP	40
9.2.2. Permissible cleaning agents	40
9.2.3. Cleaning agent table	41
10. Removal/disposal	42
10.1. Removal	42
10.2. Disposal	42

11. Malfunctions, causes and their elimination	42
11.1. Emergency	43
11.2. Maintenance plan	43
11.3. Guide values for seals/plain bearings	43
11.4. Guide values for compression springs	43
12. Design drawing	44
13. Spare parts lists	45
13.1. Spare parts for complete valve	45
13.2. Packets of spare parts for parts in contact with product	45
13.3. Spare parts for drives (maintenance only at Rieger)	45
14. Purchased parts, see enclosed data sheets (see order confirmation)	46
15. Supplier list/documents of suppliers/third-party documentation (see order)	46

Keep these instructions.
These operating instructions and the product specifications are subject to modification.

Printed on 13 March 2013

Below, the full company name is replaced by the term "manufacturer" and the full machine designation is replaced by the term "valve".

These operating instructions are included in the scope of delivery and are an important technical guideline for the intended use of the device and for achieving the full functional utility. With regard to product liability, they also provide the user with indispensable information for protecting the user against injury and protecting the valve against damage.

1.1. Responsibilities

1.1.1. Manufacturer

The manufacturer has designed the valve in accordance with the current requirements and the state of the art.

The valve was built by:

Gebr. Rieger GmbH & Co. KG

Kochertalstraße 32

D-73431 Aalen, Germany

Telephone: + 49 7361 57020

Fax: + 49 7361 570 251

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

E-mail: info@rr-rieger.de

and bears the full designation

Mix proof valve

Hygienic version

Spring-closing/air-opening NC

Type N1.001

with the article numbers:

30100.1X00.XXXX.XX

(XXXX = size – see order confirmation or nameplate on valve)

1.1.2. Operating company

The operating company must follow these operating instructions exclusively, and use the valve only as intended. If problems that arise cannot be solved using these operating instructions, please contact the manufacturer. We will be glad to provide you with further assistance.

1.1.3. Warranty

If worn-out parts are replaced with similar parts that are not identical to the parts recommended by the manufacturer in the operating instructions or in the spare parts list, Gebr. Rieger GmbH & Co. KG assumes no liability for any damage arising therefrom.

1.1.4. Validity

If the valve is altered without authorisation, Gebr. Rieger GmbH & Co. KG is no longer considered the manufacturer of the device. In this case, all the steps in the process for the CE mark must be performed again. The liability, warranties and guarantees will be rendered immediately and irrevocably null and void as soon as you do the following without the manufacturer's written approval:

- Convert or alter the valve
- Use the valve for an unintended purpose
- Remove or disable safety elements
- Change the product supply, e.g. line pressure, in an undescribed and/or impermissible manner
- Process products that are not identical to the description in material, form and size
- Tamper with the original state of the device

1.2. Legal notices 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 associated drawings, etc. belong to the manufacturer and are subject to the latest version of the German Copyright Act (*Gesetz über Urheberrecht und verwandte Schutzrechte (UrhG)*).

1.2.2. Copyright

- According to the copyright law, the Competition Act (*Wettbewerbsgesetz*) and the German Civil Code, the reproduction of any technical documentation associated with the valve is permissible only with the manufacturer's prior written approval. Violations are subject to compensation for damages.
- All rights reserved.
- The documents must not be provided to unauthorised third parties for inspection.
- The provisions of the copyright law apply analogously to the documentation of suppliers.
- The aforementioned provisions and regulations also apply to the operating instructions and the spare parts list.

1.2.3. Translation

- If the valve is delivered to the countries of the European Economic Area, the instructions should be translated into the language of the user's country. If discrepancies appear in the translated text, the original instructions (German) should be used for clarification or the manufacturer should be contacted.

**NOTE**

A detailed scope of supply can be found on the order confirmation.

1.3. What you should know about these operating instructions

1.3.1. Structure of the technical documentation

The technical documentation of the valve consists of:

- Operating instructions
- Spare parts list
- Supplier documents/third-party documentation
- EC declaration of conformity
- Manufacturer's declaration
- Declaration of incorporation

1.3.2. Other applicable documents

- Supplier documentation
- Legal provisions regarding accident prevention, health & safety at work and environmental protection
- Company work instructions and maintenance and service instructions of the operating company

1.3.3. Significance of these operating instructions



- The operating instructions are part of the valve.
- The operating instructions must be available to the operating and maintenance personnel at all times.
- The safety instructions contained in the operating instructions must be followed.
- The operating instructions are valid over the entire service life of the device.
- The operating instructions must be maintained and, if necessary, updated.
- The operating instructions must be passed on to each subsequent owner or user of the device.

Subject to technical changes in the course of further development. We would be glad to receive suggested additions and improvements to these operating instructions.

Thank you for your assistance.

1.3.4. How to reach us

Gebr. Rieger GmbH & Co. KG
Kochertalstraße 32
D-73431 Aalen, Germany
Telephone: + 49 7361 57020
Fax: +49 7361 570 251
<http://www.rr-rieger.de>
E-mail: info@rr-rieger.de

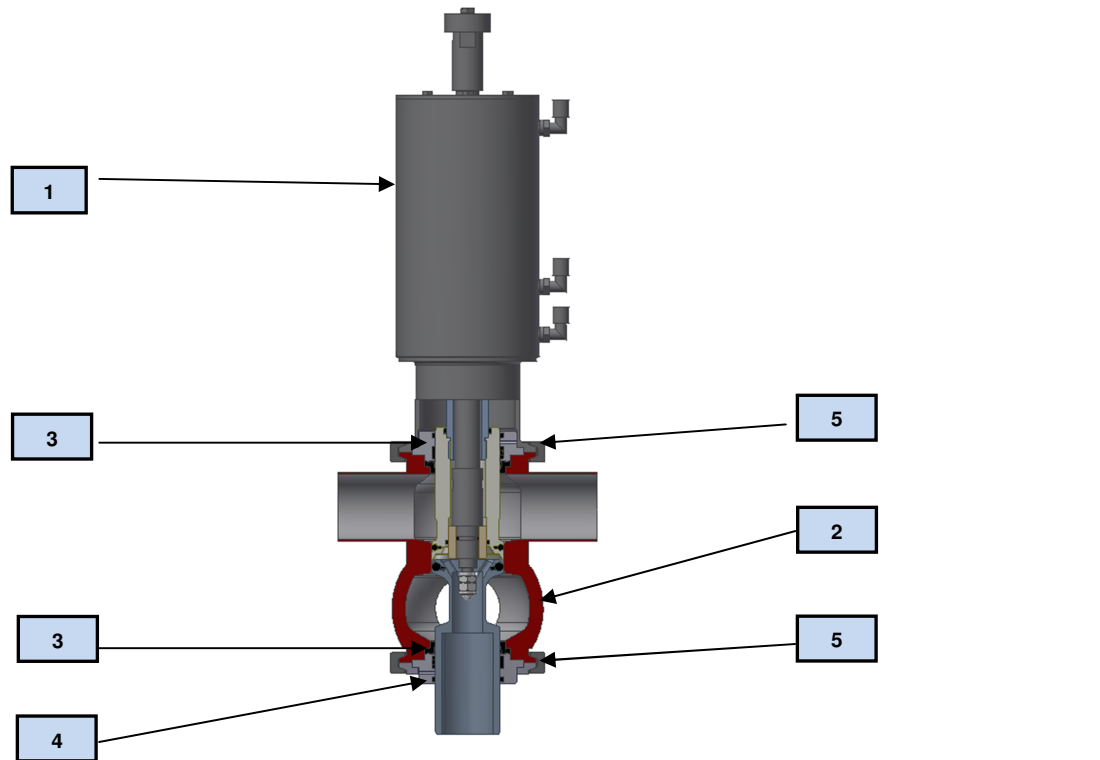
When you contact Gebr. Rieger GmbH & Co. KG, please have all necessary information ready, including:

Valve number and valve type

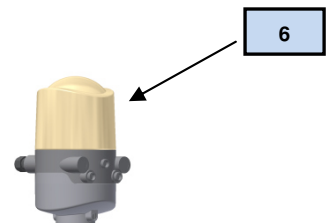
1.4. Scope of supply

1.4.1. Valve

The valve consists of the following components:



- 1** = pneumatic drive
- 2** = housing, according to the type (see page 19)
- 3** = valve disc guide
- 4** = housing cover
- 5** = complete clamping connection
- 6** = control head (optional)





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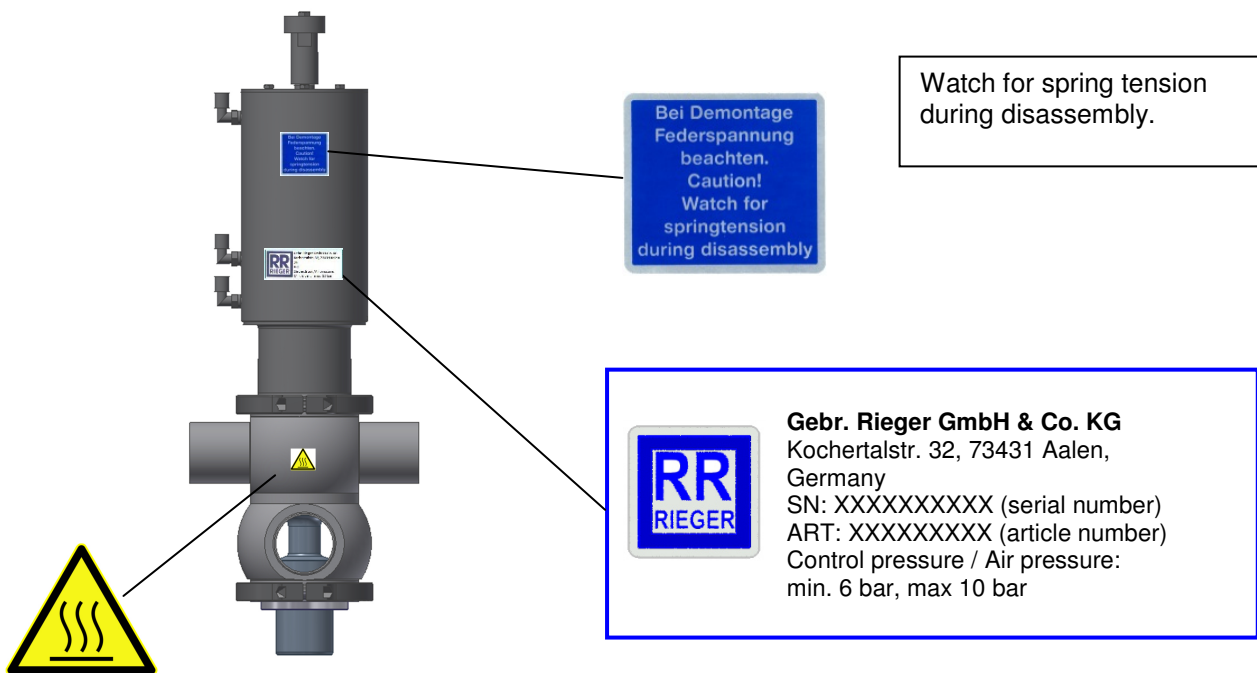
article number: 30100.1X00.XXXX.32
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<http://www.rr-rieger.de>
e-mail: info@rr-rieger

1.5. Identification of the valve

The valve can be identified using the designation.



The following information is provided on the valve:

- Rieger logo
 - Type designation
 - Material number
 - Serial number
 - Year of manufacture
 - Hot surface warning
- Type (as stated in the order)
76020.2880.15.0118.32 (example)
SN (specified at delivery)
2015



WARNING

Do not remove nameplates and warning labels from the valve.

1.5.1. Important information for inquiries regarding the mix proof valve

The information in these operating instructions applies only to the mix proof valve N1, the type and design of which are specified on the title page.

Housing variants ⇒ see page 19

In the event of an inquiry, it is important that you correctly specify:



NOTE

- the nominal diameter**
- the seal material**
- the housing material**
- the connection types (DIN 11851, DIN 11864, welding end, etc.)**
- drive accessory parts (feedback, etc.)**

2. Safety instructions

2.1. Duty of care of the operating company

The valve has been built according to the state of the art and generally accepted safety rules. The valve is therefore operationally safe, but the valve can pose dangers if it is not used by trained or at least knowledgeable personnel and/or is used improperly or not as intended.



WARNING

Each person who is tasked with the commissioning, operation, maintenance and repair of the valve at the operating company must read and follow the operating instructions, especially the safety instructions.



NOTE

Read the operating instructions before putting the valve into service.



NOTE

Illumination intensity:

The operating company must ensure adequate and uniform lighting in all areas of the plant. An illumination intensity of 300 lux is recommended (maintained value; in German, ASR 7/3 applies).



NOTE

According to the Ordinance on Industrial Safety and Health (*Betriebssicherheitsverordnung*), the operating company must provide safety training to its personnel at least once a year.

These dangers can be:

Danger of hot housing surfaces during production and cleaning.

Danger of scalding and chemical burns on body parts due to liquids escaping from the leakage outlet and the rinsing connections.

In general, spray-free drainage devices must be attached to the leakage outlet.

Danger of medium or cleaning fluid escaping due to leaks at the valve or its connection in the system. Therefore, visual inspections must always be performed. If leakage occurs while the valve is closed, completely renew the seal set in contact with the product.

Escaping liquids or gases can cause injuries when the drive is removed or the complete valve is removed from the plant.

Perform the disassembly only when you are absolutely certain that the plant has been depressurised and is free of liquids and gases.

Danger of crushing or severing of limbs.

Do not reach into the valve housing or into the closing head receptacle while pneumatic actuation is possible.

Never open the pneumatic drive during maintenance. The spring force in the drive poses a danger to life and limb. For maintenance work on the drive, always send the drive to Gebr. Rieger.

The user must not rely on the operating instructions alone. It is also necessary to find out in what manner the valve can be handled correctly and safely. Occupational safety regulations, regulations of the institution for statutory accident insurance and prevention and accident prevention regulations must be observed.

It must be emphasised that there are limits to the manufacturer's instructional responsibilities.

The operating company must inform itself first and foremost on how to operate the valve properly and safely.

**NOTE**

In the EEA (European Economic Area), the latest versions of the national implementation of Framework Directive 89/391/EEC and the associated individual directives, and of these especially Directive 2009/104/EC concerning the minimum safety and health requirements for the use of work equipment by workers at work, must be observed and complied with. In Germany, the Ordinance on Industrial Safety and Health (*Betriebssicherheitsverordnung*) from October 2002 must be observed.

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

Range of application exactly according to these operating instructions in the current version.

Observe the safety instructions and warnings in the operating instructions.

Use the valve according to the technical data provided in the data sheet.

The operating company must comply with the local legal provisions for:

- safety of personnel (accident prevention regulations)
- safety of the work equipment (protective equipment and maintenance)
- product disposal (Waste Act (*Abfallgesetz*))
- material disposal (Waste Act (*Abfallgesetz*))
- cleaning (cleaning agents and disposal)
- environmental protection requirements

2.2. General safety instructions

2.2.1. Operation and operating modes

The work described in these instructions under the chapter "Operation and operating modes" is described in such a way that it will be understood by **an instructed person or a specialist**.

2.2.1.1. Knowledgeable person

A person who has been instructed by a specialist about the tasks assigned to him or her and the possible dangers of improper behaviour, trained if necessary, and taught about the necessary protective devices and protective measures.

2.2.2. Transport, setup and assembly, maintenance, malfunctions/cause/remedy

The work described in these instructions under the chapter "Transport, setup and assembly, maintenance, malfunctions/cause/remedy" is described in such a way that it will be understood by a **specialist**. The housing connections have very sharp edges. Suitable safety gloves must always be worn while transporting and assembling the valve.

2.2.2.1. Specialist

A person with suitable training, education and experience that enable him or her to recognise risks and avoid hazards. The definition is based on EN 60204-1: 2006.



NOTE

According to the Ordinance on Industrial Safety and Health (*Betriebsicherheitsverordnung*), the operating company must provide safety training to its personnel at least once a year. All materials and sealing elements are matched to these operating parameters and to the media coming in contact with the valve. Risks that occur due to use not in accordance with the intended use or due to non-observance of the operating parameters must be borne solely by the operating company of the valve.

WARNING!

Unauthorised design changes to the valve affect the intended function and are prohibited.

The operating company must ensure that:

- The valve is used only as intended.
- The valve is operated only in a flawless, functional state and in particular the safety devices are regularly checked to ensure that they are functional.
- The valve is operated, maintained and repaired only by personnel who are qualified and authorised to do so.
- Before the valve is used, a check is undertaken to ensure that only the authorised 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 it is put into service, and it is ensured that the valve is operated only in a flawless state.
- Defects found are immediately reported to the supervisor.
- No safety instructions and warnings provided on the valve have been removed, and all are legible.
- A complete and legible copy of the operating instructions is always available at the installation location of the valve.
- The personnel are regularly instructed in all applicable matters of occupational safety and environmental protection, and are familiar with and comply with the operating instructions, especially the safety instructions contained therein.
- The personnel are trained and monitored regarding compliance with the safety measures, including the requirement to wear personal protective equipment.
- The valve is connected only to pipelines that are depressurised during the connection. The maximum pressure of the product line and the CIP line is 10 bar.
- All pneumatic connections are tight.
- There are no tensile or compressive stresses on the pipeline connections of the housings.
- The workplaces are continually evaluated for hazards, including regarding the temperature conditions of the medium and the installation location (falling). The measures must be specified in the working instructions and the personnel must be instructed accordingly (plant builder or operating company).
- There are no hazards in places where high pressures can arise. High pressures can lead to sudden failure or to damage of the lines and connections.
- Fire safety equipment such as suitable portable fire extinguishers is provided in the prescribed quantities and sizes at easily accessible locations, and the employees are instructed in fire safety.
- Warnings in the documentation for supplied assemblies are observed and are integrated into the risk assessments of the workplaces.
- The maximum torque is not exceeded when the clamping connection is installed.

Tightening torque of screws with clamp connections:

Threads of screws from A2 70 Friction coefficient μ 0.20 Total	M6	M8
Torque in Nm	9	21

2.3. Noise

The sound emission level of the device ≤ 70 dB(A)

2.4. Basic safety measures during normal operation



The valve must be operated only by persons who are trained and authorised to do so, are familiar with the operating instructions, and can follow the operating instructions.

Before the valve is used, please check and ensure that

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

2.5. Basic safety measures during maintenance and service



DANGER

During production and cleaning, there is danger from hot surfaces.



DANGER

**Maintenance may be performed on the valve only when the valve is in a cooled state.
First clean the valve before any maintenance.
All supply lines must be depressurised.**

During service and maintenance, make sure that

- All maintenance and service work is performed only while the valve is in a cooled state.
- The valve is cleaned before maintenance is performed.
- Only genuine spare parts are used.
- The parameters listed in the chapter "Technical data", such as pressure, temperature and type of application, are adhered to at all times.
- The inspection and maintenance intervals specified in the operating instructions are adhered to.
- Before maintenance or repair work is performed, access to the working area of the valve is blocked for unauthorised persons.
- Only suitable tools are used when replacing parts with genuine spare parts (e.g. assembly 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.
- Environmentally hazardous cleaning agents are disposed of properly.
- The operating, maintenance and service personnel are thoroughly familiar with all safety instructions and warnings, and these safety instructions and warnings are followed.
- The required protective equipment for operating, maintenance and repair personnel are available and worn.

2.6. Follow environmental protection regulations



RECYCLING

During all work on and with the valve, the legal requirements for waste prevention and proper recycling or disposal are met.

In particular during installation, repair and maintenance work, substances hazardous to water such as

- cleaning fluids containing solvent must not contaminate the floor or enter the sewer 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



Wear protective clothing

**Wear safety glasses.
Wear protective clothing.
Wear safety shoes.**

2.7.2. Safety impairment of the valve

The safety of the valve/device can be impaired if

- The valve is converted or modified.
- Auxiliary devices other than those provided or approved by the manufacturer are used on the valve.
- Spare parts other than those provided by the manufacturer are used.
- Maintenance intervals prescribed or specified in the operating instructions are not adhered to.

The following is prohibited:



WARNING

**Wearing loose hair and jewellery, including rings.
Changing or disabling safety devices such as the leakage valve.
Painting over or removing signs, symbols, etc.
Operation of the valve by persons who are unauthorised or not knowledgeable.
Operation of the valve with damaged components, e.g. seal damage indicated by leakage indication.**

2.8. Important information about safety

In these operating instructions, special symbols are used to indicate passages that are important to safety and accident prevention. The symbols have the following meanings:

- Warning of injuries


DANGER

Warns of imminent danger.

Consequences of disregard: death or serious injuries


WARNING

Warns of a possible, very dangerous situation.

Possible consequences of disregard: death or serious injuries


CAUTION

Warns of a possible, dangerous situation.

Possible consequences of disregard: slight or minor injuries

- Other notices


NOTE

Indicates a general useful tip.


RECYCLING

This symbol indicates the information and measures for disposing of the device.

2.9. Safety equipment

The valve has the following safety devices (product safety).

2.9.1. Leakage chamber

The valve has a leakage chamber between the valve discs.

The leakage chamber is open when the main valve is closed. This ensures immediate leakage indication when one of the two O-rings on the lower or upper valve disc is damaged (medium escapes at the lower valve disc - visual). However, there is no mixing of incompatible fluids due to the second seal (on the lower or upper valve disc). If leakage is indicated, immediately renew the two O-rings on the valve discs.

The mix proof valve is classified as low-leakage, because the valve always has slight leakage during normal standard operation due to its design (see the chapter "Function").

3. Machine description

3.1.1. Intended use

RIEGER mix proof valves type N1.001 are used for the mix-proof isolation of two lines of the plant's pipeline system. The valve has been developed, designed and built only for commercial and industrial operation. The leakage outlet is arranged in such a way that this valve is suitable for vertical, upright installation. Aggressive, neutral and liquid media that do not negatively affect the physical and chemical properties of the particular housing and seal materials are suitable as flow-through media (fluid group 1). The mix proof valve is actuated by a pneumatic drive with an integrated restoring spring that closes the valve when pressure is removed (control air). Misuse, such as use in an explosive atmosphere or with explosive media, must be excluded. The valve opens downward with control air and closes upward with spring force. In the closed position, with different media flowing through the upper and lower valve housing chambers, these chambers are isolated in a leak-proof manner by two independently closed valve discs. Leakage occurring due to damaged valve disc seals is discharged from the valve through the interior valve disc chamber in a depressurised manner. L1 is depressurised when the valve is closed, so the valve always closes when there is a power failure. If the valve seat in the upper pipeline is pulsed (L2), this valve seat can be cleaned with the upper pipeline. The cleaning agent is discharged from the valve through the lower valve disc. If the valve seat in the lower pipeline is pulsed (L3), this valve seat can be cleaned with the lower pipeline. The cleaning agent is discharged from the valve through the lower valve disc. The operating company must provide for the conducting of the cleaning medium. We recommend a collecting pan with spray protection provided by the operating company.

3.1.2. Use not in accordance with the intended use

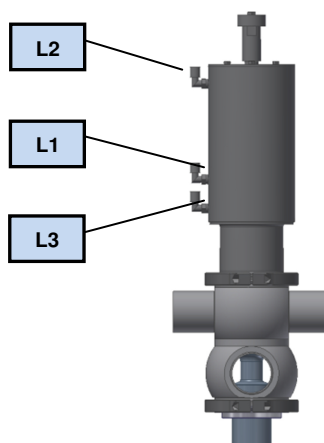


WARNING

Improper use of the valve can cause serious injuries.

Damage caused by use not in accordance with the intended use or misuse does not fall under the warranty obligations. The user/operating company alone bears the risk.

3.2. Air connections at the valve



When air is applied:

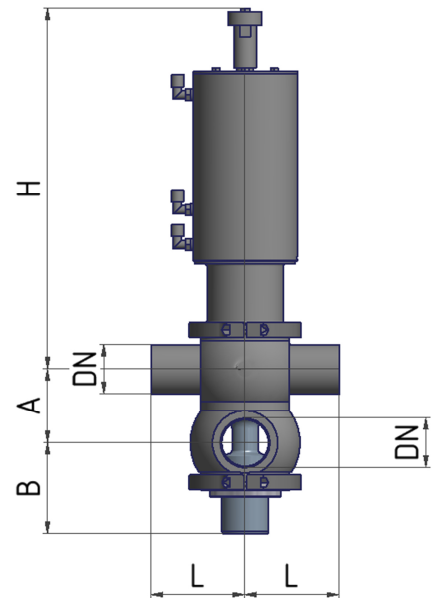
L1 = valve opens

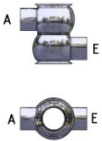
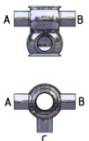
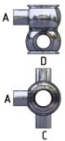
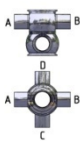

L2 = valve seat is rinsed with the lower pipeline

L3 = valve seat is rinsed with the upper pipeline

3.3. Technical data of the valve

- Year of manufacture: 2014
- Dimensions: see table



N1.01	N1.02	N1.03	N1.04	N1.05	Others upon request	
1(A-E)	2(A-B-C)	3(A-C-D)	4(A-B-C-D)	5(A-C)		
						
DIN	Pipe	A	B	L	H	kg
25	29 x 1.5	75	74	70	335	12
40	41 x 1.5	76	87	100	379	16
50	53 x 1.5	79	97	100	385	18
65	70 x 2	95	109	100	397	19
80	85 x 2	110	124	125	426	29
100	104 x 2	129	133	150	436	33
125	129 x 2	157	156	175	552	54
150	154 x 2	182	175	175	552	65
200	204 x 2	Upon request				

Inch	Pipe	A	B	L	H	kg
1"	25.4 x 1.65	79	73	70	350	12
1 1/2"	38.1 x 1.65	79.5	79	70	430	16
2"	50.8 x 1.65	81.5	97	100	435	18
2 1/2"	63.5 x 1.65	100	100	100	435	19
3"	76.2 x 1.65	118	130	125	465	29
4"	101.6 x 2.11	129	138	150	480	33
6"	Upon request					

3.3.1. Technical data for stainless steels

- Parts in contact with product: 1.4404 (AISI 316L)
- Optional: 1.4435 (AISI 316L)
- Parts not in contact with product: 1.4301 (AISI 304)

3.3.2. Technical data for seal materials

- In contact with product: EPDM
- Not in contact with product: NBR

3.3.3. Technical data for line pressure

- Product pressure in lines: Max. 10 bar
- **WARNING!**
- If the pressure in the line is higher, a pressure reducer must be placed between the line and the valve.

3.3.4. Technical data for product temperature depending on seal material

- Continuous operating temperature: 130 °C (EPDM)
- Sterilisation temperature: 150 °C briefly (EPDM)
- Ambient temperature: Max. 60 °C

3.3.5. Technical data for surfaces

- Surfaces in contact with product: Ra ≤ 0.8 µm
- Optional: Electropolished
- Surfaces not in contact with product: Brightly polished Ra ≤ 1.6 µm

3.3.6. Technical data for pneumatic connection

To avoid air leaks, use only pneumatic connecting parts sealed by means of an O-ring against the flat surface.

Screw-in fitting: G 1/8", air hose PE Ø 6/4

Operating pressure:

Closing pressure against medium: Max. 10 bar

Control air:

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

Solid content in the control air: Max. particle size 5 µm
Max. particle density 5 mg/m³ (quality class 3)
Water content at +2 °C (technically dry/quality class 3)
Max. oil content 25 mg/m³ (oil-free/quality class 3)

3.3.7 Valve functions

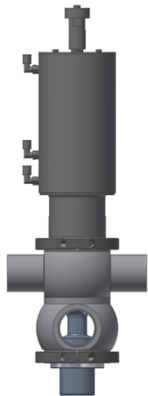
Valve position "CLOSED" ⇒ spring force closed

Closing force against product maximum 10 bar

Valve position "OPEN" ⇒ control compressed air min. 6 bar at connection L1 (max. 10 bar)

The range of application of the valve must always be matched to the corresponding operating conditions and the materials in contact with product. This must be defined by the operating company and agreed upon with the manufacturer.

3.3.8. Valve connection piping



Installation position of the housing: Vertically upright
 Pipe branches horizontally
 Leakage outlet pointing downward

Take into account the drainage of the valve and the pipeline. Valve connection: welding end

Follow the weld-in guidelines for the housing.

**WARNING****WARNING - Clean the valve before putting it into service.****Check the following before putting the valve into service:**

- Are all fittings securely tightened and sealed?
- Are all piping and all hose connections fixed?
- Are the piping and fittings used approved for the intended pressure range?
- Are electrical installations adequately protected against possible spray water?
- Is the maximum pressure specified on the nameplate adhered to?

**WARNING****Before cleaning, maintenance or repair work is performed (only by qualified personnel), the following switch-off procedure must always be followed.**

Disconnect the electrical supply to the higher-level plant/machine/device and secure it to prevent it from being switched back on.

Shut off the pneumatic system.

Close the shut-off valve.

Check that the plant is depressurised.

Secure the shut-off valve so that it cannot be reopened.

Cut off the media supply, relieve the pressure in the pipelines and then drain, if necessary clean or rinse (use special caution with hazardous substances).

Check that the supply of media is securely prevented. Insert blinds if necessary.

For medium temperatures above 80 °C, a cool-down phase must be adhered to.

Disregarding this results in dangers to life and limb of the personnel.

3.3.9. General data

- Lower limit temperature of ambient temperature range: +5 °C
- Upper limit temperature of ambient temperature range: +60 °C

3.4. Service life

The service life of the valve is approx. 10 years when drinking water is used. With aggressive products and high temperatures, the service life is reduced accordingly (except for spare parts in contact with product).

4. Technical description

Advantages:

- Resistant to hydraulic shock up to 30 bar
- Vacuum resistant *
- Balanced valve discs
- Pressure drop: 0 – 0.05 bar
- Low amount of control air required
- Low amount of water required, e.g. cleaning Kv value of 1.4 m³/h for DN 65
- Lifting of both discs – easy cleaning
- Only 4 seals in the product space

* When there is vacuum in the lower line, damping is performed by means of a spring in the drive cylinder. Because of the radial seal in the valve disc, there is no impact between the valve disc and the housing. A shock damping cylinder is not necessary.

RIEGER hygienic mix proof valves offer reliable protection for your product by isolating incompatible products in a leak-proof manner.

The valve opens upward with control air (L1) and closes downward with spring force without product loss. In the closed position, the upper and lower valve housing chambers are isolated in a leak-proof manner by two independently closed valve discs. Incompatible media are thereby reliably isolated.

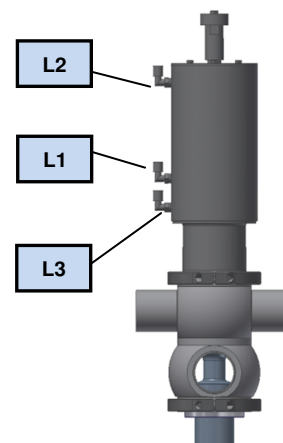
Leakage occurring due to damaged valve disc seals is discharged from the valve through the leakage outlet of the lower valve disc in a depressurised manner. To clean the valve seats, both valve discs (L2 and L3) can be pulsed independently of each other and rinsed with the respective pipeline.

The valves have proven themselves over years of use in plants of the beverage and brewery industries and the food and dairy industries.

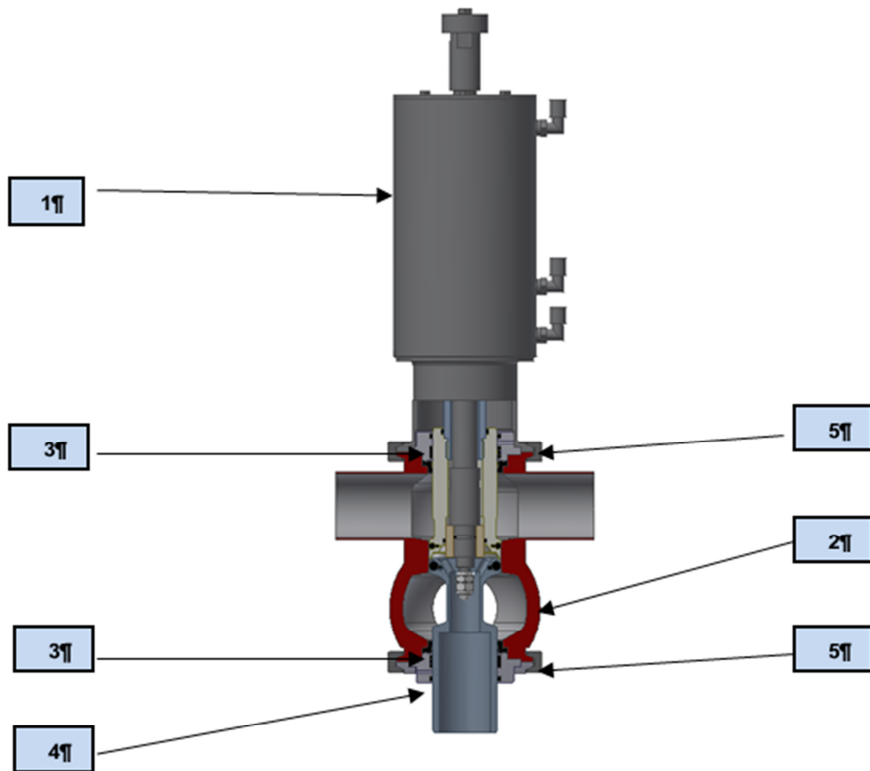
L1 = valve opens

L2 = valve seat is rinsed with the lower pipeline

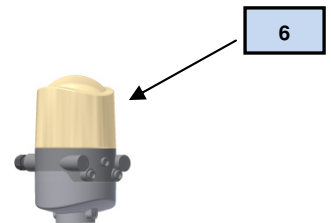
L3 = valve seat is rinsed with the upper pipeline



The valve consists of the following components:

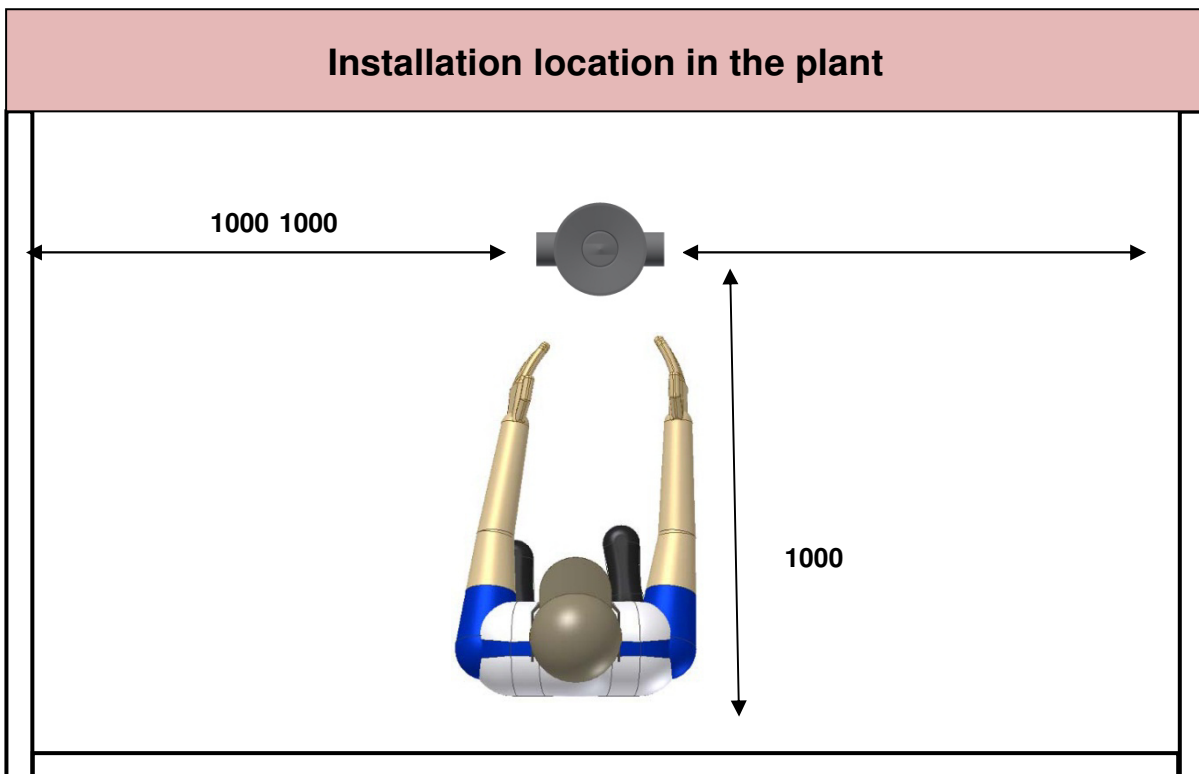


- 1** = pneumatic drive
- 2** = housing, according to the type (see page 19)
- 3** = valve disc guide
- 4** = housing cover
- 5** = complete clamping connection
- 6** = control head (optional)



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

Before the valve can be used, the working area must be freely accessible for the operator. The operating company must ensure that no other person can access the working area during installation (maintenance).
 If there is a risk of falling at the installation location, the operator must be secured. The operating company of the plant is responsible for securing the operator.
 Adequate lighting must be provided.



6. Transport

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

The manufacturer transports and delivers the valve in partially assembled form. The end customer performs the final assembly.

The drives must be removed from the valve housing before it is welded in (see "Removing the drives").

Weld the housing in without deformation (see installation guidelines).

Reinstall the drives (see assembly instructions).

Functional test and leak test

WARNING!

The final assembly of the valve must be performed only by qualified and authorised persons.



NOTE

The weight of the valve is (see table on page 19)

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

Products from Gebr. Rieger GmbH & Co. KG are carefully inspected and packed before shipment. However, damage may occur during transport.

6.2. Delivery (also for spare and replacement parts)

Incoming goods inspection:

- Check that the delivery is complete using the delivery note.

If there is damage

-Check the delivery for damage (visual inspection).

If there are complaints

If the delivery has been damaged during transport:

⇒ Immediately contact the last carrier.

⇒ Save the packaging

(For possible examination by the carrier and for the return shipment.)



NOTE

If there is transport damage, please contact Gebr. Rieger.

Packaging for the return shipment

If you need to return the valve, pack the valve parts in such a way that they will not be damaged during proper transport.

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

6.3. Temporary storage

The freight packaging of the device and the spare and replacement parts is designed for a storage duration of 3 months upon delivery.

6.4. Storage conditions

Closed and dry room with a room temperature of +10 °C to +25 °C.
 The relative humidity must not exceed 60%.
 Seals must be stored in such a way that they are protected from ozone and light.

6.5. Functional test



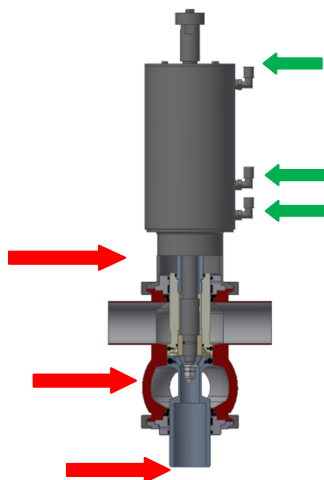
NOTE

Before the first product run, a system cleaning must be performed.



The stroke motion can be checked by means of the visibly jerk-free opening and closing motion of the valve spindle.

6.6. Leak test before taking the valve into operation, after every maintenance, and during ongoing operation



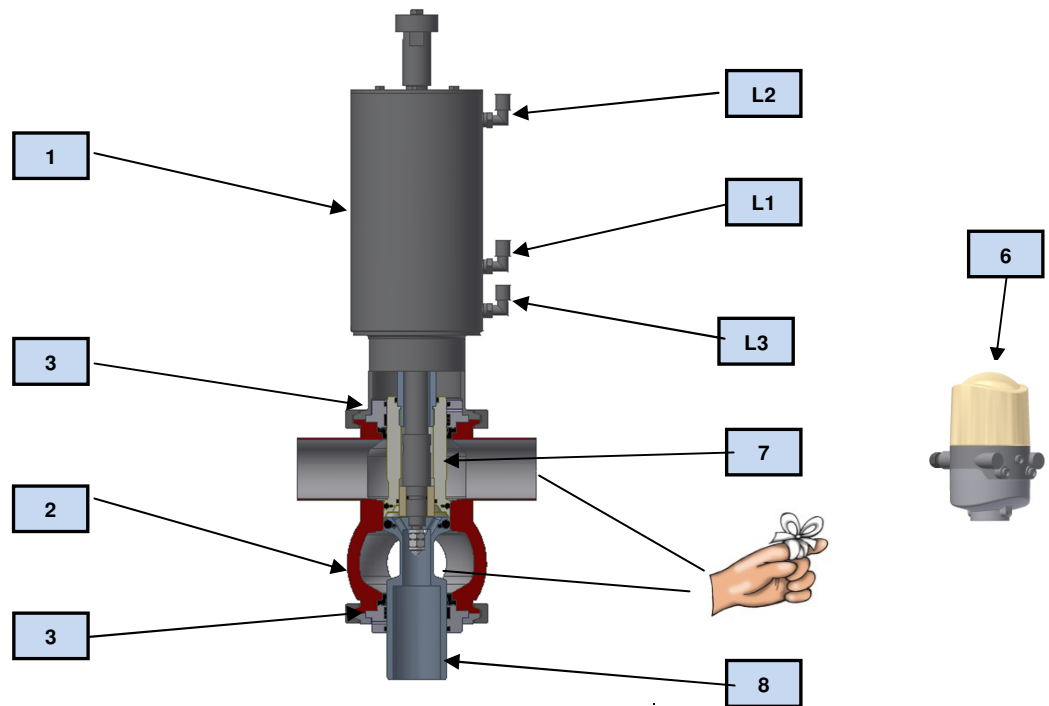
- Perform a visual inspection to ensure that seals are free of leaks.
- Defective seals must be renewed.
- Check the housing for damage.
- Check the drive for damage.
- Are all fittings securely tightened and sealed?
- Are all pneumatic hose connections tight?
- Are the piping and fittings used approved for the intended pressure range?
- Are electrical installations adequately protected against possible spray water?
- Is the maximum pressure specified on the nameplate adhered to?



DANGER

- **Never reach into any valve openings DANGER OF ACCIDENT**
Limbs can be crushed or severed.

7. Construction and function



Component structure of the valve:

- 1** = complete pneumatic drive
- 2** = housing
- 3** = guide
- 4** = housing cover
- 5** = complete clamping connection
- 6** = control head or proximity switches (optional)
- 7** = upper valve disc
- 8** = lower valve disc
- L1** = air connection (valve position "OPEN")
- L2** = air connection (valve position "lower cleaning pulse")
- L3** = air connection (valve position "upper cleaning pulse")

7.1. Instructions for installing the valve in a pipeline

For the welding work, all installation parts must be removed from the valve housing.
Before the housing is welded into the pipeline system, the pneumatic drive and the lower guide must be removed as follows:

Fig. 7.1.1

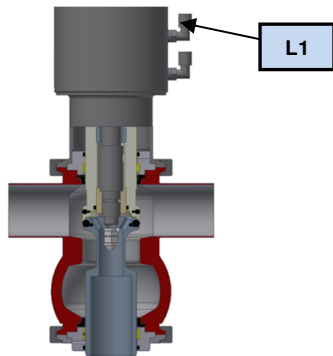


Fig. 7.1.2

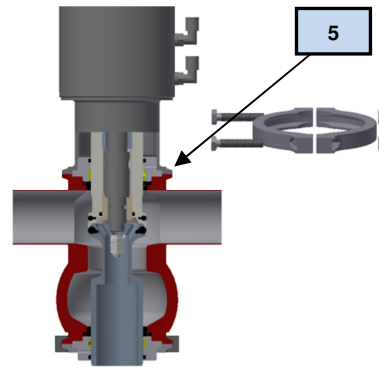


Fig. 7.1.3

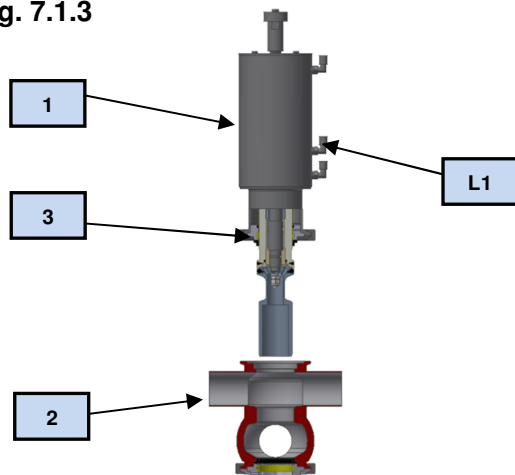
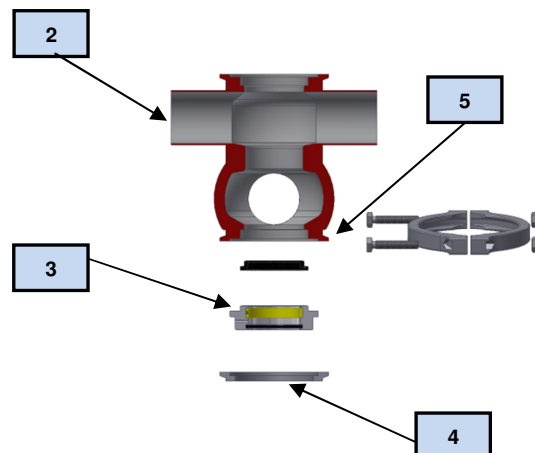


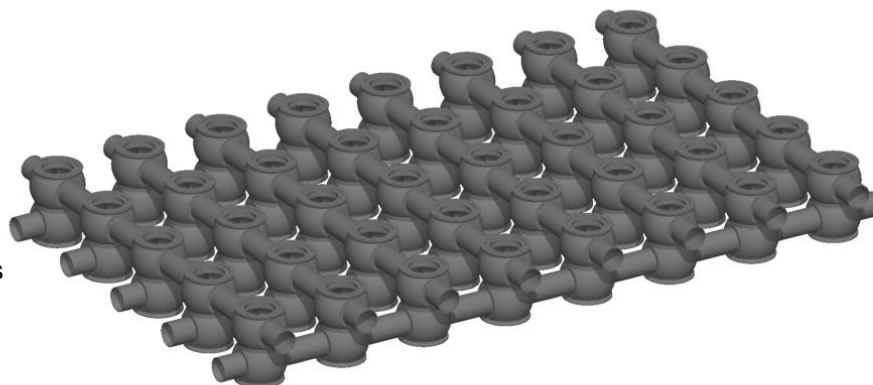
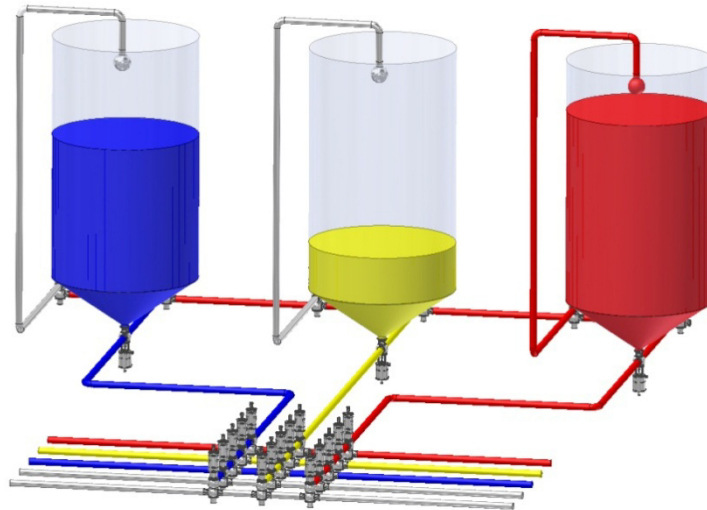
Fig. 7.1.4



1. Connect air connection L1 to an external air supply. The valve position is then "Open". The drive, no. 1, can be removed from the valve housing more easily (Fig. 7.1.1).
2. Loosen the screws of the upper clamping connection, no. 5, (Fig. 7.1.2) and remove the clamping connection.
4. Pull out the entire assembly of the pneumatic drive and valve discs in the axial direction (Fig. 7.1.3).
5. Close compressed air connection L1. Warning: The drive moves outward.
6. Remove compressed air hose L1 from the drive.
7. Loosen the screws of the lower clamping connection, no. 5, (Fig. 7.1.2) and remove the clamping connection (Fig. 7.1.4).
8. Remove the housing cover, no. 4, and pull the guide, no. 3, with seals out of the housing.
9. Place all parts on a clean, fuzz-free surface.
10. Now, the one-piece housing, no. 2, can be welded into the line system.

**NOTE**

The housing is installed according to the design of the pipeline system and the technical data of the connection variants.
Before starting the installation, determine and define the connection axes.
The installation dimensions are found in dimensional drawings.
Provide space for operation as well as service.
There must be no tensile or compressive stresses on the housing.
Ensure that the flange connections and pipe connections are tight.
Warning: Pipe ends of the housing have very sharp edges. Safety gloves must be worn.



Installation examples

7.1.2. Weld-in guidelines for the valve housing

To avoid damage, welding work should be performed by tested personnel (EN287).

Scope of application:

Welded connections of weld-in valves to pipes according to DIN 11850 series 1, 2, 3

Welding method

TIG (tungsten inert gas welding)

Weld type

Weld preparation according to DIN 2559 (square joint shape / for square butt welds)
Welds according to EN 25817 assessment group B (high)

Weld preparation

Saw off the pipe ends flatly and at a right angle and deburr them (pipe sawing tool 70037). Adjust the housing welding end radially and axially so that it lies flatly against the pipeline (centring device).

Welding

Before the welding, always close the housing, because otherwise the housing can warp.
Flush the housing with inert gas from the inside in order to purge oxygen from the system.
Tack at 3 to 4 tacking points.
Use a TIG welding method with pulsing (manual or orbital automatic welding)



NOTE

There must be no gap at the flatly lying welding ends, because an outflow of the inert gas impairs the corrosion resistance of the weld joint.

- Welding filler metals

Material association

Material of parts to be welded	Suitable welding filler metal		
	1.4430	1.4440	1.4519
1.4404	X		
1.4435	X	X	X
1.4571	X	X	

Weld treatment

Interior
Weld finishing is not required. Improvement of the surface quality by grinding (accessible locations).
Exterior
Finishing method: pickling, brushing, grinding, polishing

Cleaning

Before the assembly, perform a thorough cleaning. Do not introduce any foreign bodies into the pipeline.

7.2. Removing the drive for cleaning and maintenance work

Before cleaning, maintenance or repair work is performed (only by qualified personnel), the following switch-off procedure must always be followed.

Disregarding this results in dangers to life and limb of the personnel.

Disconnect the electrical supply to the higher-level plant/machine/device and secure it to prevent it from being switched back on.

Shut off the pneumatic system.

Close the shut-off valve.

Check that the plant is depressurised.

Secure the shut-off valve so that it cannot be reopened.

Cut off the media supply, relieve the pressure in the pipelines and then drain, if necessary clean or rinse (use special caution with hazardous substances).

Check that the supply of media is securely prevented. Insert blinds if necessary.

For medium temperatures above 80 °C, a cool-down phase must be adhered to.

Fig. 7.1.1

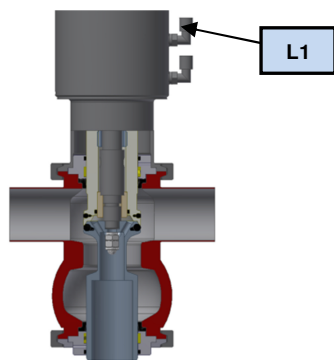


Fig. 7.1.2

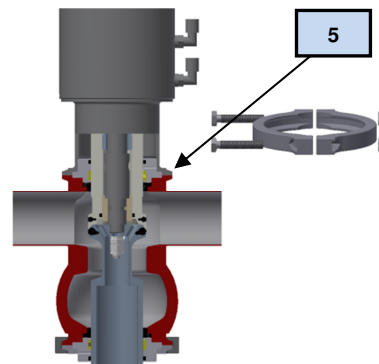


Fig. 7.1.3

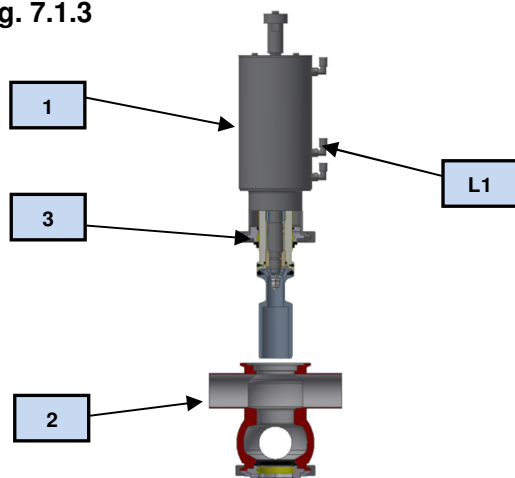
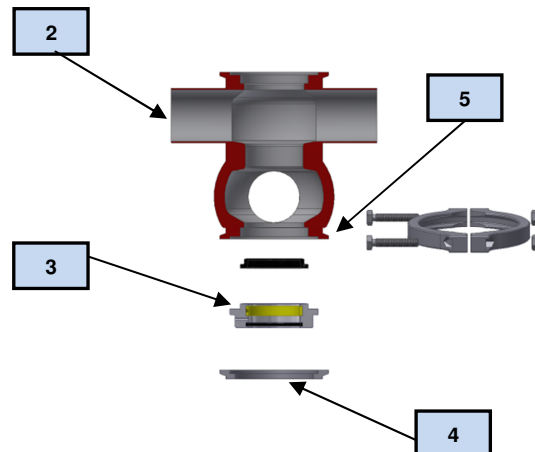


Fig. 7.1.4



1. Connect air connection L1 to an external air supply. The valve position is then "Open". The drive can be removed from the valve housing more easily (Fig. 7.1.1).
2. Loosen the screws of the upper clamping connection, no. 5, (Fig. 7.1.2) and remove the clamping connection.
4. Pull out the entire assembly of the pneumatic drive and valve discs in the axial direction (Fig. 7.1.3).
5. Close compressed air connection L1. Warning: The drive moves outward. Remove compressed air hose L1 from the drive.
6. Loosen the screws of the lower clamping connection, no. 5, (Fig. 7.1.2) and remove the clamping connection (Fig. 7.1.4).
7. Remove the housing cover and pull the guide with seals out of the housing.
8. Place all parts on a clean, fuzz-free surface.



DANGER

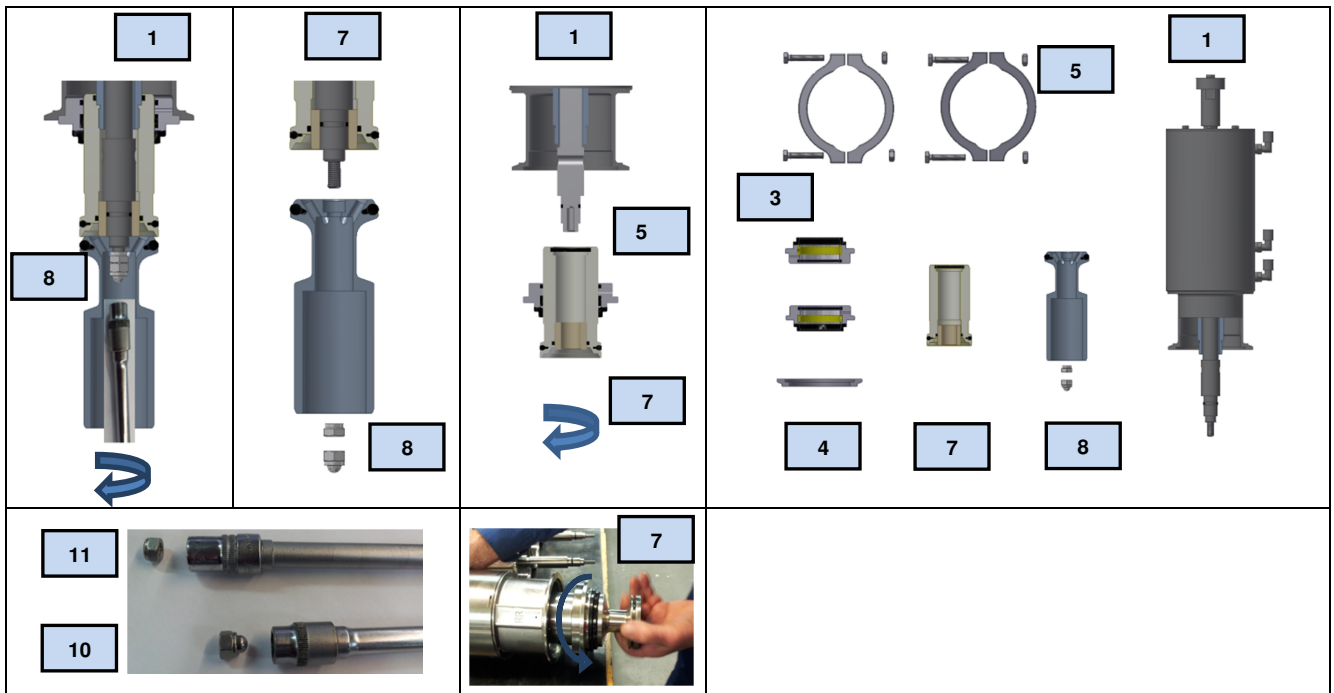
Never reach into any valve openings DANGER OF ACCIDENT

Limbs can be crushed or severed.

Never open the pneumatic drive yourself DANGER OF ACCIDENT

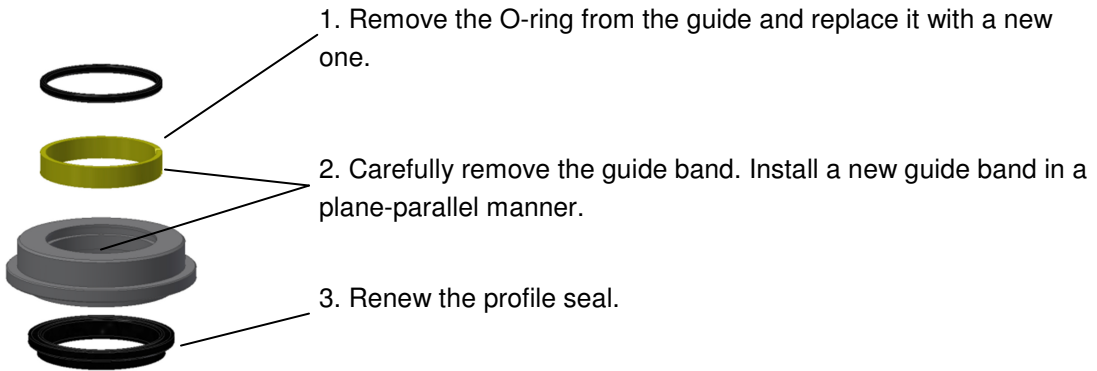
7.2.1. Removing the valve disc for maintenance work

- Check all visible seals for damage (renew them if necessary).
- In the housing interior, thoroughly clean the drive receptacle and the parts in contact with product.
We recommend the Rieger assembly socket wrench, no. 10, for removing the lower valve disc
DN25-DN100 13 mm, art. no.: 556697
(not included in the scope of supply).
- Unscrew the cap nut of the lower valve disc from the spindle using the assembly socket wrench, no. 10 (13 mm, short design).
- Unscrew the counter nut using a standard socket wrench, no. 11, 13 mm.
- Pull the lower valve disc off of the spindle.
- Unscrew the upper valve disc with the guide, no. 3, by hand (left-hand thread).
- Pull the guide off the upper valve disc.
- Avoid damage to the valve discs.
- Check running surfaces and mating surfaces for damage and smooth them if necessary.
- Place all parts on a soft, fuzz-free surface.



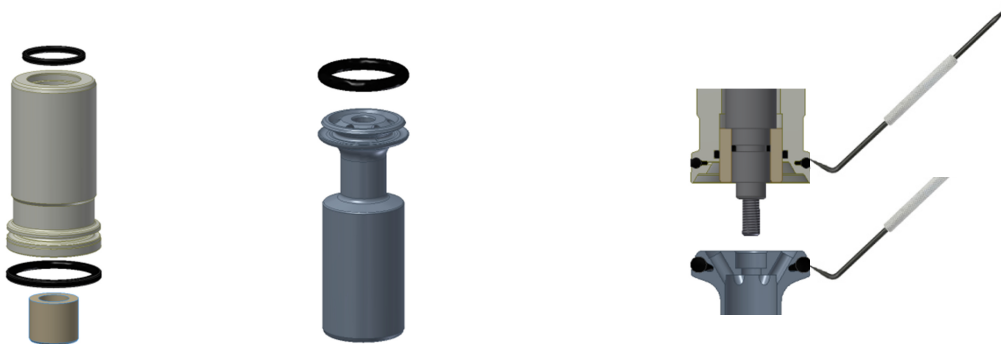
7.2.2.. Removing spare parts on the valve disc

Guide:



The following must be observed when removing the O-rings on the valve disc:

Hold the valve disc in a clamping device using soft jaws.

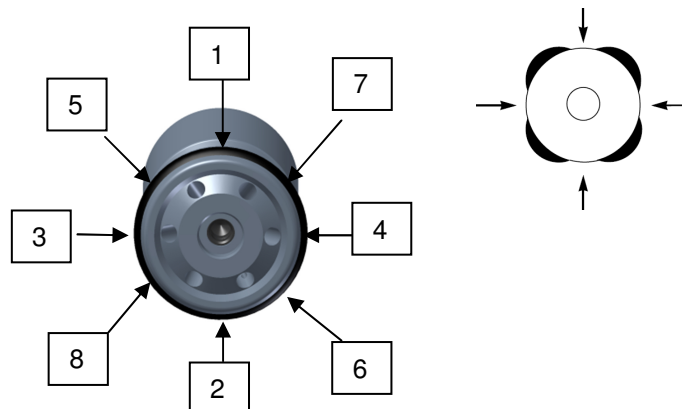


Carefully remove O-rings from their groove using a scribe. Avoid damage to the valve disc and to the groove edges (wear gloves – risk of injury from scribe).

Pull the guide bushing out of the upper spindle part.

7.2.3. Installing new spare parts:

Push the O-ring into the groove in the sequence 1-2, 3-4, etc.
 Slip the O-ring into the groove in sections, 1-6, 5-2.
 For installation, use round bodies made of plastic or wood.
 Avoid twisting of the O-ring and damage to the O-ring.
 Use this sequence also for bore grooves.
 Do not reuse used seals.
 Use only genuine spare parts from Rieger.



**NOTE**

The chapter "Maintenance/cleaning" is intended only for specialists. Maintenance, cleaning and repair work must be performed only by qualified personnel. The manufacturer assumes no liability for damage arising due to improper or outside influence. If questions or uncertainties arise during maintenance, contact us before putting the valve into service.

7.3. Grease plan

Seal material	Grease type
EPDM, FPM (Viton), HNBR	Paraliq GTE 703
VMQ (silicone)	Barierta

Running surfaces: Geralin P1

The sealing elements can be attacked if a different grease is used.

Do not use mineral or animal greases. Also check all visible seals for damage and renew them if necessary.

Thoroughly clean the housing interior, the drive receptacle and the parts of the valve disc in contact with product.

To avoid damage to the O-rings, they should be handled properly.

We recommend renewing the O-rings and plain bearings at each maintenance cycle.

To make the installation easier and to avoid damage, apply grease to the guides and sealing elements.

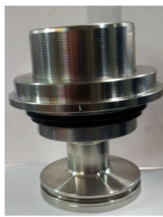
Grease types: ⇒ Paraliq GTE 703 (sealing elements) ⇒ Geralin P1 (running surfaces)

If a different grease is used, the sealing elements could be attacked.

Do not use mineral or animal greases. Secure threaded connections with adhesive (follow the adhesive specifications). Used seals must not be reused.

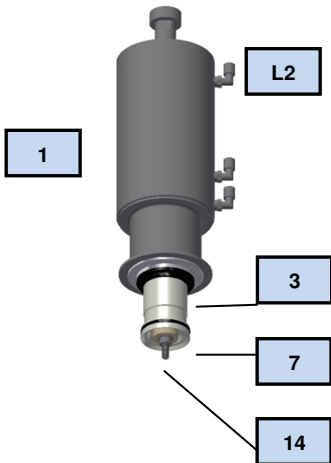
Otherwise, the sealing function is no longer ensured.

7.4. Installing the valve disc

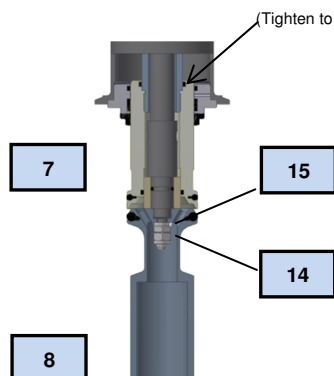


7
3

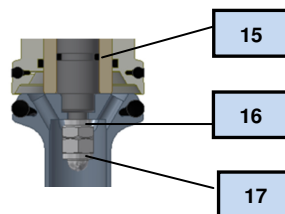
- Renew all seals.
- Do not reuse used seals.
- Avoid excessive stretching during installation. Match the excessive stressing required for assembly to the geometry of the carrying body.
- Slide the upper guide with seals and guide band onto the upper valve disc.



- Renew the O-ring, no. 15, on the spindle.
- Control air open at air connection L2. **WARNING:** ⇒ Spindle extends.
- Screw the valve disc onto the drive spindle by hand.
- When the stop is reached, tighten again firmly to ensure that the stop is reached.
- Insert guide bushing, no. 14.
- Close air connection L2. **WARNING:** ⇒ Spindle retracts.



- **Grease the guides and sealing elements.**
- **Push the lower valve disc onto the spindle.**
- **Screw on the lock nut, no. 16, with a standard socket wrench (13 mm).**
- **Screw on the cap nut, no. 17, with Rieger assembly wrench (short) and lock it.**



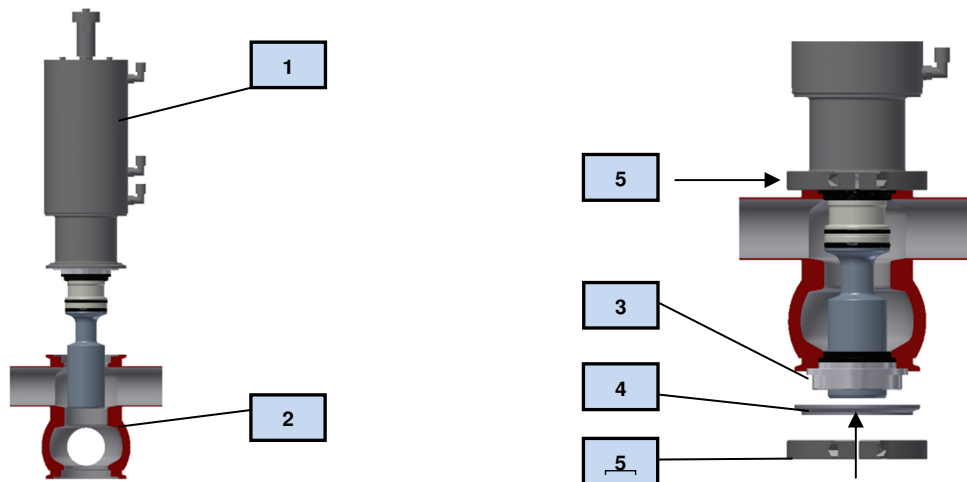
- **Check the switching functions by applying control air to L1, L2 and L3 in succession.**
- **Make sure the stroke motions are smooth.**



DANGER

The drive unit is only allowed to be opened and maintained at Gebr. Rieger.
WARNING: spring force
Opening the drive unit poses a danger to life and limb

7.6. Assembling the maintained valve



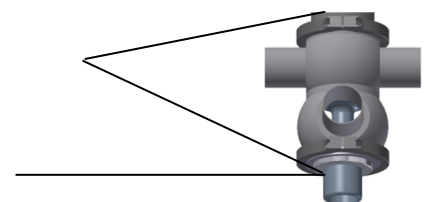
1 = pneumatic drive **2** = housing, according to the type **3** = guide of the valve discs

4 = housing cover **5** = complete clamping connection

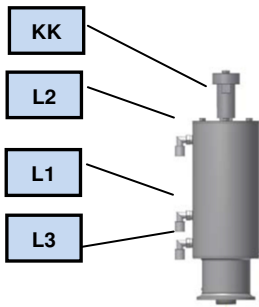
- Perform the assembly of the mix proof valve in the reverse order of the disassembly.
- Thoroughly clean the housing interior, the drive receptacle and the parts of the valve disc in contact with product.
- Insert the drive unit into the valve housing in a centred manner. **WARNING:** Do not damage any guides, valve seats, or O-rings.
- Turn the drive according to the desired connection direction of the air connections (can be rotated 360°).
- Attach the upper clamping connection, no. 5, again and tighten it carefully.
- To make the assembly easier and to avoid damage, apply grease to the guide, no. 3.
- Insert the lower guide with seals and guide band into the housing.
- Push the housing cover on.
- Attach the lower clamping connection, no. 5, again and tighten it carefully.
- Make sure there is form closure at the clamping connection, no. 5.

Then check the following:

- Are all fittings securely tightened and sealed?
- Are all pneumatic hose connections tight?
- Are the piping and fittings used approved for the intended pressure range?
- Are electrical installations adequately protected against possible spray water?
- Is the maximum pressure specified on the nameplate adhered to?
- Open each air connection individually and check the drive for smooth movements.
- Check the sealing elements on the spindle feed-through for leak tightness.
- Check the valve disc seals at the leakage outlet on the lower valve disc.

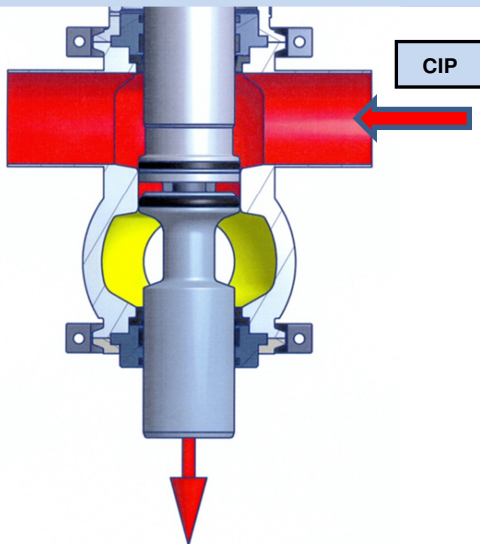


8. Device description and operation

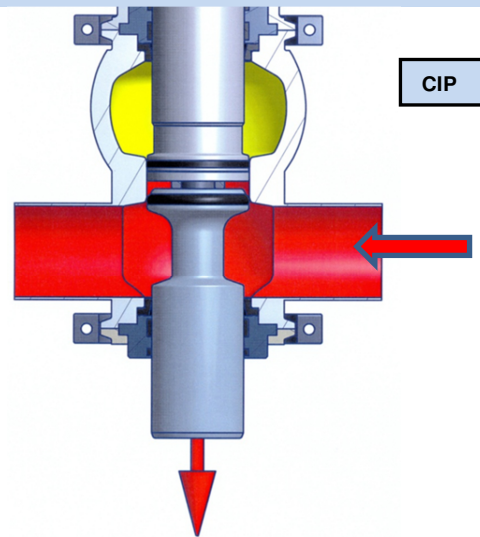


- Absolute product protection
- Service-friendly (seals can be changed without tools)
- Resistant to hydraulic shock up to 30 bar (gauge)
- Only 4 seals in the product space
- Can be switched without loss
- Can be pulsed and adjusted
- Vacuum resistant, because drive is blocked
- No preloading of valve discs
- Low air requirement

Cleaning of upper valve disc, valve seat and leakage chamber
Pulsing stroke of the valve disc = 6 mm

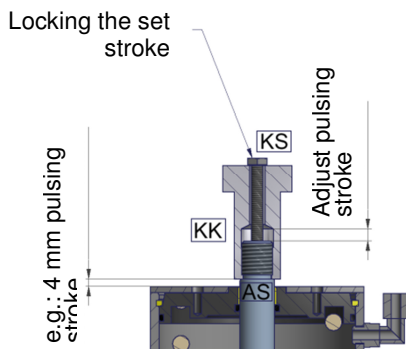


Cleaning of lower valve disc, valve seat and leakage chamber
Pulsing stroke of the valve disc = ~7.5 mm (adjustable - see below)



L3 – compressed air connection for pulsing the upper valve disc

L2 – compressed air connection for pulsing the lower valve disc



The pulsing stroke of the lower valve disc can be adjusted by means of the contact button (KK).

To do so, loosen the lock screw (KS).
Adjust the pulsing stroke by turning the contact button (KK) on the drive spindle (AS).
The following applies:
gap between contact button (KK) and drive cover = pulsing stroke
After successfully adjusting the pulsing stroke, lock the contact button again with the screw (KS).
The factory setting is 7.5 mm.

Cleaning parameters:

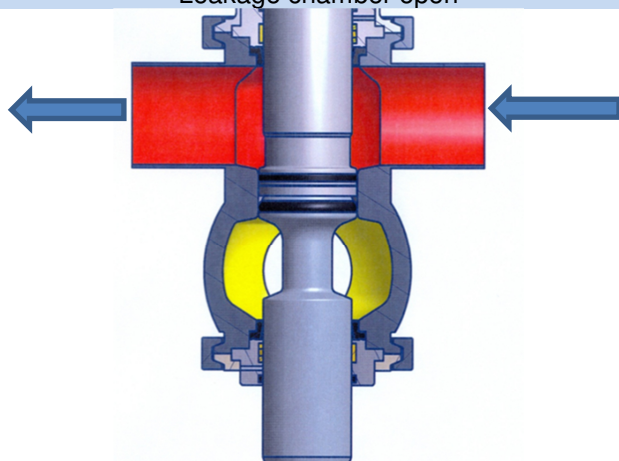
outlet amount = 1-1.5 l/pulsing time
Flow velocity = 2-3 m/s

Cleaning phase pulsing interval/pulsing time:

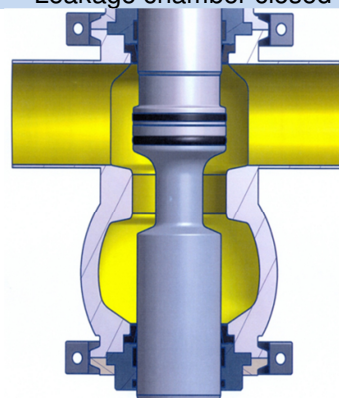
1-2 min/2-4 s

The recommended cleaning parameters are intended as guide values. The operating company must determine the cleaning parameters actually required for the particular product.

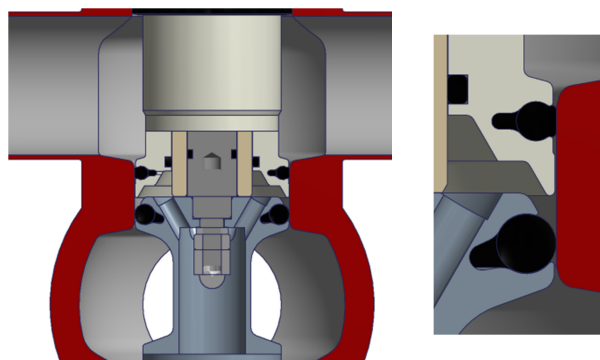
Valve position "closed"
Leakage chamber open



Valve position "open"
Leakage chamber closed

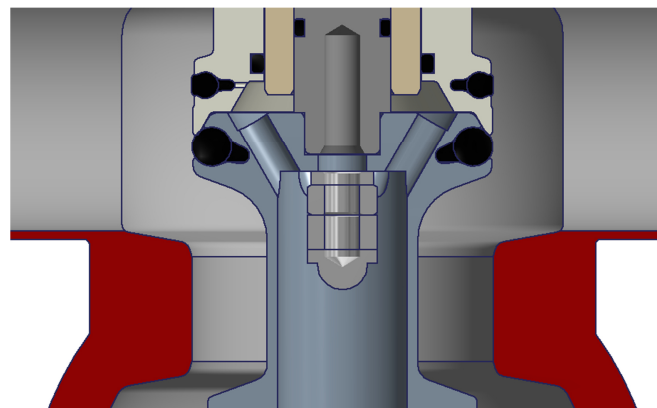


Valve closed by spring force



When the valve is closed, the leakage chamber is open. This ensures that, if one of the two O-rings is defective, the leakage is discharged through the downward opening of the lower valve disc in a depressurised manner. The leakage is thus immediately apparent during the ongoing visual inspection of the plant.

L1 - compressed air connection for opening the valve



Before the valve opens, the leakage chamber closes. Only then does the valve open into the upper valve housing.

**NOTE**

The switch-off procedures must be performed before any maintenance or repair work. If the specified measures are not successful, please contact a specialist company or the manufacturer.

9. Maintenance and service intervals

To enable flawless operation of the mix proof valve, the valve must be cleaned and maintained at regular intervals.

During operation, the mix proof valve is subject to vibration that can loosen screw connections and clamping connections. To prevent damage, check the mix proof valve for loose connections at regular intervals (recommended interval for single-shift operation is 3 months).

Maintenance intervals appropriate in practice can be determined only by the user/operating company, because the appropriate intervals depend on the following application parameters:

- Duration of use per day - switching intervals
- Type of product, temperature, etc.
- Type of cleaning (CIP/SIP)
- We recommend the following data as guide values for renewing seals and plain bearings:
 - For fluids containing solids and temperatures of 80 °C to 100 °C, approx. every 3 to 6 months
 - For fluids containing solids and temperatures of 60 °C, approx. every 12 months
 - For fluids without solids and temperatures of max. 95 °C, approx. every 24 months
- Of course, the stated values also assume that the seal material has chemical resistance.
- For the compression springs, we recommend renewal within 5 years of use.

**NOTE**

However, extremely high switching frequency can significantly shorten the service life of the compression springs.

After service work, all removed individual parts must be reinstalled properly.

Important:

Unauthorised modifications or changes endanger the safety of operating personnel and of the valve, and are not permissible.

- Spare parts must meet the machine manufacturer's technical requirements.
- Always use Rieger genuine spare parts. Gebr. Rieger assumes no liability for damage caused by spare parts purchased from other sources.

9.1. Service/inspection

The valve does not have to be maintained separately. However, between the service intervals, the valve should be visually inspected periodically to monitor the leak tightness and function.

Drives always have spring force and should always be sent to the manufacturer in order to avoid accidents caused by improper opening.

9.2. Cleaning



WARNING

Store the cleaning agents according to the applicable safety guidelines. Observe the safety instructions in the cleaning agent manufacturer's data sheet when handling the cleaning agents. Always wear rubber gloves and safety glasses during cleaning. Make sure that you do not touch the double seal valve or the pipeline during processing of hot media or during the sterilisation process.

9.2.1. Cleaning and CIP

- Before putting the valve into service, flush it with suitable medium.
- Clean the interior spaces of the valve regularly using suitable medium (for example, when changing products or during downtime; the operating company must define these intervals).
- At the end of production, immediately flush the valve. Otherwise, seals can stick (especially for products containing sugar).
- Observe the cleaning agent manufacturers' safety data sheets.
- Use only cleaning agents that do not attack or abrade the seals and the stainless steel.
- While the mix proof valve is in the installed state, it must be satisfactorily cleaned together with the pipeline.
- The required 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. Damage caused by failure to comply with these operating instructions, improper placement into service, handling or tampering shall render the manufacturer's guarantee and warranty null and void.

Only then is the valve ready for use.

9.2.2. Cleaning agents

The following must be ensured when selecting the cleaning agents:

- No abrasive cleaning agents are used.
- Only cleaning agents that do not attack the seals and the stainless steel are used.
- The cleaning agents are handled and disposed of properly.
- The cleaning agent manufacturer's safety data sheets are observed.
- While the mix proof valve is in the installed state, it must be satisfactorily cleaned together with the pipeline.
- The required cleaning times, temperatures and cleaning agent concentrations depend on the degree of contamination and must be adapted accordingly.
- The flow velocity during cleaning must be at least 1.5 to 2.5 m/s.
- During the individual cleaning cycles, the upper or lower valve disc must be pulsed via compressed air connection L2 or L3:
- Opening duration is approx. 1 to 2 seconds, number of pulsing strokes is 2 to 4.
- After the cleaning, the mix proof valve can be sterilised with disinfectant or sterile steam.

9.2.3. Cleaning agent table

Cleaning agent/disinfectant The maximum values must be adhered to.	Chloride content in the mixing water maximum		Concentration from – to maximum in %	Maximum exposure 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 product (H ₂ O ₂) as intensifier for 1-2% NaOH (constant injection or one-time preparation of the sodium hydroxide solution)	100	150	Injection 0.1 Preparation 0.5	30	80
Acidic cleaning agents based on phosphoric acid H ₃ PO ₄	100	150	3	45	70
Acidic cleaning agents based on nitric acid HNO ₃	100	150	2	45	70
Acidic cleaning agents based on a mixture of phosphoric acid and nitric acid	100	150	2	45	70
Acidic disinfectants based on peracetic acid	100	150	0.2 – 1.0	20	25
Acidic disinfectants based on peracetic acid	100	150	0.5	45	40
Acidic disinfectants based on halogenated carboxylic acid/phosphoric acid or halogenated carboxylic acid/nitric acid	100	150	0.5 – 1.0	20	25
Neutral disinfectant 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 agent/disinfectant (pH valve > 11)	80	120	1.5	45	60
Bottle disinfection with peracetic acid, concentration specification relative to pure peracetic acid	0 mg/l	5 mg/l	2000 mg/l	Sustained	60
	0 mg/l	5 mg/l	4000 mg/l	Sustained	30
Sterilisation with hot water	100	150	-	90	140
Sterilisation with steam, max. p abs 1.5 bar	-	-	-	45	135
Flushing with cold water	100	150	-	-	-
Flushing with ozonated cold water permitted only with EPDM seals.	80	120	Up to 3 mg/l	60	25

10. Removal/disposal

10.1. Removal

The removal may be performed only by qualified personnel.
Make sure that the valve is cleaned and cooled down before starting the removal work.

10.2. Disposal



RECYCLING

The valve is predominantly made of steel and plastic and must be disposed of in accordance with applicable local environmental regulations. During all work on and with the valve, the legal requirements for waste prevention and proper recycling or disposal must be met.

In particular during installation, repair and maintenance work, substances hazardous to water such as

- cleaning fluids containing solvent

must not contaminate the workshop floor or enter the sewer system.
These substances must be stored, transported, collected and disposed of in suitable containers.
Because of fire risk, used cleaning cloths must be disposed of properly.

11. Malfunctions, causes and their elimination



WARNING

The switch-off procedures must be performed before any maintenance or repair work. If the specified measures are not successful, please contact a specialist company or Gebr. Rieger GmbH & Co. KG.

MALFUNCTION	POSSIBLE CAUSE	REMEDY
Valve does not move	No compressed air	Check the compressed air connection: Is control air available? Does the control air have at least 6 bar? Are the compressed air hoses leak-tight? Are the screw-in connections on the drive secure and leak-tight?
	Fault in the control	Check the plant configuration
	Fault in the electrical system Defective pilot valve	Check the activation and cables Check the control head, renew the pilot valve
Valve moves too slowly	O-ring defective	Remove the drive and check the seat O-rings, renew if necessary
	Compressed air too low Exhaust air hole on the drive is blocked	Increase air amount or air pressure (at least 6-8 bar). Clear the opening.
Valve moves unevenly	Compressed air supply too weak Media pressure too high	Increase air amount or air pressure (at least 6-8 bar). Reduce media pressure.
Valve causes excessive mechanical noise	Valve or drive defective Foreign body in the valve	Remove the valve and renew it if necessary.
Leakage in the area of the guides on the valve housing.	Worn housing seals	Remove the drive and renew the seals.
Leakage indication at the lower valve disc outlet	O-ring of the upper or lower valve disc leaking	Remove the drive and renew the O-rings.
Lower valve disc does not flush during pulsing stroke	Pulsing stroke for flushing at bottom stuck or adjusted incorrectly.	Check the pulsing stroke setting at the contact button of the spindle protruding from the drive at the top.

If operational malfunctions cannot be corrected by the operating company, maintenance must be informed. If necessary, inform or request an employee of Gebr. Rieger.

11.1. Emergency

In an emergency, immediately shut off the product feed.

11.2. Maintenance plan

Only individual authorised persons are permitted to work on the valve.

Maintenance and service work may be performed only by trained and knowledgeable personnel.

Task	Person	Interval
Clean and sterilise the valve	Operator	After each product passage
Entire valve	Operator	Before first use
Visual inspection for damage	Operator	Before first use
Check hoses and their connections for damage	Operator	Before first use
Check seals for deformation	Operator	During maintenance
Renew seals	Operator	See "Guide values for seals"
Electrical connections (optional)	See documentation for control head	See documentation for control head

11.3. Guide values for seals/plain bearings

We recommend the following data as guide values for renewing **seals and plain bearings**:

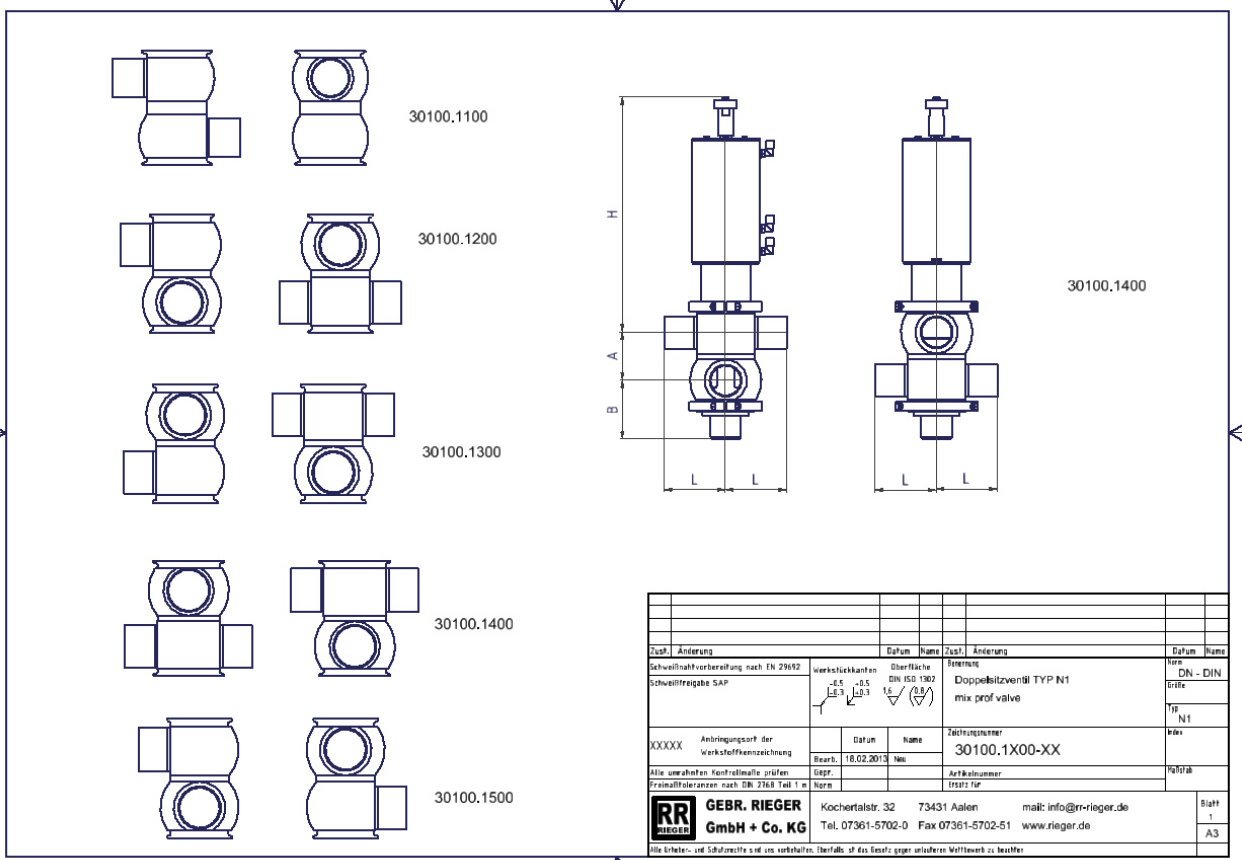
- For fluids containing solids and temperatures of 80 °C to 100 °C, approx. every 3 to 6 months
- For fluids containing solids and temperatures of 60 °C, approx. every 12 months
- For fluids without solids and temperatures of max. 95 °C, approx. every 24 months

11.4. Guide values for compression springs

Of course, the stated values also assume that the seal material has chemical resistance. For the **compression springs** in the drives, we recommend renewing within 5 years of use.

For valves switched often, we recommend replacing the springs after 2 years.

12. Design drawing



Other types upon request



13. Spare parts lists

13.1. Spare parts for mix proof valve type N1..0X.001-XX

Size DIN	Mix proof valve art. no.:	Spare parts list no.: (enclosed for each order)
25	30100.1X00.XX.0404	N1.04.001-04
40	30100.1X00.XX. 0606	N1.04.001-06
50	30100.1X00.XX.0707	N1.04.001-07
65	30100.1X00.XX.0808	N1.04.001-08
80	30100.1X00.XX.0909	N1.04.001-09
100	30100.1X00.XX.1010	N1.04.001-10

Size OD	Mix proof valve art. no.:	Spare parts list no.: (enclosed for each order)
1"	30100.1X00.XX.2424	N1.04.001-24
1 1/2"	30100.1X00.XX.2626	N1.04.001-26
2"	30100.1X00.XX.2727	N1.04.001-27
2 1/2"	30100.1X00.XX.2828	N1.04.001-28
3"	30100.1X00.XX.2929	N1.04.001-29
4"	30100.1X00.XX.3030	N1.04.001-30

13.2 Packets of spare parts for parts in contact with product

For non-standard seal materials, see spare part numbers in your order confirmation.

Size DIN	Mix proof valve art. no.:	Packet of spare parts in contact with product, art. no.:
25	30100.1X00.XX.0404	5003093
40	30100.1X00.XX. 0606	5002299
50	30100.1X00.XX.0707	5002299
65	30100.1X00.XX.0808	5002291
80	30100.1X00.XX.0909	5002302
100	30100.1X00.XX.1010	5002436

Size OD	Mix proof valve art. no.:	Packet of spare parts in contact with product, art. no.:
1"	30100.1X00.XX.2424	5003093
1 1/2"	30100.1X00.XX.2626	5002299
2"	30100.1X00.XX.2727	5002299
2 1/2"	30100.1X00.XX.2828	5002291
3"	30100.1X00.XX.2929	5002302
4"	30100.1X00.XX.3030	5002436

13.3 Spare parts of the drives are renewed during maintenance at Rieger

14. Purchased parts/assembly tool

• Purchased parts:

Assembly socket wrench (short) for lower valve disc (optional)



Size	Assembly tool art. no.:
25-100	5006697

Assembly tools for spring-closing drives NC (optional)

These can be used if no control air is available to move the drives to the "CLOSED" position when the plant is switched off. This makes it easy to remove the drive unit from the housing carefully.



Size	Assembly tool art. no.:
25-100	5006656

15. Supplier list/documents of suppliers/third-party documentation

If a control head is used (optional), follow its operating instructions. All valves must be adjusted on-site by the operating company or plant builder in the installed and connected operating state, and switching units must be adjusted.

- Operating instructions for Bürkert control head type 8681 (optional)
See also BA-N1.001-Bürkert Steuerkopf – 8681 - DE



- Data sheet 70 EPDM 291 (O-rings)
- For connection options for proximity switches (optional), please observe supplement BA-N1-Initiatoren.