

OPERATING/INSTALLATION INSTRUCTIONS

(Translation)



Leakage Butterfly Valve with Handle

Leakage Butterfly Valve with Pneumatic Actuator and Pneumatically Actuated Auxiliary Valves

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Operating/Installation Instructions for Leakage Butterfly Valve

- with handle (standard design): Type: DN 25 – 100/PN10
 DN 125 – 150/PN10
 1" – 4"/PN10
- with pneumatic actuator
 (standard design): Type: DN 25 – 100/PN10
 DN 125 – 150/PN10
 1" – 4"/PN10

NOTE



This manual is part of the leakage butterfly valve and must be available to operating and maintenance personnel at all times. The safety precautions contained therein must be observed.

If the leakage butterfly valve is sold on, the manual must be included in the delivery or downloaded from the following Internet page: <http://www.awh.eu/de/downloads>.

Translation

The operating instructions must be written in an official European Community language acceptable to the manufacturer of the machinery in which the partly completed machinery will be assembled, or to his authorized representative. If any discrepancies arise in the translated text, the original operating instructions (German) must be consulted for clarification, or the manufacturer must be contacted.

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1 Introduction

These operating/installation instructions (hereinafter referred to as the “manual”) provide you with all the information you need to operate the leakage butterfly valve smoothly (hereinafter also referred to as the “fitting”).

The manual applies to the following variants

- Leakage butterfly valve with handle (standard design),
- Leakage butterfly valve with pneumatic actuator (standard design)

In principle, this manual applies to all designs. In the event of differences between the designs, this will be pointed out clearly.

The manual must be read, understood, and applied by all persons assigned with the assembly, maintenance, cleaning and troubleshooting of the fitting. This applies in particular to the listed safety instructions.

After studying the manual, you will be able to

- Assemble and operate the fitting safely,
- Clean and service the fitting correctly and
- Take the correct measures if a fault occurs.

In addition to this manual, generally valid, statutory and other binding regulations in regard of accident prevention and in regard of environmental protection in the country of use must also be observed.

The manual must always be kept or made available at the place of use of the fitting. Download the instructions if necessary from the <http://www.awh.eu/de/downloads> Internet page.

1.1 Means of Presentation

As an instruction and for directly warning against danger, statements where special attention needs to be paid are identified as follows in this manual:

Section-related Warnings

The section-related warnings apply not only to one particular action, but rather to all actions within a section.



DANGER

This warning notice describes a hazard with a high level of risk that will result in death or serious injury if not avoided.



WARNING

This warning notice describes a hazard with a medium level of risk that could result in death or serious injury if not avoided.



CAUTION

This warning notice describes a hazard with a low level of risk that could result in minor or moderate injury if not avoided.

NOTE

This warning notice describes a hazard with a low level of risk that could result in damage to property if not avoided.



The “info” symbol provides useful information.

Embedded Warnings

The embedded warnings apply to specific actions and are integrated directly into the action before the specific action step.

- **▲ DANGER/WARNING/CAUTION**
- **NOTE**

The following means of presentation are also used:

- Texts which follow this mark are bulleted lists.
- Texts following this mark describe activities that need to be carried out in the specified order.
- “ ” Texts in quotation marks are references to other chapters or sections.

Symbols Used



Crushing hazards are indicated by this symbol.



Burn hazards are indicated by this symbol.



Warnings about potentially explosive atmospheres are indicated by this symbol.



“Observe manual” is indicated by this symbol.



Environmental measures are indicated by this symbol.



Warning about substances which are a water hazard

1.2 Abbreviations

AWH	Armaturenwerk Hötensleben GmbH
CIP	Cleaning in place
D _o	Outer diameter
D _i	Inner diameter
DN	Nominal width
EPDM	Ethylene propylene diene monomer rubber (sealing material)
EEC	European Economic Community
EWR	European Economic Area
FKM	Fluorinated rubber (sealing material)
LSVP	Leakage butterfly valve with pneumatic actuator and pneumatically actuated auxiliary valves
HNBR	Hydrogenated acrylonitrile butadiene rubber (sealing material)
HV	Auxiliary valve
HVC	Auxiliary valve CIP
HVL	Leakage monitoring auxiliary valve
NC	Normally Closed (valve setting)

NO	Normally Open (valve setting)
PN	Nominal pressure
Ra	Average roughness value (dimension for the surface roughness)
VMQ	Silicone rubber (sealing material)
TIG	Welding process with tungsten electrode and inert gas
ZFA	Intermediate flange (connection variant)

1.3 Guarantee, Warranty and Liability

Guarantee

If the fitting is used as intended, a guarantee is provided according to the statutory warranty obligation. This does not apply to wear parts.

Increased wear due to abrasive media is not a product defect. Any claims resulting from this cannot be taken into account as part of the warranty.

Warranty and Liability

The commitments agreed in the contract of supply and delivery, the general terms and conditions and terms of delivery of Armaturenwerk Hötensleben GmbH (hereinafter referred to as AWH), and the statutory regulations valid at the time the contract was concluded shall apply.

Warranty and liability claims in case of personal injury and damage to property shall be excluded, in particular if these can be attributed to one or more of the following causes:

- Improper or incorrect use of the fitting,
- Incorrect assembly, commissioning, operation and maintenance of the fitting,
- Failure to observe the instructions in the manual in terms of assembly, commissioning, operation and maintenance of the fitting,
- Structural modifications to the fitting (conversions or other modifications to the fitting must not be carried out without previous written approval from Armaturenwerk Hötensleben GmbH. In case of infringement, the fitting will lose its conformity and the operating license),
- Use of spare parts that do not comply with the specified technical requirements,
- Improperly performed repairs,
- Disasters, the effects of foreign objects and force majeure.

Disclaimer

AWH reserves the right to make alterations to this document at any time and without prior notice. AWH provides no guarantee (neither expressed nor implied) with regard to all information in this document, including but not limited to the implied warranty of merchantability and suitability for a particular purpose. Furthermore, AWH does not guarantee the correctness or completeness of information, text, graphics or other parts in this document.

2 Safety

The fitting has been built in accordance with state-of-the-art technology and the recognized rules of safety. Nevertheless, use of the fitting may represent a danger to the life and limb of the user and third parties, or a risk of impairments to the device and other objects of material value as a result of its function.

The following basic safety instructions are intended to prevent injury to personnel and material damage. The operating company must ensure that the basic safety instructions are observed and adhered to.

These instructions contain basic notes on installation, operation, maintenance and servicing of the fitting which must be complied with.

Anyone involved in assembly, operation, maintenance and servicing must have read and understood these instructions.

The safety systems and safety instructions described in these instructions must be adhered to.



WARNING



Failure to comply with this manual, incorrectly performed installation and repair work or incorrect operation could lead to malfunctions on the device and to dangerous situations!

There is a risk of death or severe physical injury.

- Have all work performed on the fitting carried out only by an **expert** and in compliance with
 - the corresponding detailed operating and installation instruction(s),
 - the warning and safety signs on the device,
 - the regulations and requirements specific to the plant and
 - the national/regional regulations for safety and the prevention of accidents.
- Never install damaged fittings or components.



The figures in this manual are intended to provide basic understanding, and are primarily representations of the principles involved. They may differ from the actual design of the fitting.

2.1 Intended Use

The leakage butterfly valve is designated for shutting off the flow of fluid in pipelines in commercial and industrial operations (food, chemical and pharmaceutical industries and low-germ processes).

Suitable flow media include water, steam, mineral oil, food, and liquids from the chemical and pharmaceutical industry, as well as pasty media, which are subject to a hygienic standard. These media must not contain fibers and must not be abrasive.

Avoid switching the valves during sterilization and “dry switching” the valve discs.

The leakage butterfly valve with handle is operated manually (via the handle) on site.

The leakage butterfly valve with pneumatic actuator is operated from the control room of the higher-level plant, or from the local control point.

**WARNING**

In the event of improper use, there is a risk of serious injury

This fitting was designed exclusively for the purposes described above. Any other use beyond that described here or alteration of the fitting without written approval from AWH is considered contrary to the intended use. AWH accepts no liability for damages arising from such use. The operating company is solely responsible for the risk. The fitting must not be put in to operation until it has been assured that all the safety systems are fully functioning, and the system in which the fitting is installed meets the safety requirements of all relevant directives.

NOTE

*The fitting may be installed only by an **expert**.*

*The work described in this manual is described in a way intended to be understood and carried out by experts **only***

(see section “2.6 Qualification Requirements for Personnel”).

The intended use also includes compliance with this manual, including the maintenance conditions.

2.2 Labeling

The information in these operating instructions only applies to leakage butterfly valves of the type and version specified on the title page (title page and rear side).

If you have any queries, specify the following correctly:

- The nominal width
- The sealing material
- The housing material
- The type of connection (DIN 11851, DIN 11864, weldon, etc.)
- Handle or pneumatic actuator
- Accessories (feedback, etc.)

2.3 Danger Warnings

The safety systems and safety instructions described in these instructions must be adhered to.

2.3.1 Dangers

NOTE

Risk of damage to the fitting!

The fitting, length and quality of the lines must meet the requirements. Installation is to be performed by **specialist personnel**.

Make sure that only the media specified in the manual are used. The parameters listed in the manual must always be complied with (see chapter “4 Technical Data”).

WARNING

**Risk of burns due to hot media!**

There is a risk of burning during operation or maintenance if flow media have temperatures over +60 °C / +140 °F.

- Let the flow medium cool down prior to cleaning work.
- Empty the pipelines prior to assembly or disassembly work.
- Wear protective work clothing, protective gloves and protective goggles when carrying out work on the fitting (see section “2.7 Personal Protective Equipment”).

WARNING

**Risk due to valve disc switching!**

When the valve disc is moving, there is a risk of crushing your fingers and hands.

- Only operate the fitting when it is installed.
- Prior to assembly or disassembly work, empty the pipelines and depressurize the compressed air lines.
- Never reach into the exposed moving parts with your hands or other parts of your body when switching the valve.

2.3.2 Hazardous Area of the Fitting

The hazardous area during setup, maintenance and repair work extends to 1 m around the fitting. Take into consideration the swing range of any switch cabinet doors that can open. The operator shall ensure that persons are prevented from entering the hazard area during motion sequences.

2.3.3 Installation of Replacement Parts and Wearing Parts

Replacement and accessory parts not supplied by AWH have not been checked or approved by AWH. Installing and/or using this type of product can therefore negatively alter the prescribed structural properties of your higher-level plant, under certain circumstances. AWH accepts no liability for any damage arising from the use of non-original parts or non-original accessory parts. Standard parts can be obtained from specialist dealers.

2.3.4 Switch-off Procedure



WARNING



Risks presented by moving parts and escaping compressed air or media at high pressure!

When the valve disc is moving, there is a risk of fingers and hands being crushed.

Escaping compressed air or flow media at high pressure poses a risk of serious eye or skin injuries.

It is imperative that the following switch-off procedure is observed before cleaning, maintenance or repair work is carried out (by specialist personnel only).

- *Disconnect the higher-level plant/machine from the power supply.*
- *Shut off the pneumatic system.*
 - *Close the shut-off valve.*
 - *Check that the facility is depressurized.*
 - *Secure the shut-off valve against reopening.*
- *Shut off the media supply.*
 - *Relieve the pressure in the pipelines.*
 - *Then drain the pipelines (take particular care with hazardous materials).*
 - *Check that there is no risk of media being supplied (insert dummy discs if necessary).*
- *Observe a cooling-down phase for media temperatures over +60 °C/+140 °F.*

2.4 Duties of the Operating Company

The fitting is used in the commercial sector. The operating company is thus subject to the legal obligations regarding occupational safety.

In the EEA (European Economic Area), the national implementations of the framework directive (89/391/EEC) on carrying out measures for improving safety and protecting the health of employees during work, as well as the associated individual directives on the minimum specifications for safety and health protection of employees using work equipment, shall be observed and complied with in their currently valid versions.

As a basic rule, the operating company in Germany must observe the Industrial Safety Ordinance (BetrSichV).

In other countries, the respective national guidelines, statutes and country-specific regulations regarding occupational safety and accident prevention must be complied with. At the same time, the following, non-exhaustive instructions apply in particular:

- The owner/operating company must ensure that the fitting is used only as intended (see section “2.1 Intended Use”).
- The owner/operating company must keep itself informed of locally applicable industrial safety regulations, and - in addition - use a risk assessment to determine the hazards resulting from the specific working conditions at the place of use of the fitting. This must then be implemented in the form of operating instructions for the operation of the fitting.

- When using hazardous materials, protective measures must be specified in accordance with the safety data sheets and operating instructions shall be compiled for hazardous materials. Personnel must be briefed accordingly.
This also applies to hazardous substances that may arise during work processes.
- A continuous risk assessment must be carried out for workplaces, including temperature conditions for the medium and the place of use (falling). The measures must be recorded in operating instructions, and personnel must be instructed accordingly.
- Supervisors must monitor compliance with the measures specified in the operating instructions.
- Throughout the entire operating period of the fitting, the owner/operating company must check whether the operating instructions that they have compiled actually correspond to the current status of the regulations, and adjust the instructions if necessary.
- The operating company must clearly regulate and specify the responsibilities of personnel (e.g. for operation, maintenance and cleaning).
- The owner/operating company must allow only sufficiently qualified and authorized personnel to work on the fitting.
- The owner/operating company must ensure that all employees handling the fitting have read and understood the manual.
Furthermore, it must provide personnel with training at regular intervals with certification and inform them of the hazards.
- The owner/operating company must provide sufficient workplace lighting at the higher-level facility in accordance with the locally applicable regulations for occupational health and safety in order to prevent hazards occurring as a result of poor lighting.
- The owner/operating company must provide personnel with personal protective equipment and make sure that this is used (see section “2.7 Personal Protective Equipment”).
- The owner/operating company must make sure that no person works on the fitting whose ability to respond is impaired through drugs, alcohol, medication or similar.
- The owner/operating company must use appropriate measures to inform groups of persons who are not planned for direct contact with the fitting (e.g. visitor groups) about the potential dangers involved.
- The owner/operating company is obliged to operate the fitting in perfect condition at all times.
- Wherever high pneumatic pressures occur, there is a possibility of sudden failure of or damage to the lines and connections. This poses a hazard. The operating company must instruct operating and maintenance personnel at least once a year on the possible hazards.
- The constructor of the higher-level facility must install the switching and safety devices required for setting up, inspection, shutting down (including emergency shutdown), operating, maintenance, cleaning and repair, and provide proof of their installation.
- The operating company must provide fire safety devices, e.g. the appropriate quantity of suitable hand-held fire extinguishers of the appropriate size, in easily accessible places and provide employees with training in fire safety.
- Warnings in the documentation for externally supplied assembly groups must be adhered to and incorporated into the risk assessments for the specific workplace.

- Before operating the machine with the fitting, the owner/operating company shall ensure that the local specifications were followed during assembly and commissioning, if these were carried out by the owner/operating company.

NOTE

Due to deviating operating conditions at the operating company's site, additional safety measures may be required. In such cases, these measures must be added to the original safety measures by the operating company.

2.5 Safety Measures (to Be Implemented by Owner/Operating Company)

- The owner/operating company must ensure that unauthorized persons (not operating or maintenance personnel) are prevented from entering the hazardous area of the higher-level system (in which the fitting is installed).
- The owner/operating company must empty the pipelines prior to assembly and maintenance work on the fitting.
- The owner/operating company must design the disconnection of the energy sources on the higher-level facility technically in such a way that the switch-off procedure described in section 2.3.4 can be adhered to.
- This manual must be retained for future reference.
It must be available in the vicinity of the higher-level facility in which the fitting is installed.
- The operating company must define and adhere to the intervals for inspections and control measures in accordance with the environment and media used.
- The tasks described in the manual are to be carried out by **experts** only.

2.6 Qualification Requirements for Personnel

The fitting must be operated, maintained and repaired only by persons who have the appropriate qualifications. These persons must be familiar with this manual and act in accordance with them. The respective authorizations for personnel must be clearly defined.

The following qualifications are designated in the manual for various fields of activity:

Expert/Specialist Personnel

A person with appropriate training, suitable apprenticeship and experience who is in a position to identify risks and avoid dangers.

An expert is a person whose professional training, knowledge and experience, and whose knowledge of the relevant standards and regulations, enables them to carry out work on the fitting, identify potential risks independently and to avoid them.

Only personnel with the following specific knowledge may be employed for work on the fitting:

- **Assembly/disassembly:** Industrial mechanic or similar training, practical experience in the assembly/disassembly of fittings

- **Welding work:** Welder qualification in pipeline engineering or similar apprenticeship
- **Electrical work:** Electrician; person with appropriate specialized apprenticeship, knowledge and experience, enabling them to identify and avoid the risks that may arise from working with electricity

2.7 Personal Protective Equipment

In order to minimize health risks, personal protective equipment must be worn when working on the fitting.



Protective work clothing

Protective work clothing is tight-fitting work clothing with low resistance to tearing, with close-fitting sleeves and without protruding parts. It is mainly used for protection against becoming entangled in moving components.

Do not wear any rings, necklaces or other jewelry.



Safety shoes

Wear slip-resistant safety shoes for protection from heavy, falling objects and to prevent slipping on slippery surfaces.



Protective gloves

Wear protective gloves to protect your hands against friction, grazes, punctures or deeper injuries and against coming into contact with hot surfaces or chemical substances.



Protective goggles

Wear protective goggles for protection against media escaping at high pressure and against flying objects.



Hardhat

Wear a hardhat for protection against falling or flying objects.



Welding hood

Wear a welding hood for protection from damage to the eyes or skin due to the welding arc, and from burns caused by flying particles during welding.

Personal protective equipment must be provided by the operating company in accordance with the valid requirements.

Furthermore, both the national regulations and, if necessary, the internal instructions from the operating company, must be observed.

3 Overview and Function

3.1 Leakage Butterfly Valve with Handle

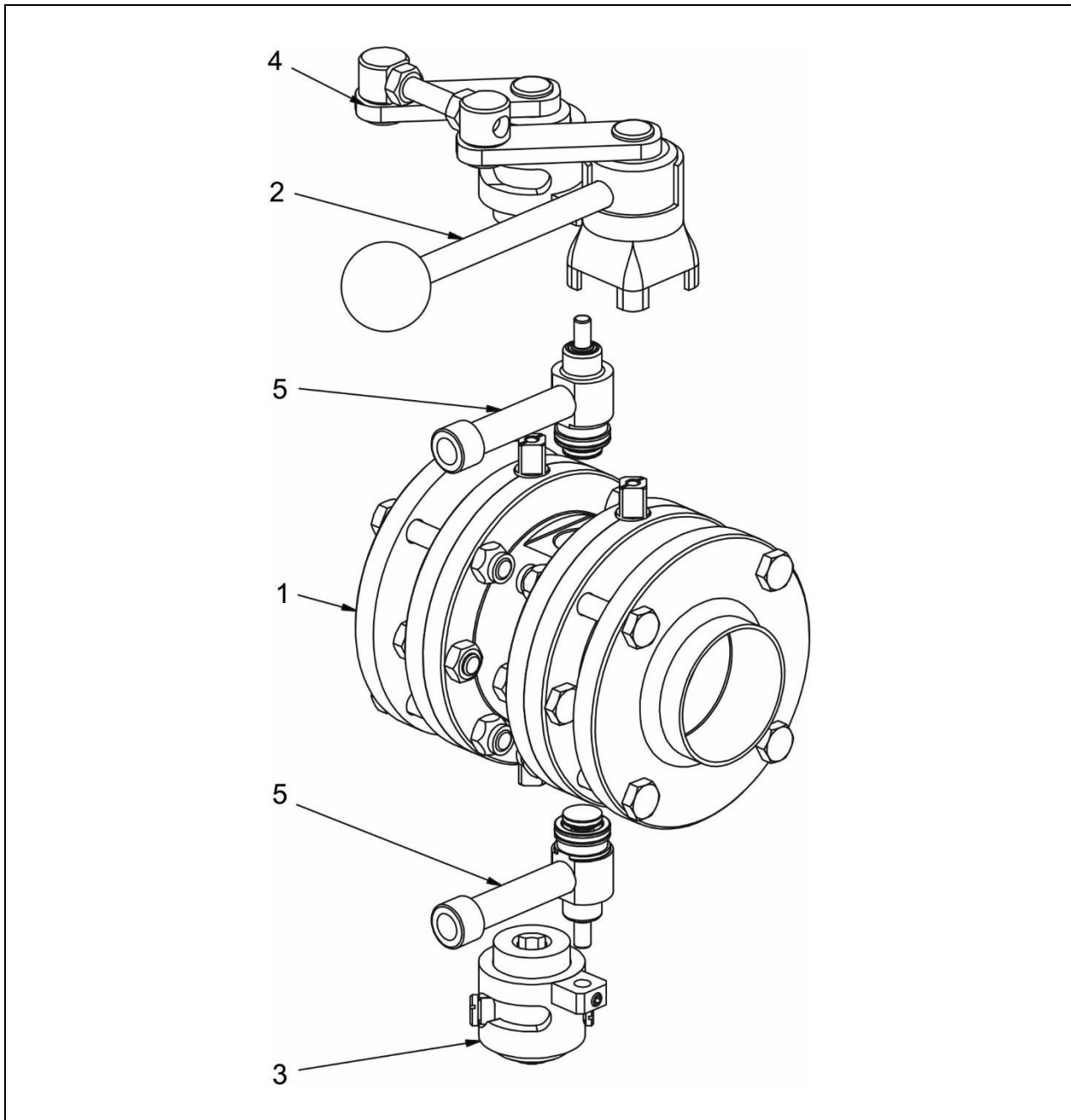


Fig. 3-1: Overview of leakage butterfly valve with handle

- | | |
|--------------------------------------|--|
| 1 Valve | 4 Control shaft with shift combination |
| 2 Handle | 5 Auxiliary valve |
| 3 Control shaft with switching lever | |

3.2 Leakage Butterfly Valve with Pneumatic Actuator

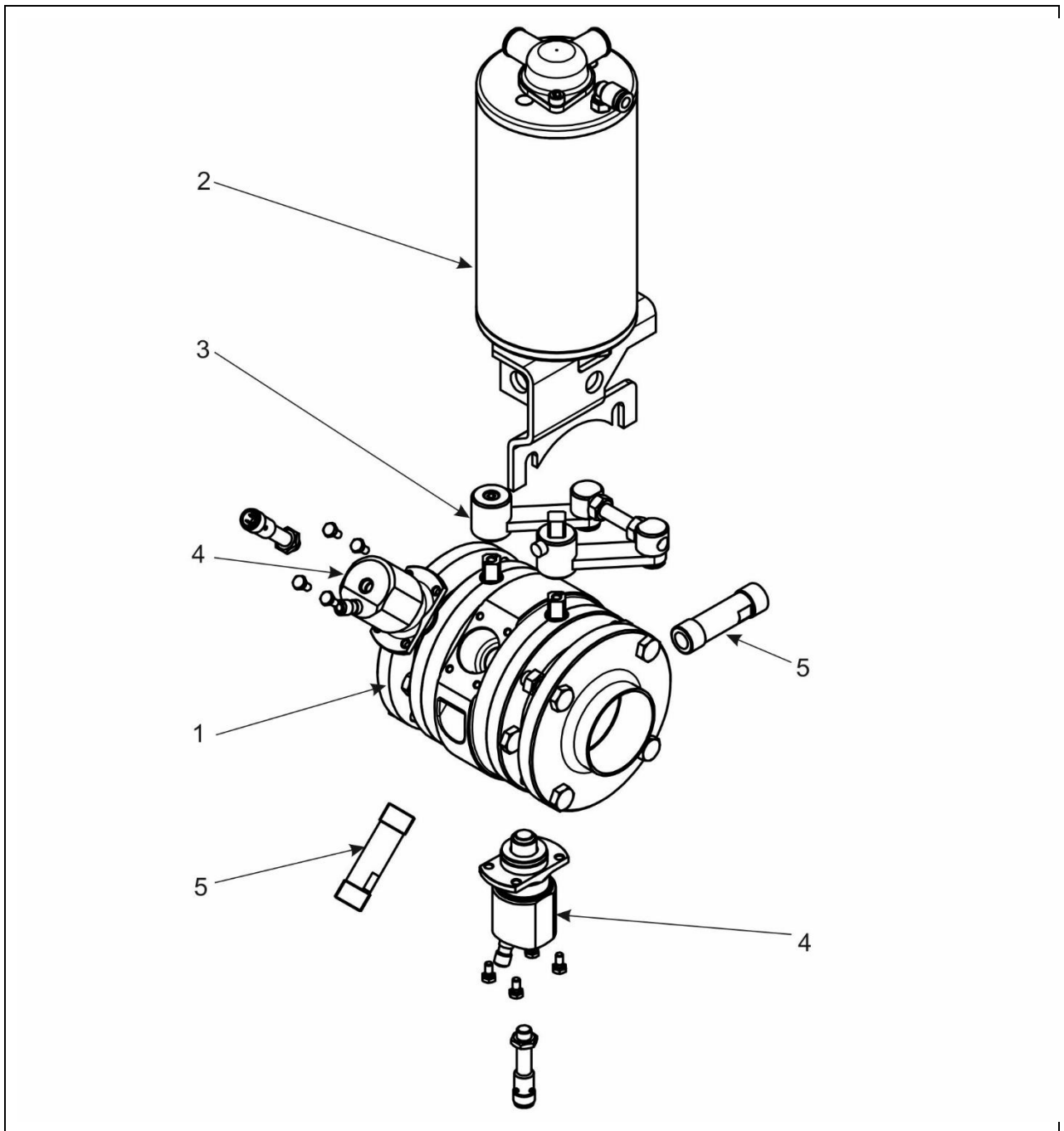


Fig. 3-2: Overview of Leakage Butterfly Valve with Pneumatic Actuator

- | | |
|---|--|
| 1 Valve | 4 Pneumatically actuated auxiliary valve |
| 2 Pneumatic actuator with holding bracket | 5 Rinsing connection/leakage connection |
| 3 Shift combination | |

3.2.1 Function of Leakage Butterfly Valve with Pneumatic Actuator

NOTE

*In the leakage butterfly valve with a pneumatic actuator, the switching times **must not fall below 1 second**. Otherwise, the valve and actuator could be damaged by pressure hammers. The air flow can be restricted through the use of throttle check valves in the operating company's compressed air line.*

The leakage butterfly valve is used for reliably shutting off product flows or disconnecting different media in the product pipe. The valve is “normally closed” (NC), the auxiliary valves are “normally open” (NO). In the “Closed” valve position, there is a space between the valve discs that can be separately CIP-cleaned via rinsing and leakage connections. If there are leaks between the valve disc and the butterfly valve seal, media will enter this space and drain out through the leakage connection. This signals to the system operator that there is a leak.

The valve discs and the auxiliary valves must be opened and closed with a time offset so that the leakage butterfly valve will function correctly. For reasons of the design, this is ensured by a common control air line for the actuator and the auxiliary valve. Implementation on the control side is more convenient and gives a more reliable process. This requires one or two air supplies to the auxiliary valves separate to the pneumatic actuator, depending on the connection variant.

NOTE

The auxiliary valves remain open (NO) in the absence of control air. Media can escape from the auxiliary valves if only the actuator is supplied with control air.

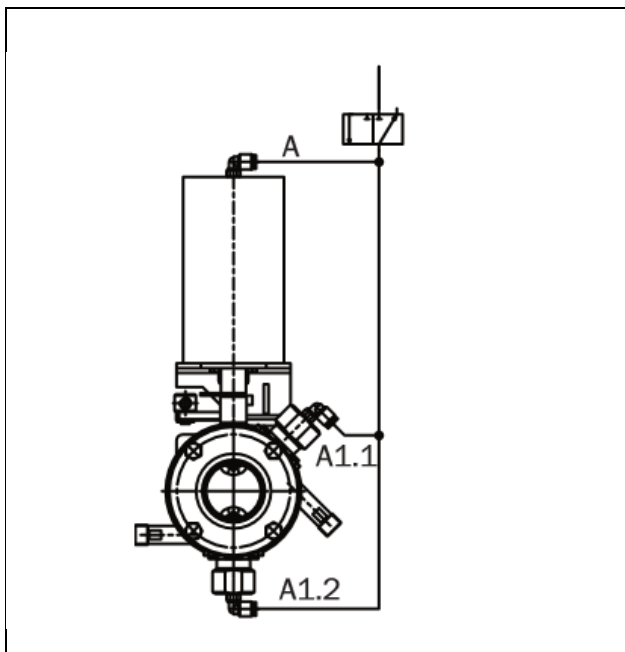


Fig. 3-3: Control air – variant 1

Variant 1 – one control air line

One control air line supplies the pneumatic actuator and auxiliary valves.

When air is supplied, the design means that the auxiliary valves close first and then the valve discs open. When the air is shut off, the valve discs close first and then the auxiliary valves open.

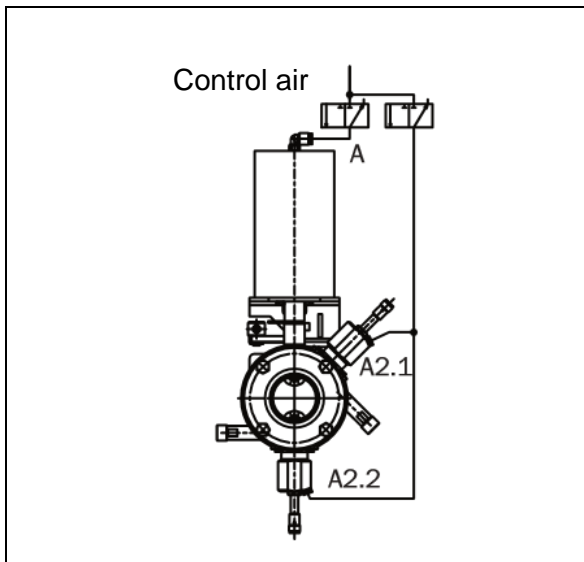


Fig. 3-4: Control air - variant 2

Variant 2 – two control air lines (only for the design “Auxiliary valve with monitoring”)

The pneumatic actuator is switched separately, the two auxiliary valves are switched synchronously (see Fig. 3-6).

This is controlled by an external PLC and the air is supplied via an additional air line.

Both auxiliary valves are opened synchronously in the cycle of leakage control and CIP.

An external shut-off to be activated separately in the CIP circuit must be created on the system side.

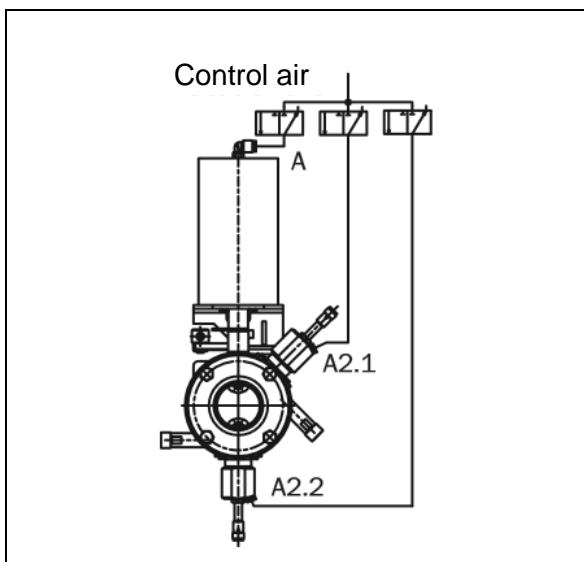


Fig. 3-5: Control air - variant 3

Variant 3 – three control air lines (only for the design “Auxiliary valve with monitoring”)

The pneumatic actuator and both auxiliary valves are switched separately (see Fig. 3-7).

Controlled via an external PLC.

Each auxiliary valve has a separate control air line. In the “leakage control” cycle, this makes it possible for only the auxiliary valve intended for this purpose to be activated. In “CIP” operating mode, both auxiliary valves are activated at the same time.

To ensure a reliable process function, we recommend the following cycling of the switching times of the pneumatic actuator and the auxiliary valves (see Fig. 3-6 and Fig. 3-7).

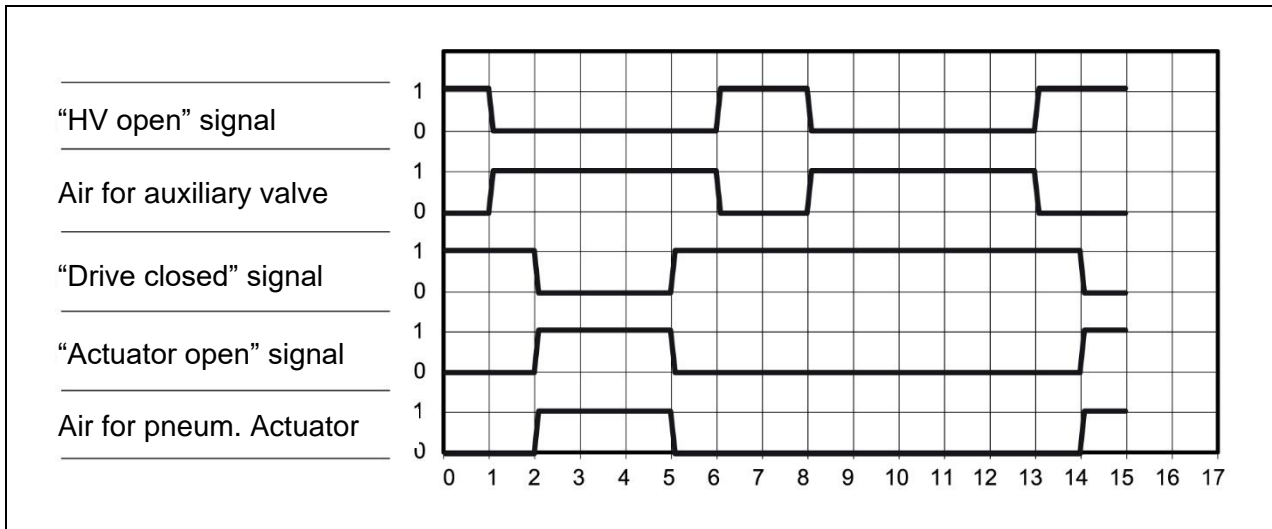


Fig. 3-6: Cycling of the switching times with synchronous switching of the auxiliary valves

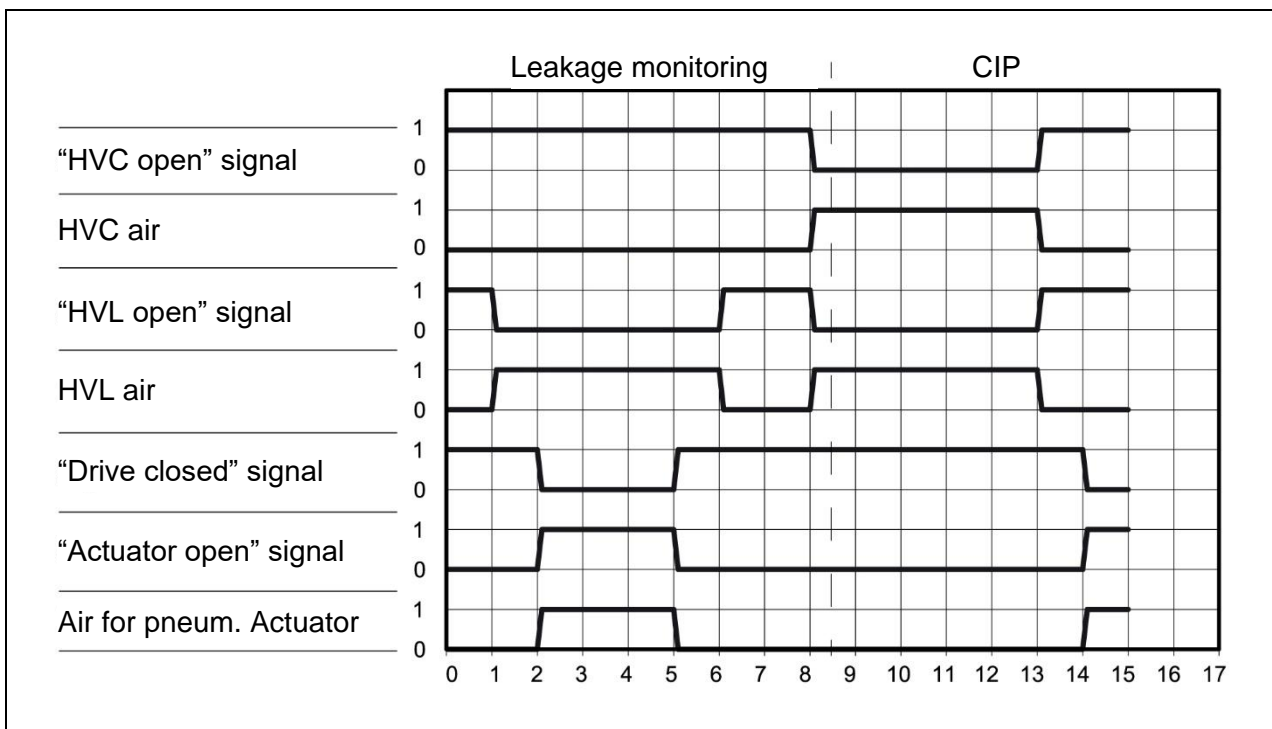


Fig. 3-7: Cycling of the switching times with separate switching of the auxiliary valves

4 Technical Data

4.1 General Data

The service life of the fitting is approximately 10 years when chlorine-free drinking water is used. If used with caustic media, the service life is correspondingly shorter.

The service life of the pneumatic actuator is approx. 5 years or 400,000 switching operations when used with filtered 5 µm lubricated or non-lubricated instrument air acc. to ISO 8573 class 3.

If used with unfiltered compressed air, the service life will be correspondingly shorter.

Size: DN 25 – DN 150/1" – 4"

Ambient temperature range:

Lower limit temperature: 5 °C / 41 °F

Upper limit temperature: 60 °C / 140 °F

Max. permissible operating pressure: 10 bar/145 psi

Max. permissible operating temperature: 90 °C / 194 °F

(depends on the sealing material and medium)

Actuator noise level: < 70 dB (A)

Surfaces

Exterior surface: Bare metal/precision machined

Inside surface: Ra ≤ 0.8 (1.6) µm



The area of application for the fitting must always be adjusted to the corresponding operating conditions and the materials that come into contact with the product.

The maximum continuous temperature is dependent on the media.

4.2 Materials in Contact with the Product

Housing, flange: 1.4301/1.4307/1.4404/1.4435

Valve disc: 1.4301/1.4404

Auxiliary valve: 1.4404

Gaskets: Selected according to operating conditions

Bearing bushing: Standard For use at < 80 °C/176 °F

High-temperature For use up to 150 °C/302 °F

Sealing Materials

EPDM:	Sterilization temperature: Short-term max. 140 °C/284 °F
FKM:	Sterilization temperature: Short-term max. 130 °C/266 °F
HNBR:	Sterilization temperature: Short-term max. 140 °C/284 °F



Sterilization may only be carried out when the fitting is open.

NOTE

Avoid switching the fitting during sterilization and “dry switching” the valve disc. Both of these actions lead to increased wear in the gaskets and can result in leaks.

Auxiliary Materials

To assist installation and protect the O-rings against damage we recommend using the following grease approved for foodstuffs: BERULUB SIHAF 1.

We further recommend that all threaded connections are smeared with BECHEM-ANTISEIZE before assembly, to prevent fretting corrosion.

4.3 Energy supply (valve with pneumatic actuator)

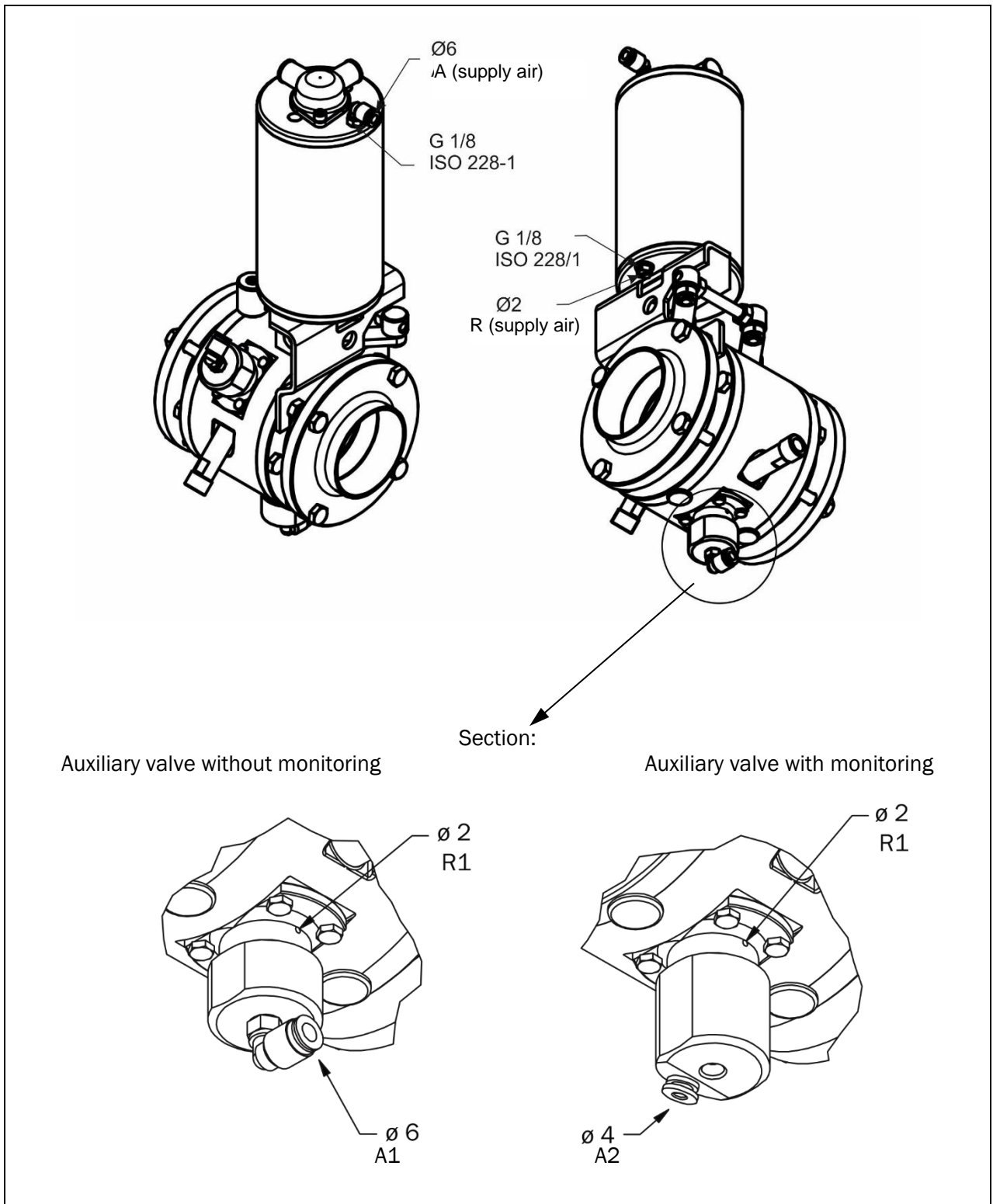


Fig. 4-1: Control Air Connections

4.3.1 Compressed Air Connection

Compressed air connection A (see Fig. 4-1.):	min.: 5 bar/73 psi max.: 10 bar/145 psi
Inner thread	G 1/8" ISO 228-1,
Hose connection for hose	D _A = 6 mm, D _I = 4 mm
Exhaust air connection R (see Fig. 4-1.):	
Inner thread	G 1/8" ISO 228-1
Choke with bore	D = 2 mm
Compressed air requirement (dependent on air pressure):	
DN 25 - 100 / 1" - 4"	1.7 - 3.5 l
DN 125 - 150 / 3" - 4"	3.0 - 4.5 l

Auxiliary valves

Compressed air connection A1/A2 (see Fig. 4-1.):	min.: 6 bar/87 psi max.: 10 bar/145 psi
Hose connection for hose without sensor A1	D _A = 6 mm, D _I = 4 mm
Hose connection for hose with sensor A2	D _A = 4 mm, D _I = 2 mm
Exhaust air connection R (see Fig. 4-1.):	
Bore	D = 2 mm

In the leakage butterfly valves with pneumatically actuated auxiliary valves, air opening/spring closing pneumatic actuators are used as standard for the nominal widths DN 25 - DN 100 from the standard butterfly valve program

A version with an angle of rotation limiter is installed for the nominal widths DN 125 - DN 150.

4.3.2 Electrical Energy Supply

Refer to the external data sheets and manufacturer's instructions for the data on the energy supply for connection of proximity switches (< 50 V).

4.4 Connection Variants, Type Series, Dimensions

The technical data (including weights) can be found in the product pages of the current AWH catalog <http://www.awh.eu> or can be directly obtained from AWH. The product identification numbers in the catalog and in the manual must be identical.

The various connection dimensions for the fitting are listed below.



The dimensions in the table are in millimeters, except for the thread dimensions, which are in inches, e.g. 3/8".

The positional range with locking function is 90° for the "Open" and "Closed" positions.



*The 90° setting for the "open" or "closed" position **DOES NOT** apply to the nominal widths DN 125 - 150.*

4.4.1 Leakage Butterfly Valve with Handle

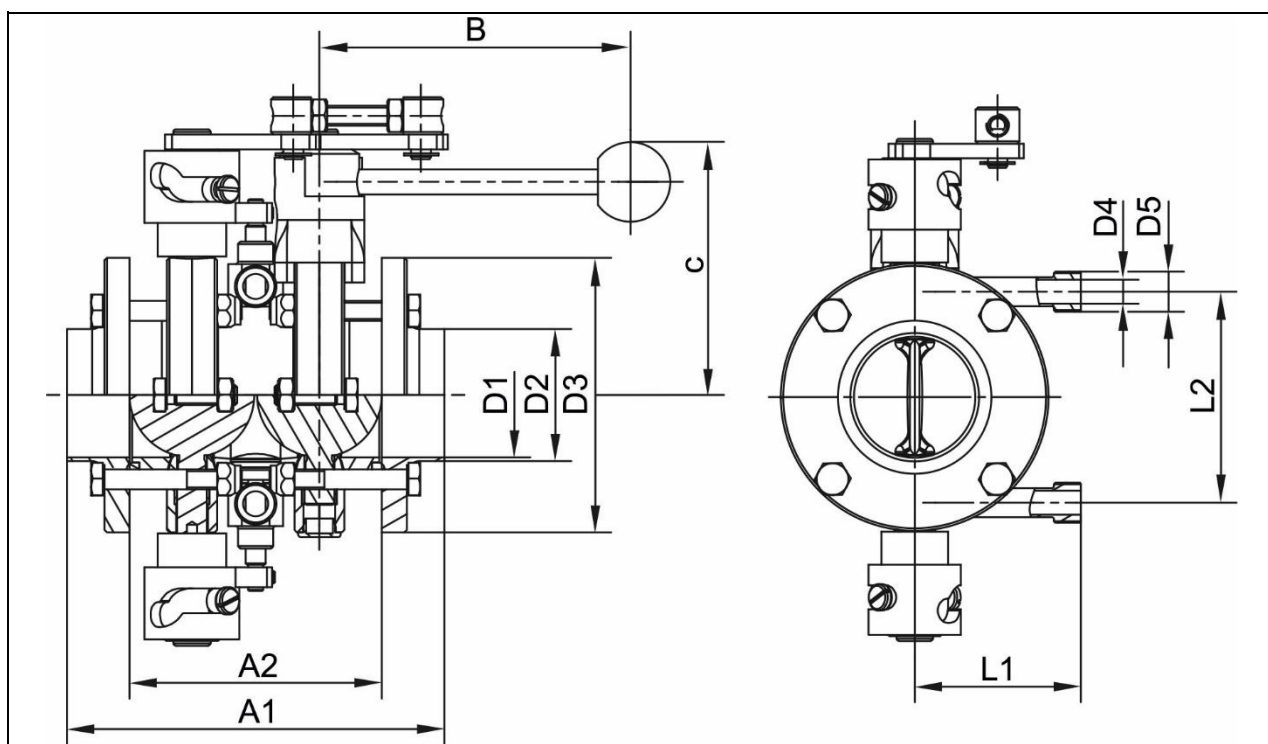


Fig. 4-2: Connection variants with handle

DN	A1	A2	B	C	D1	D2	D3	D4	D5	L1	L2
25	138	98	107.5	90	26	29	87	10	G 3/8"	68.5	63
32	138	98	107.5	92	32	35	92	10	G 3/8"	68.5	69
40	148	98	137.5	94	38	41	97	10	G 3/8"	68.5	75
50	151	101	137.5	101	50	53	110	10	G 3/8"	68.5	87
65	167	117	137.5	110	66	70	127	10	G 3/8"	68.5	104
80	194	134	167	123	81	85	142	10	G 3/8"	68.5	119
100	194	134	167	134	100	104	162	10	G 3/8"	68.5	138
125	248	168	248	168	125	129	200	10	G 3/8"	68.5	164
150	266	188	248	183	150	154	230	10	G 3/8"	68.5	191
1"	138	98	107.5	90	22.2	25.5	87	10	G 3/8"	68.5	63
1 1/2"	138	98	107.5	92	34.8	38.1	92	10	G 3/8"	68.5	69
2"	148	98	137.5	94	47.6	50.8	97	10	G 3/8"	68.5	75
2 1/2"	151	101	137.5	101	60.3	63.5	110	10	G 3/8"	68.5	87
3"	167	117	137.5	110	72.9	76.1	127	10	G 3/8"	68.5	104
4"	194	134	167	123	97.4	101.6	142	10	G 3/8"	68.5	119

4.4.2 Leakage Butterfly Valve with Pneumatic Actuator

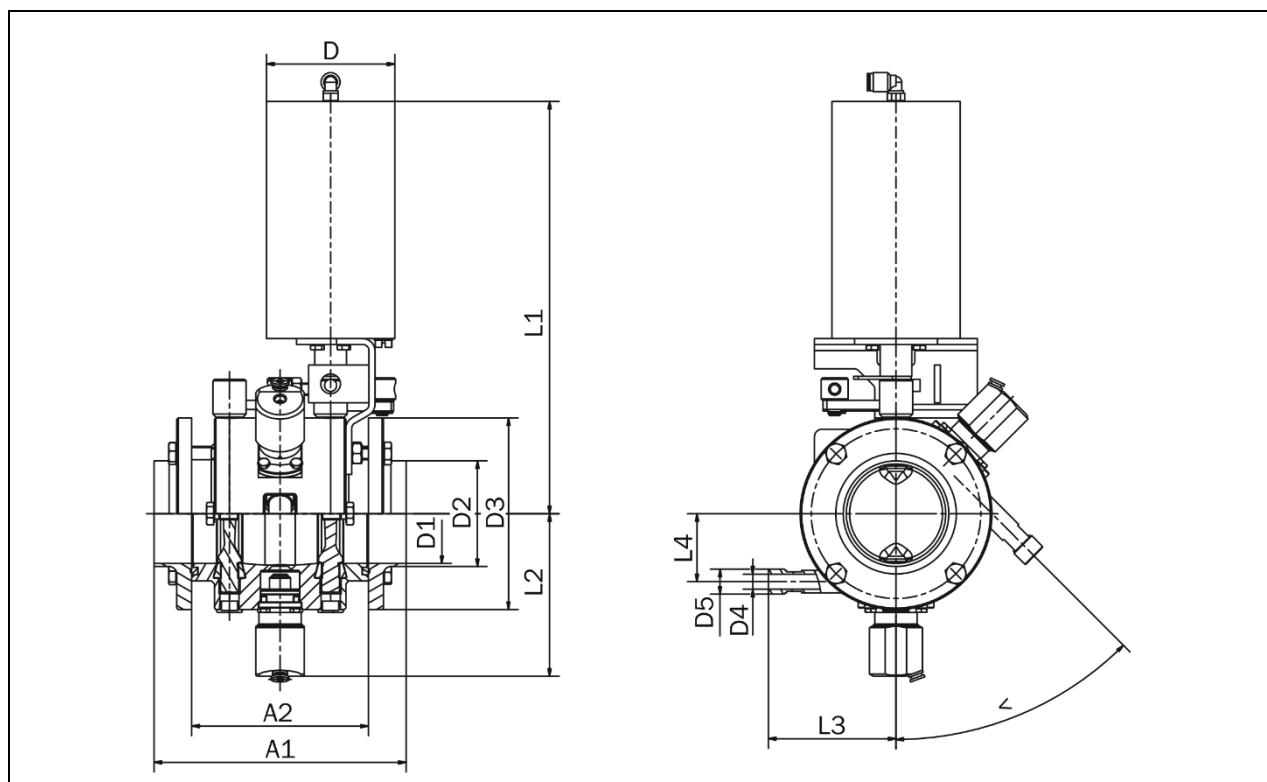


Fig. 4-3: Connection variants with pneum. Actuator

DN	A1	A2	D	D1	D2	D3	D4	D5	L1	L2	L3	L4	<
25	138	98	89	26	29	87	10	G 3/8"	253	87.5	78	25	45 °
32	138	98	89	32	35	92	10	G 3/8"	255	90	82	27.5	45 °
40	148	98	89	38	41	97	10	G 3/8"	258	93	81.5	30.5	30 °
50	151	101	89	50	53	110	10	G 3/8"	264	99.5	83.5	37	45 °
65	167	117	89	66	70	127	10	G 3/8"	273	102.5	85	40	45 °
80	194	134	104	81	85	142	10	G 3/8"	322	115	85	52.5	45 °
100	194	134	104	100	104	162	10	G 3/8"	332	124.5	88.5	62	45 °
125	248	168	129	125	129	200	10	G 3/8"	363	137.5	86.5	75	45 °
150	268	188	129	150	154	230	10	G 3/8"	378	151	89	88.5	45 °
1"	142	102	89	22.1	25.4	87	10	G 3/8"	253	85.5	81	25	45 °
1 1/2"	149	99	89	34.8	38.1	97	10	G 3/8"	257.5	90	81	29	45 °
2"	151	101	89	47.5	50.8	110	10	G 3/8"	264	98	84	35.5	30 °
2 1/2"	167	117	89	60.2	63.5	127	10	G 3/8"	273	104.5	84.5	42	45 °
3"	196	136	104	72.1	76.1	142	10	G 3/8"	322	110.5	90.5	48	45 °
4"	194	134	104	97.4	101.6	162	10	G 3/8"	334.5	123	88.5	60.5	45 °

5 Installation

5.1 Scope of Delivery



The detailed scope of delivery can also be found in the order confirmation.

5.2 Transport and Packaging

AWH products are carefully checked and packed before shipping. However, it is still possible for the product to become damaged during transport.



CAUTION



When setting down the packaging, there is a risk of minor injury due to crushing.

- When transporting the packaging, proceed with particular care.
- Wear safety shoes and protective gloves (see section “2.7 Personal Protective Equipment”).

5.2.1 Delivery (Including for Spare and Replacement Parts)

Incoming Goods Inspection

- Check the product against the delivery note to ensure that it has been delivered in complete form.
- Check for visible damage to the packaging.

Unpacking

- Remove the protective caps from the pipe connections (where applicable).
- Remove the remaining packaging.

Damage

- Check the delivery for damage (visual inspection).

Complaints

If the delivery has been damaged during transport:

- Contact the last shipping agent immediately.
- Retain the packaging (for possible inspection by the shipping agent or for return delivery).

Packaging for return delivery

If possible, use the original packaging and the original packaging material. If neither is available any more, request a packaging company with specialist personnel. Consult AWH if you have any questions regarding packaging and transport safety.

5.2.2 Temporary Storage

Storage in a Closed Room

Storage conditions:

- Temperature: +10 °C - +45 °C/+50 °F - +113 °F
- Humidity: < 60%

5.3 Installation



WARNING

Risk of serious injury due to leaking flange connections and pipe connections!

- The fitting may be installed only by an **expert**.
- Make sure that the flange connections and pipe connections do not have any leaks.
- After installation, tensile and compressive stress must be ruled out.



The fitting is installed in accordance with the structural layout of the pipe system and the technical data for the connection variants (see section 4.4).

See the dimensional drawings for the installation dimensions. Make sure sufficient space is available for operation and maintenance (1 m around the fitting).

It is not possible to convert a manually actuated leakage butterfly valve to a remote control valve with pneumatic actuator.

Installation Position

The leakage butterfly valve must only be installed in a horizontal position or with a maximum inclination of 3%.

The handle or actuator always points upwards. The lower leakage connection and the connections for the auxiliary valves must be mounted horizontally or arranged to allow self-draining.

Installation with the hand or actuator “vertically downward” is not possible.

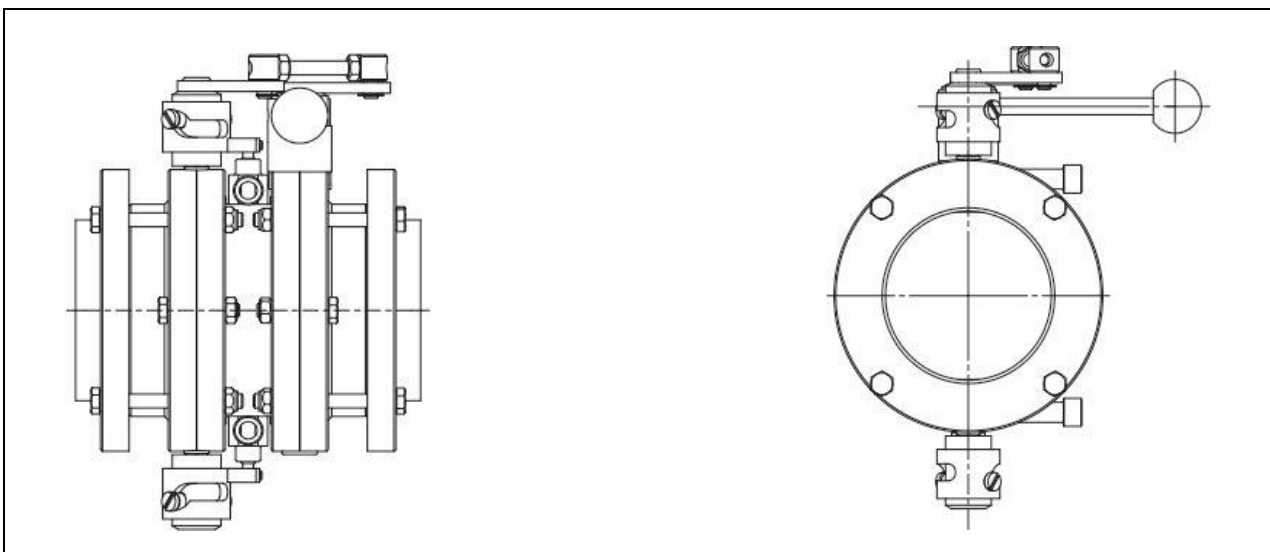


Fig. 5-1: Installation position of leakage butterfly valve with handle

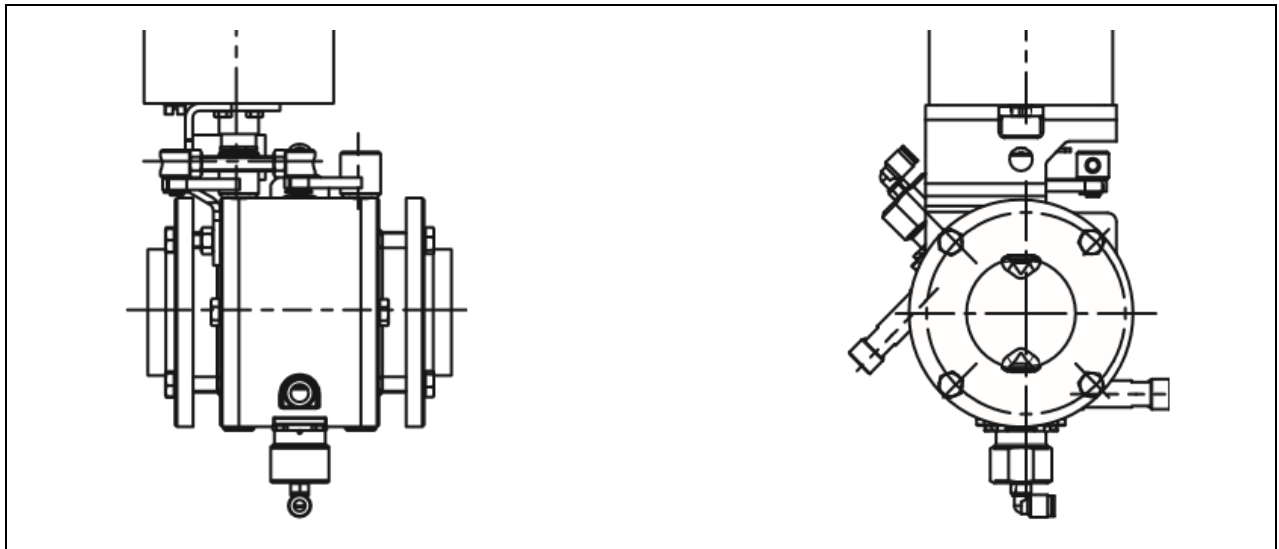


Fig. 5-2: Installation position of leakage butterfly valve with pneum. Actuator

5.3.1 Installation of the Leakage Butterfly Valve

Welding Guidelines

Welding in pipelines must be carried out to DIN EN 10357, series A or DIN 1866 series C.

Welding method: TIG or orbital welding

Seam type: Butt weld joint according to DIN EN 29692

Installed Condition

The outer flange must be removed before welding (see chapter “6 Disassembly/Assembly”).

Welded Seam Preparation

- Cut the ends of the pipes level and at a right angle.
- Remove burrs from the interfaces.
- Align the housing weld-on ends with the pipeline so they are level radially and axially. The weld-on ends must fit flush and be welded without a gap.

Filler Materials

Base Material	Suitable Filler Material
1.4301	1.4302, 1.4316, 1.4551
1.4404	1.4430, 1.4455, 1.4576
1.4435	1.4430, 1.4440

Welding

- Connect forming gas before welding.
- When welding on the outer flanges, take care to ensure correct positioning of the fastening holes.
- Affix 3 to 4 tack weld-ons before welding.

Welding Post-Treatment

No treatment is necessary on the interior after welding. The surface of accessible points can be improved by grinding.

The exterior can be treated afterwards by staining, brushing, grinding and polishing.

Cleaning

- Clean all welded parts before assembly.

5.3.2 Auxiliary Valve Leakage/Rinsing Connections

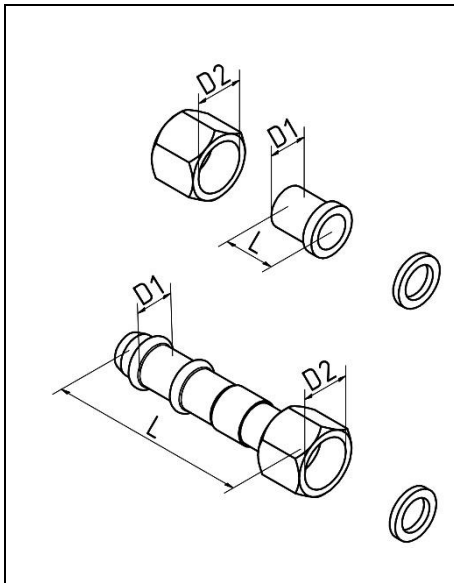


Fig. 5-3: Fittings

- Use only the screw connection (Art. no. 3402.12.002) or the screw connection with hose nozzle (Art. no 3502.15.002) for connecting the auxiliary valve (Fig. 6-1, item 9) and the leakage and rinsing connection (Fig. 6-4, item 17).
- Install the connectors so that they are not subjected to tension.
- Observe the maximum tightening torque of 25 Nm for the union nut.
- Brace the connectors with a 13 mm open-end wrench when loosening and tightening the screw connections.

6 Disassembly/Assembly



WARNING

Risk of serious injury due to incorrect disassembly/assembly!

When using harmful or toxic media, or media which are hazardous in any other way, there is a risk of intoxication or chemical burns!

- The work may be performed only by an **expert**.
- Always be sure to adhere to the switch-off procedure before all installation, maintenance and repair work (see section “2.3.4 switch-off procedure”).
- Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section “2.7 Personal Protective Equipment”).
- If in doubt, contact a specialist company or AWH.



WARNING



Risk of burns due to hot media!

There is a risk of burning if flow media has temperatures over +60 °C/+140 °F.

- Let the flow medium cool down prior to work.
- Drain the pipelines prior to disassembly work.
- Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section “2.7 Personal Protective Equipment”).



WARNING



Risk due to valve disc switching!

When the valve disc is moving, there is a risk of crushing your fingers and hands.

- Only operate the fitting when it is installed.
- Prior to assembly or disassembly work, empty the pipelines and depressurize the compressed air lines.

NOTE

Risk of damage to the fitting during disassembly/assembly

- The work may be performed only by an **expert**.
- Proceed carefully and meticulously.
- Do not use sharp-edged objects.

6.1 Leakage Butterfly Valve with Handle

6.1.1 Structure

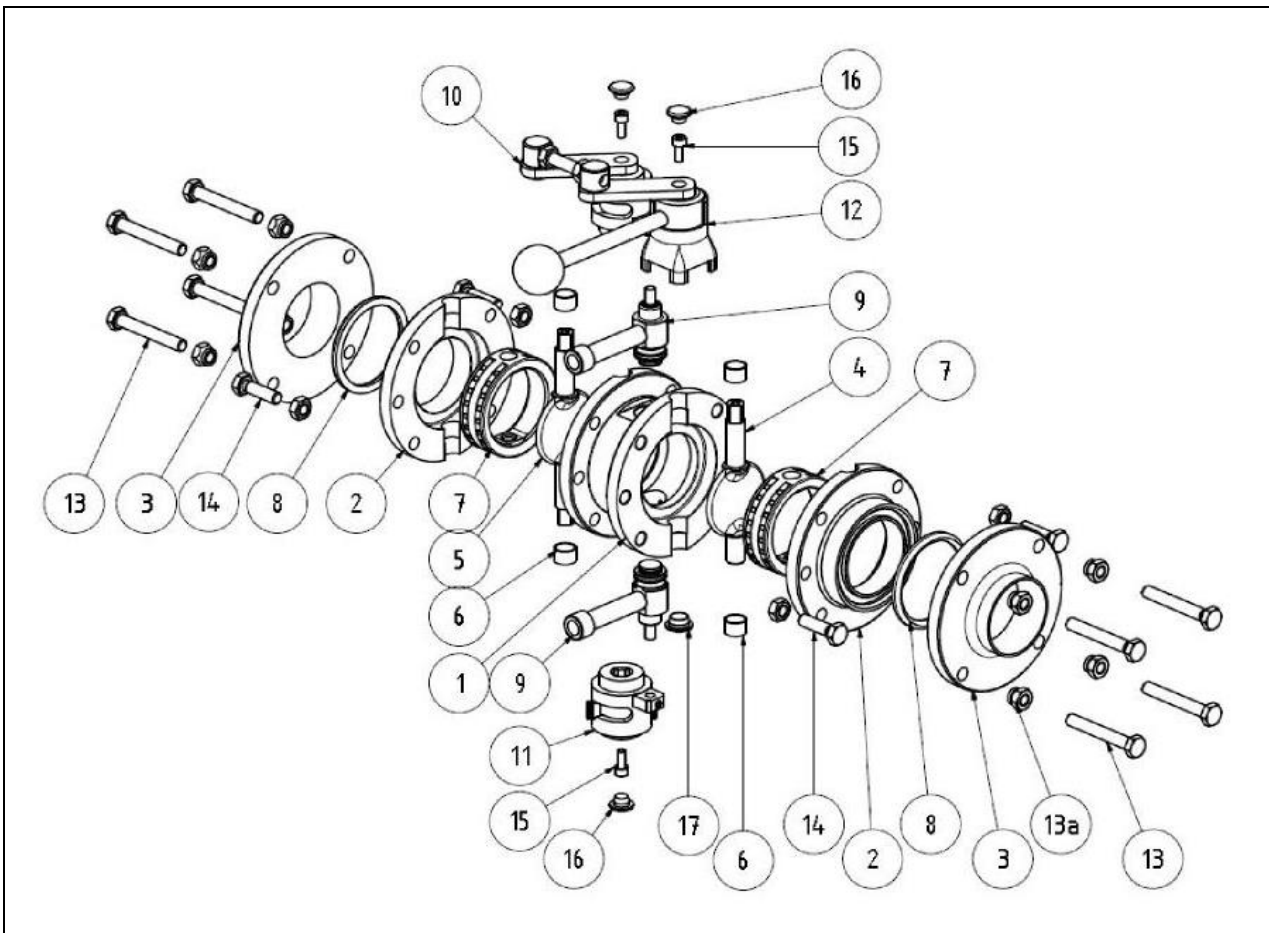


Fig. 6-1: Structure of the Leakage Butterfly Valve with Handle

- | | | | |
|---|----------------------------|----|--------------------------------------|
| 1 | Housing | 10 | Control shaft with shift combination |
| 2 | Inner flange | 11 | Control shaft with switching lever |
| 3 | Outer flange | 12 | Handle |
| 4 | Valve disc | 13 | Screw group |
| 5 | Valve disc with limit stop | 14 | Screw group |
| 6 | Bearing bushing | 15 | Socket-head screw |
| 7 | Butterfly valve gasket | 16 | Blind plug |
| 8 | Seal ring 5 | 17 | Blind plug |
| 9 | Auxiliary valve | | |

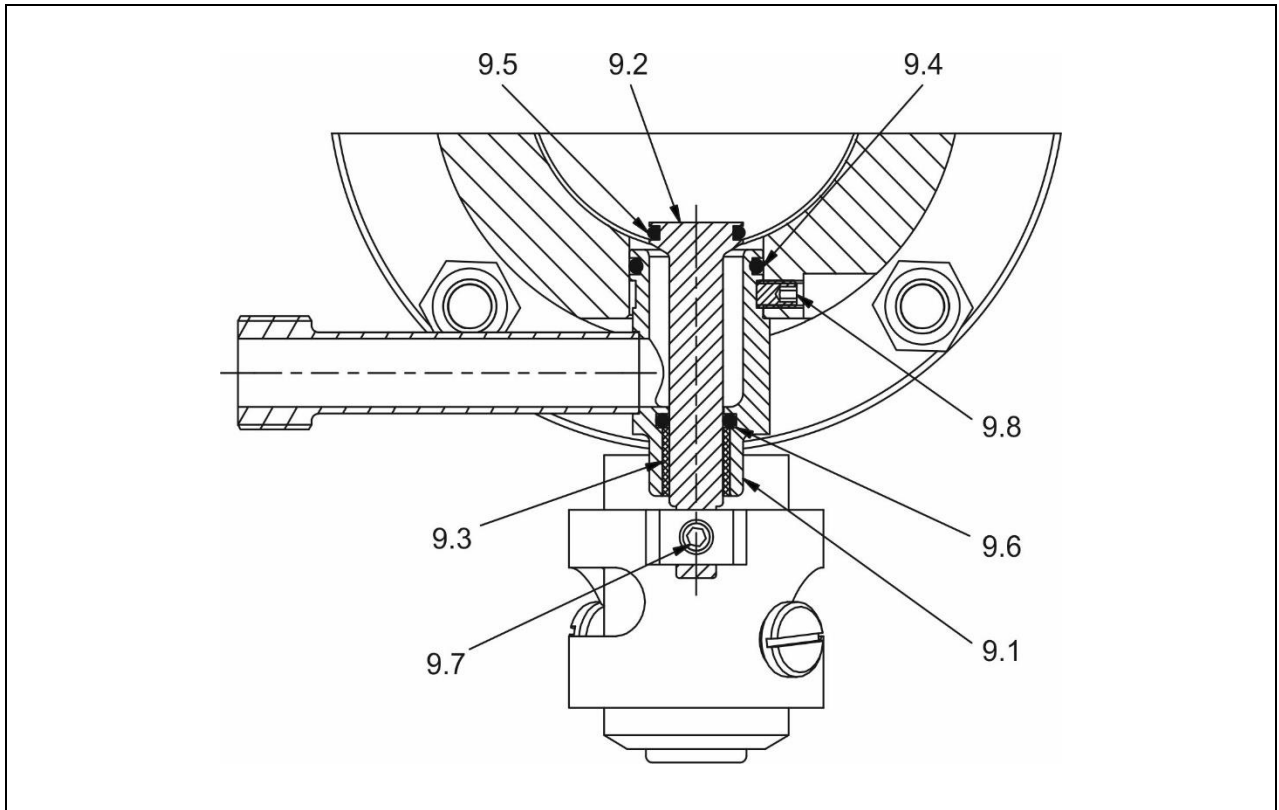


Fig. 6-2: Structure of auxiliary valve

- | | | | |
|-----|-----------------|-----|-----------|
| 9.1 | Housing | 9.5 | O-ring |
| 9.2 | Valve tappet | 9.6 | O-ring |
| 9.3 | Bearing bushing | 9.7 | Set screw |
| 9.4 | O-ring | 9.8 | Set screw |

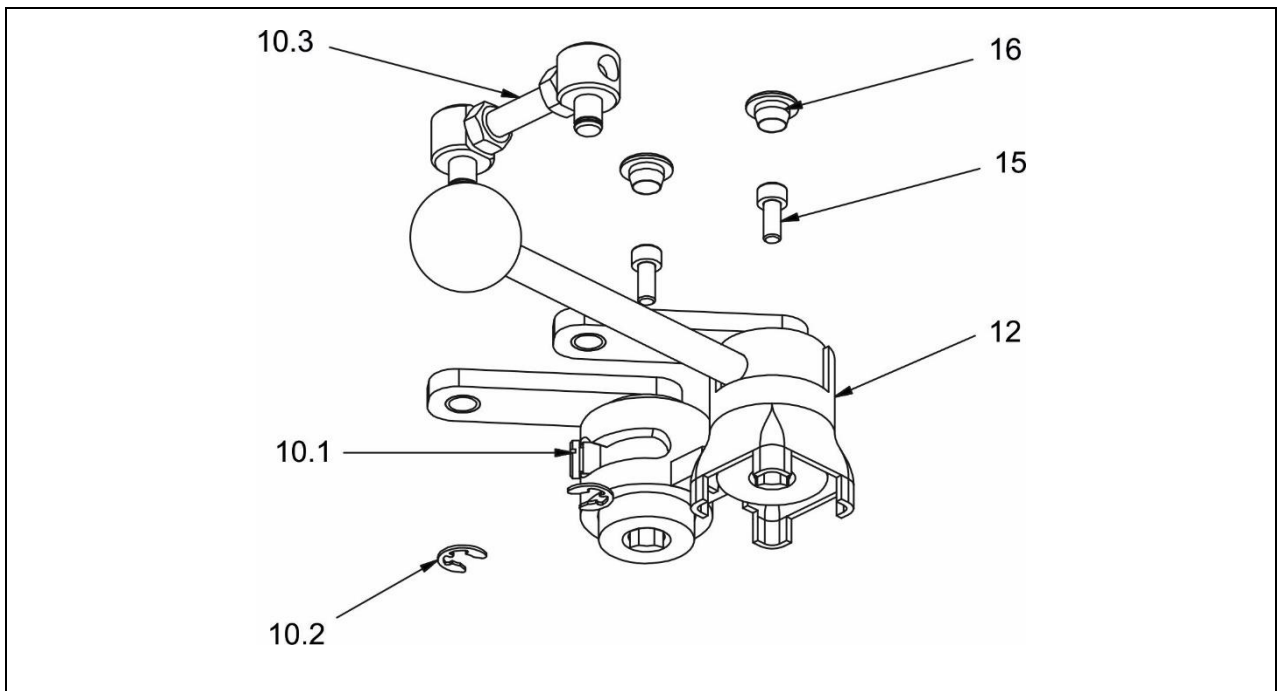


Fig. 6-3: Structure of the shift combination with handle

- | | | | |
|------|---------------|----|--------------------------|
| 10.1 | Control shaft | 12 | Handle with swivel lever |
| 10.2 | Locking ring | 15 | Socket-head screw |
| 10.3 | Shift linkage | 16 | Blind plug |

6.1.2 Removal from the Plant

- Perform the switch-off procedure (see section 2.3.4).
- Unfasten the screw connections on the auxiliary valves (Fig. 6-1, item 9).
- Remove the locking ring from the shift combination (Fig. 6-3, item 10.2).
- Pull the shift linkage upwards and out (Fig. 6-3, item 10.3).
- Release and remove the screw groups (Fig. 6-1, item 14) at the flanges.
- Pull the valve sideways out of the pipeline.

Removing the Control Shafts (Fig. 6-1, items 10 and 11)

- Remove the blanking plug (Fig. 6-1, item 16).
- Release the socket-head screws (Fig. 6-1, item 15) in the control shaft and remove the handle assembly group with the swivel lever (Fig. 6-3, item 12).
- Release the set screws for (Fig. 6-2, item 9.7) the auxiliary valves.
- Remove the control shaft vertically in the axial direction.

Removing the Auxiliary Valves (Fig. 6-1, item 9)

- Release the set screws (Fig. 6-2, item 9.8) from the housing and pull the auxiliary valves out of the valve seats

Removing the Seal

- Release the screws (Fig. 6-1, item 14) and remove the inner flange (Fig. 6-1, item 2).
- Remove the butterfly valve seal with the valve discs (Fig. 6-1, item 7, 4, 5).
- Pull the bearing bushes (Fig. 6-1, item 6) from the shafts of the valve disc.
- Turn the valve discs to the “Open” position and first remove the short shaft and then the long shaft of the valve disc out of the hole in the seal.

6.1.3 Assembly of the Auxiliary Valve with Seal Replacement

- Check the O-rings (Fig. 6-2, items 9.4, 9.5, 9.6) of the auxiliary valves for damage.
- Clean the installation space and check for any damage.
- Grease the seals with approved grease (UNISILIKON L 641).
- Place the O-rings (Fig. 6-2, item 9.6) in the housing (Fig. 6-2, item 9.1).
- Press in the bearing bush (Fig. 6-2, item 9.3).
- Press the seal (Fig. 6-2, item 9.4) into the seat in the housing (Fig. 6-2, item 9.1).
- Push the valve tappet (Fig. 6-2, item 9.2) with the fitted O-ring (Fig. 6-2, item 9.5) into the housing.

The following seal ring sets are available for replacing the seal.

Nominal width	Article No.
DN 25 / 1"	340005091
DN 32	340006091
DN 40 / 1 1/2"	340007091
DN 50 / 2"	340008091
DN 65 / 2 1/2"	340009091
DN 80 / 3"	340010091
DN 100 / 4"	340012091

6.1.4 Assembly with Gasket Replacement



For the nominal widths DN 40 – DN 150, the installation of the seal for the valve disc (Fig. 6-1, item 5) can be started using any of the two shafts.

For the nominal widths DN 25 and DN 32, the valve disc with end stop (Fig. 6-1, item 5) can only be removed with the butterfly valve seal (Fig. 6-1, item 7) as an assembly group and is replaced as a spare part with a pre-installed seal fitted at the factory.

- Check the seals of the valve discs and the auxiliary valves for damage.
- Clean the installation space and check for any damage.
- Clean the valve discs (Fig. 6-1, items 4 and 5) including the shafts, and lubricate the seal (Fig. 6-1, item 7) in the bearing shaft hole using approved grease (UNISILKON 641, e.g. from Klüber).
- Insert the long shaft of the valve discs (Fig. 6-1, items 4 and 5) into the hole in the seal (Fig. 6-1, item 7).
- Press the gasket (Fig. 6-1, item 7) together and pull it over the short shaft.
- **NOTE:** When installing the gasket, the valve disc must not be pivoted into the sealing seat. Slide the bushings (Fig. 6-1, item 6) over the shafts of the valve disc (Fig. 6-1, item 6).
- Place the valve discs (Fig. 6-1, items 4 and 5) with fitted seal in the bearing shaft hole in the housing (Fig. 6-1, item 1).
- Carefully place the inner flange (Fig. 6-1, item 2) on the housing (Fig. 6-1, item 1) without damaging the seal (Fig. 6-1, item 7) and screw in place using the screw group (Fig. 6-1, item 14).
- When screwing them together, check the position of the valve disc shaft in the hole and align it as necessary.
- Set the valve discs (Fig. 6-1, items 4 and 5) to the “Open” position.
- Fit the auxiliary valves (Fig. 6-1, item 9) in the valve seats in the housing, fasten in position using the set screws (Fig. 6-2, item 9.8) and secure these with LOCTITE thread locker.
- Fit the control shafts (Fig. 6-1, items 10 and 11).
- Use the set screws (Fig. 6-2, item 9.7) to fasten the valve shafts of the auxiliary valves to the shifting sleeves.

- Use the socket-head screws (Fig. 6-1, item 15) to fasten the control shafts to the valve disc shafts.
- Close the holes in the control shaft and housing using blind plugs (Fig. 6-1, items 16 and 17). The auxiliary valves must now be in the “Closed” position.
- Attach the handle with swivel lever (Fig. 6-3, item 12) and then the shift linkage (Fig. 6-3, item 10.3) and secure with the lock washers (Fig. 6-3, item 10.4).
- Fasten the handle to the valve disc shaft using the socket-head screws (Fig. 6-1, item 15) and close the holes with the blind plugs (Fig. 6-1, item 16).
- Carry out a function test and check the valve for freedom of movement. Check the auxiliary valves function correctly with the valve disc positions Set the valve discs to the “Closed” position.
- Install the pre-assembled valve back in the pipeline.
- Screw the valve in place by tightening the screw group (Fig. 6-1, item 13) in a diagonal sequence.
- Re-establish the connections to the auxiliary valves (Fig. 6-1, item 9).
- Perform a function test by repeatedly switching to the open/closed position (90°).
- Make sure the handle is fully engaged at the respective position.
- Perform a leak test under operating conditions.

6.2 Leakage Butterfly Valve with Pneumatic Actuator

6.2.1 Structure

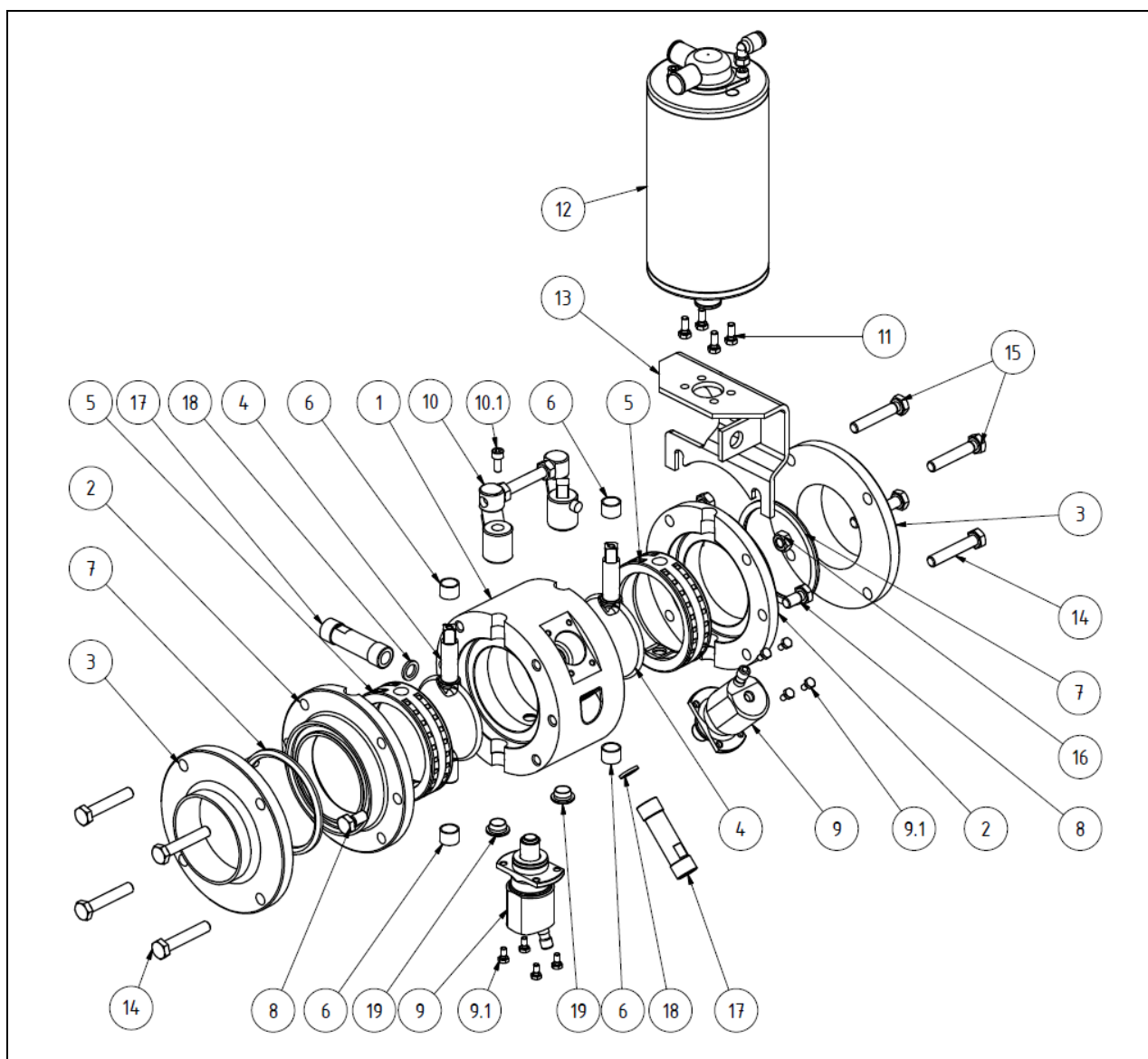


Fig. 6-4: Structure of the Leakage Butterfly Valve with pneum. Actuator

- | | | | |
|-----|------------------------|------|---|
| 1 | Housing | 10.1 | Socket-head screw |
| 2 | Inner flange | 11 | Actuator screw group |
| 3 | Outer flange | 12 | Pneumatic Actuator |
| 4 | Valve disc | 13 | Holding bracket |
| 5 | Butterfly valve gasket | 14 | Screw group |
| 6 | Bearing bushing | 15 | Screw group |
| 7 | Seal ring | 16 | Hexagonal nut |
| 8 | Screw group | 17 | Leakage connection / rinsing connection |
| 9 | Auxiliary valve | 18 | Flat seal |
| 9.1 | Screw group | 19 | Blind plug |
| 10 | Shift combination | | |

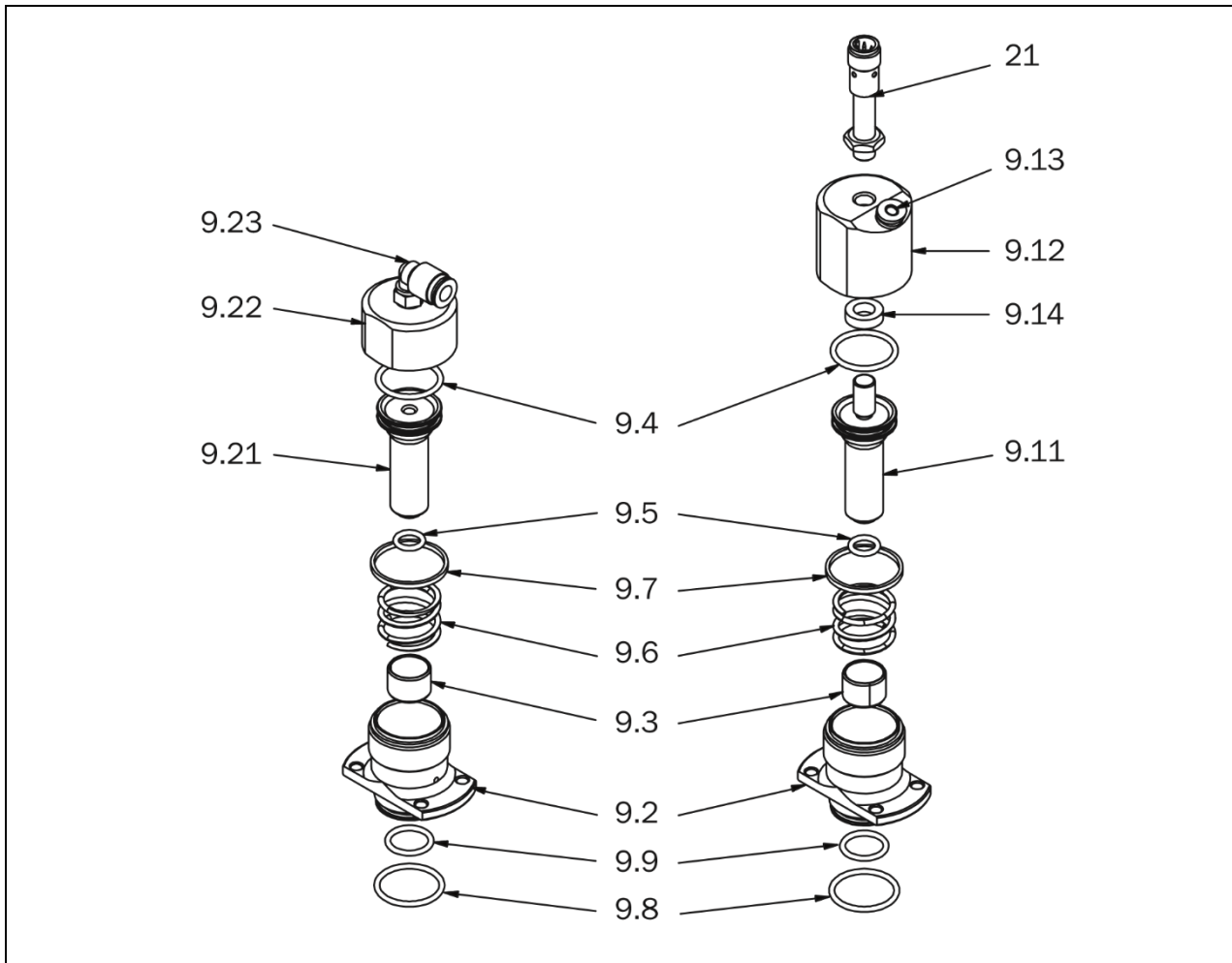


Fig. 6-5: Structure of pneumatically actuated auxiliary valve

- | | | | |
|-----|--------------------|------|------------------------------------|
| 9.2 | Housing | 9.11 | Valve tappet (with monitoring) |
| 9.3 | Bearing bushing | 9.12 | M8 x 1 cap for switch |
| 9.4 | O-ring 22x3 | 9.13 | Air connection Ø 4mm |
| 9.5 | O-ring 8x2 | 9.14 | Slotted ring |
| 9.6 | Compression spring | 9.21 | Valve tappet (without monitoring) |
| 9.7 | Seal ring | 9.22 | Cap (without monitoring) |
| 9.8 | O-ring 21x3 | 9.23 | Air connection Ø 6mm |
| 9.9 | O-ring 14x2 | 21 | M8 x 1 switch (optional accessory) |

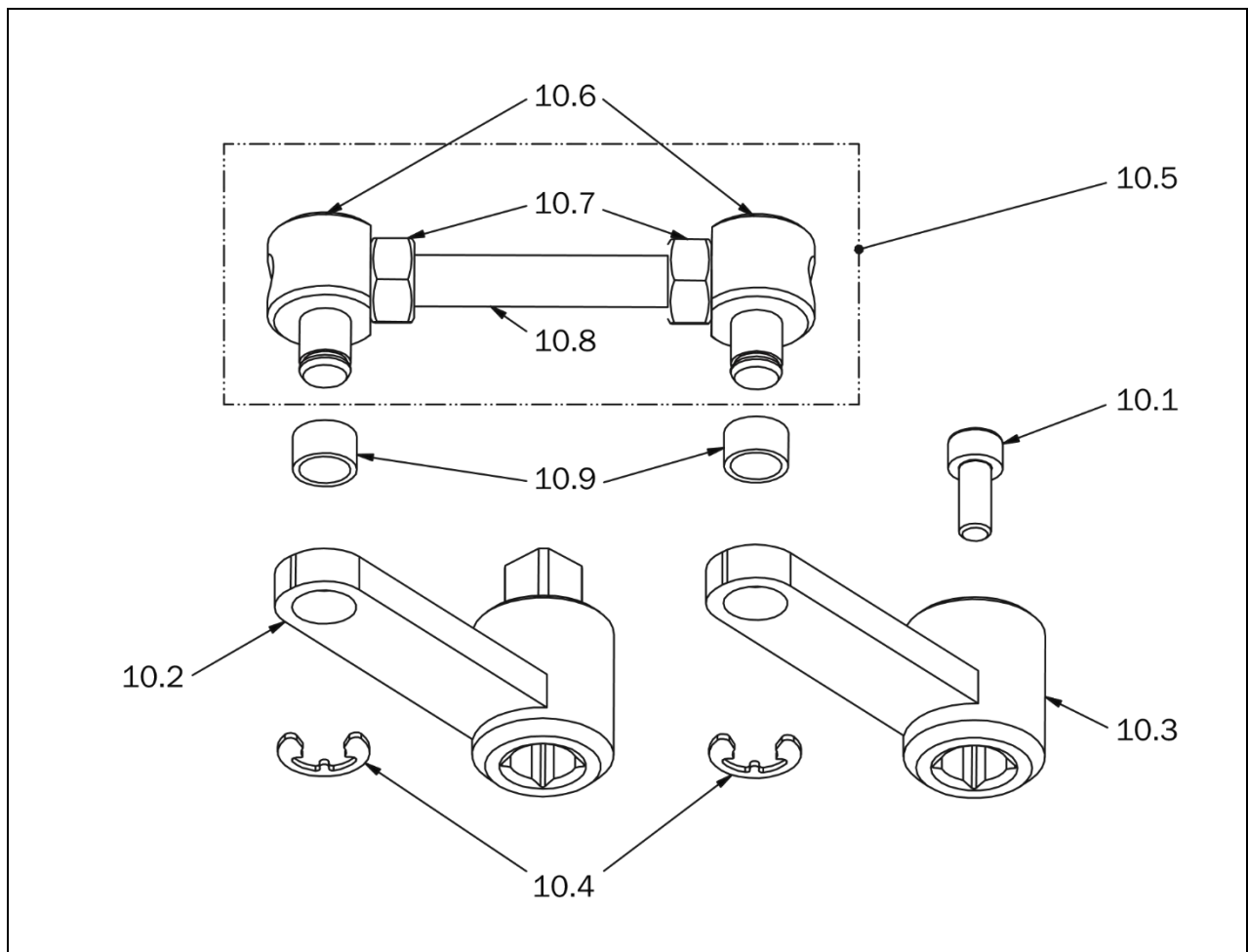


Fig. 6-6: Structure of the shift combination

10.1	Socket-head screw	10.6	Connecting bolt
10.2	Adapter with swivel lever	10.7	Locknut
10.3	Swivel lever	10.8	Threaded rod
10.4	Locking ring	10.9	Bearing bushing
10.5	Shift linkage		

6.2.2 Removal from the Plant

- Perform the switch-off procedure (see section 2.3.4).
- Disconnect the compressed air connection from the pneumatic actuator and the auxiliary valves.
- Disconnect the plug connections to the proximity switches or remove the proximity switches from their holders.
- Unfasten the screw connections on the auxiliary valves.
- Unscrew the socket-head screw (Fig. 6-4, item 10.1).
- Unscrew the nuts (Fig. 6-4, item 16) on the holding bracket of the pneumatic actuator.
- Pull out the entire “pneumatic actuator with holding bracket” assembly group (Fig. 6-4, items 12 and 13) in the direction of the axis.

- Pull out the shift combination (Fig. 6-4, item 10) in the direction of the axis.
- Pull the leakage butterfly valve sideways out of the pipeline.
- Release the screws (Fig. 6-4, item 8) and remove the inner flange (Fig. 6-4, item 2).
- Remove the butterfly valve seal with the valve discs (Fig. 6-4, items 4, and 5).
- Pull the bushings (Fig. 6-4, item 6) off the shafts of the valve disc (Fig. 6-4, item 4).
- Turn the valve disc to the “Open” position.
- First pull the short valve disc shaft out of the hole in the seal then pull out the long shaft.

Disassembly of the Auxiliary Valves

- Release the hexagon bolts (Fig. 6-4, item 9.1) from the housing and pull the auxiliary valves out of the valve seats
- Unscrew the rinsing and leakage connections (Fig. 6-4, item. 17) from the housing of the leakage butterfly valve.
- Remove the flat seals (Fig. 6-4, item 18).
- Unfasten the locknut from the sensor (Fig. 6-11, item 21.1 + 21) and unscrew the sensor.
- Unscrew the cap (Fig. 6-5, items 9.12 + 9.22) from the auxiliary valve.
- **⚠ WARNING** The pre-tensioned compression spring (Fig. 6-5, item 9.6) can jump out of the auxiliary valve when removing the cap. This can result in injury.
Release and remove all screws (Fig. 6-4, items 14 and 15) from both flanges (Fig. 6-4, item 3).
- Carefully pull the valve tappet (Fig. 6-5, items 9.11, 9.21) out of the housing.

6.2.3 Assembly with Gasket Replacement

- Check the seals of the valve discs and the auxiliary valves for damage.
- Clean the installation space and check for any damage.
- Clean the valve disc (Fig. 6-4, item 4) including the shafts, and lubricate the seal (Fig. 6-4, item 5) in the bearing shaft hole using approved grease (BERULUB SIHAF 1).
- Insert the long shaft of the valve disc (Fig. 6-4, item 4) into the hole in the gasket (Fig. 6-4, item 5).
- Press the gasket (Fig. 6-4, item 5) together and pull it over the short shaft.
- **NOTE:** When installing the gasket, the valve disc must not be pivoted into the sealing seat. Slide the bushings (Fig. 6-4, item 6) over the shafts of the valve disc (Fig. 6-4, item 4).
- **NOTE** Make sure that the long valve disc shafts with a square profile are opposite to the lower auxiliary valve holder. Insert the valve disc (Fig. 6-4, item 4) with attached seal (Fig. 6-4, item 5) into the bearing shaft hole in the housing (Fig. 6-4, item 1).

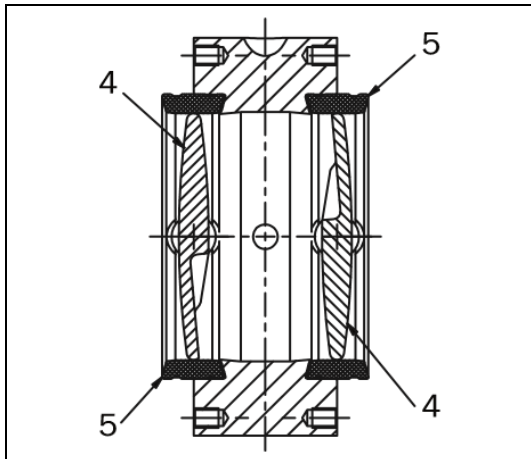


Fig. 6-7: Swivel lever installation

- **NOTE** The milled surfaces must face towards the interior of the valve when installing the valve discs in the valves with nominal widths of DN 80 and DN 100 or 3" and 4".

- Carefully place the inner flange (Fig. 6-4, item 2) on the housing without damaging the seals (Fig. 6-4, item 5) and screw in place using the screw group (Fig. 6-4, item 8).
- Check the position of the valve disc shaft in the hole and align it as necessary when screwing together.
- Set the valve disc (Fig. 6-4, item 4) to the "Closed" position.

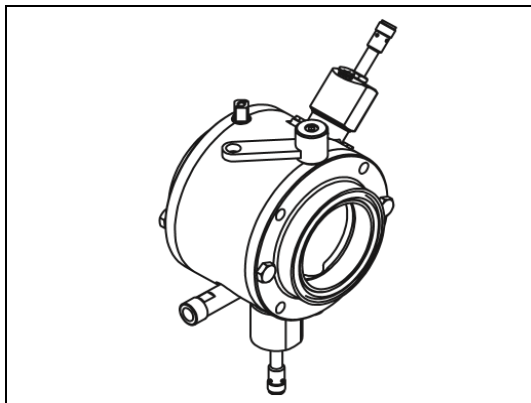


Fig. 6-8: Swivel lever installation

- Fit the swivel lever (Fig. 6-6, item 10.3) and fasten in place using the socket-head screw (Fig. 6-6, item 10.1). Pay attention to the position of the swivel lever when doing this (see adjacent figure).
- Fit the adapter with swivel lever (Fig. 6-6, item 10.2).
- Fit the shift linkage (Fig. 6-6, item 10.5) without lock washers.

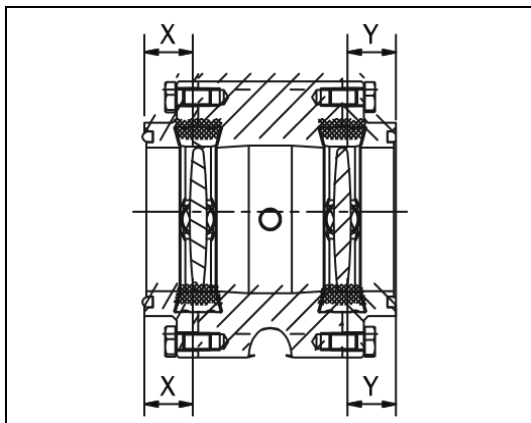


Fig. 6-9: Checking the valve position

- Carry out a function test and check the valve for freedom of movement.
- Set the valve discs to the "Closed" position. Check the correct position (90° in relation to the direction of flow) with a depth gage.

- Correct the position of the valve discs if required. To do this, unfasten one of the two locknuts (Fig. 6-6, item 10.7) and remove the shift linkage (Fig. 6-6, item 10.5).

Screw the corresponding connecting bolts (Fig. 6-6, item 10.6) further up or further down on the threaded rod. Insert the shift linkage back into the shift combination.

- Insert the auxiliary valves (Fig. 6-4, item 9) into the seats of the housing and secure them with the screw group (Fig. 6-4, item 9.1).
- Fit the flat seals (Fig. 6-4, item 18) into the G 3/8 threaded holes in the housing (Fig. 6-4, item 1).
- Then tightly screw on the rinsing and leakage connections (Fig. 6-4, item. 17).
- Fit the pre-assembled valve back in the pipeline and screw in place by tightening the screw groups (Fig. 6-4, item 14) in a diagonal sequence. Make sure that the screws in the screw group with a continuous thread (Fig. 6-4, item 15) are fitted with one nut (Fig. 6-4, item 16) each between the flanges for the holding bracket.
- Remove the shift linkage and adapter with swivel lever again (Fig. 6-6, items 10.5 and 10.2).
- Loosen the screws (Fig. 6-4, item 11) on the underside of the actuator.

NOTE

When installing the holding bracket with the bolted pneumatic actuator on to the leakage butterfly valve, please observe the following:

- *that the square section of the valve disc fits into the inner square of the pneumatic actuator,*
- *The pneumatic actuator must be exactly aligned with the valve disc.*
- *The milled slot in the holding bracket is fitted and fastened to the upper pair of bolts.*

- Place the “Pneumatic actuator with holding bracket” assembly group (Fig. 6-4, items 12 and 13) together with the adapter with swivel lever onto the square drive of the valve disc shaft. Do not change the position of the valve disc when doing this.
- Before installation in the pipe system, conduct a test switching procedure to check that the valve disc in the leakage butterfly valve moves to the desired “Closed” and “Open” position. If this is not the case, the valve disc will need to be installed offset by 90°.
- Fit the shift linkage (Fig. 6-6, item 10.5) into the shift combination and secure it with the locking ring (Fig. 6-6, item 10.4).
- Tighten the nuts (Fig. 6-4, item 16).
- Tighten the screw group (Fig. 6-4, item 11) in a diagonal sequence.
- Connect the compressed air connections to the pneumatic actuator and the auxiliary valves.
- Install the proximity switches and reestablish the electrical connection.

- Perform a function test by repeatedly switching to the open/closed position (90°). Make sure that the switch cam (Fig. 6-10, item 23) performs a full 90° movement.



The 90° setting for the “open” or “closed” position **DOES NOT** apply to the nominal widths DN 125 - 150.

- Perform a leak test under operating conditions.

6.2.4 Installation of a pneumatic actuator with feedback



The valve disc position feedback can be provided in various ways, depending on the position to be detected, with 1 or 2 proximity switches. The proximity switches are fitted to the mounted valve.

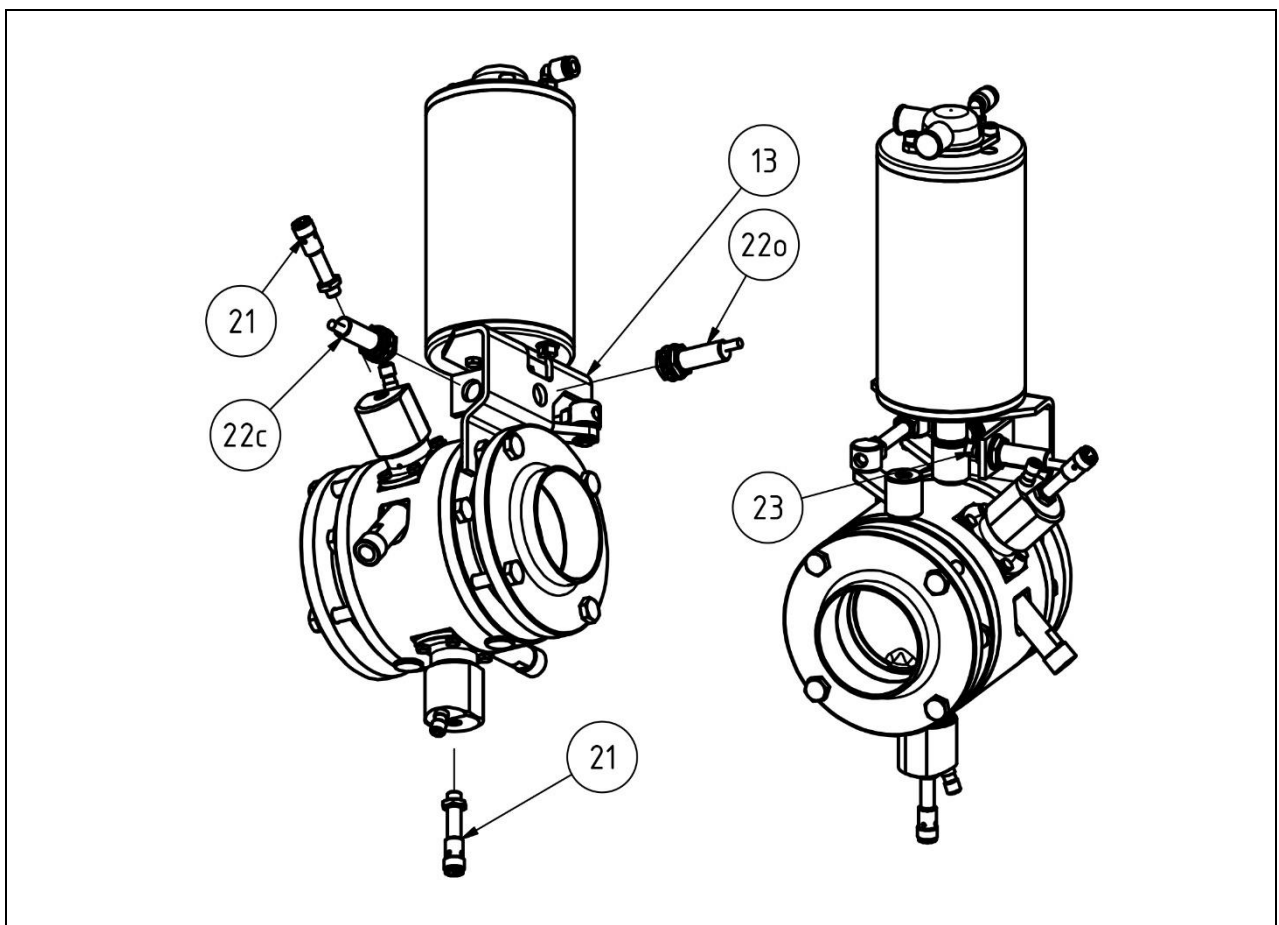


Fig. 6-10: Pneumatic Actuator with Feedback

12	Pneumatic Actuator	22c	M12 x 1 switch for “closed” valve disc position
13	Holding bracket	22o	M12 x 1 switch for “open” valve disc position
21	M8 x 1 switch (optional accessory)	23	Switch cam

- Screw the first nut onto the switches for monitoring the valve disc positions (Fig. 6-10, items 22c + 22o) and insert these into the holes in the holding bracket (Fig. 6-10, item 13).
- Set a switching gap of 1 - 1.5 mm between the end face of the sensor and the switching cam.

- Screw the switches tight with the second nut.
- The switch cam (Fig. 6-10, item 23) is opposite the switch for monitoring the “Closed” position (Fig. 6-10, item 22c).
- After opening, the switch cam (Fig. 6-10, item 23) is opposite the switch for monitoring the “Open” position (Fig. 6-10, item 22o).

6.2.5 Assembly of the Pneumatic Auxiliary Valve with Feedback



Only the “Open” position can be monitored on the pneumatically operated auxiliary valve. This requires auxiliary valves with a hole in the cap. For installation, the auxiliary valve must be in the “Open” position.

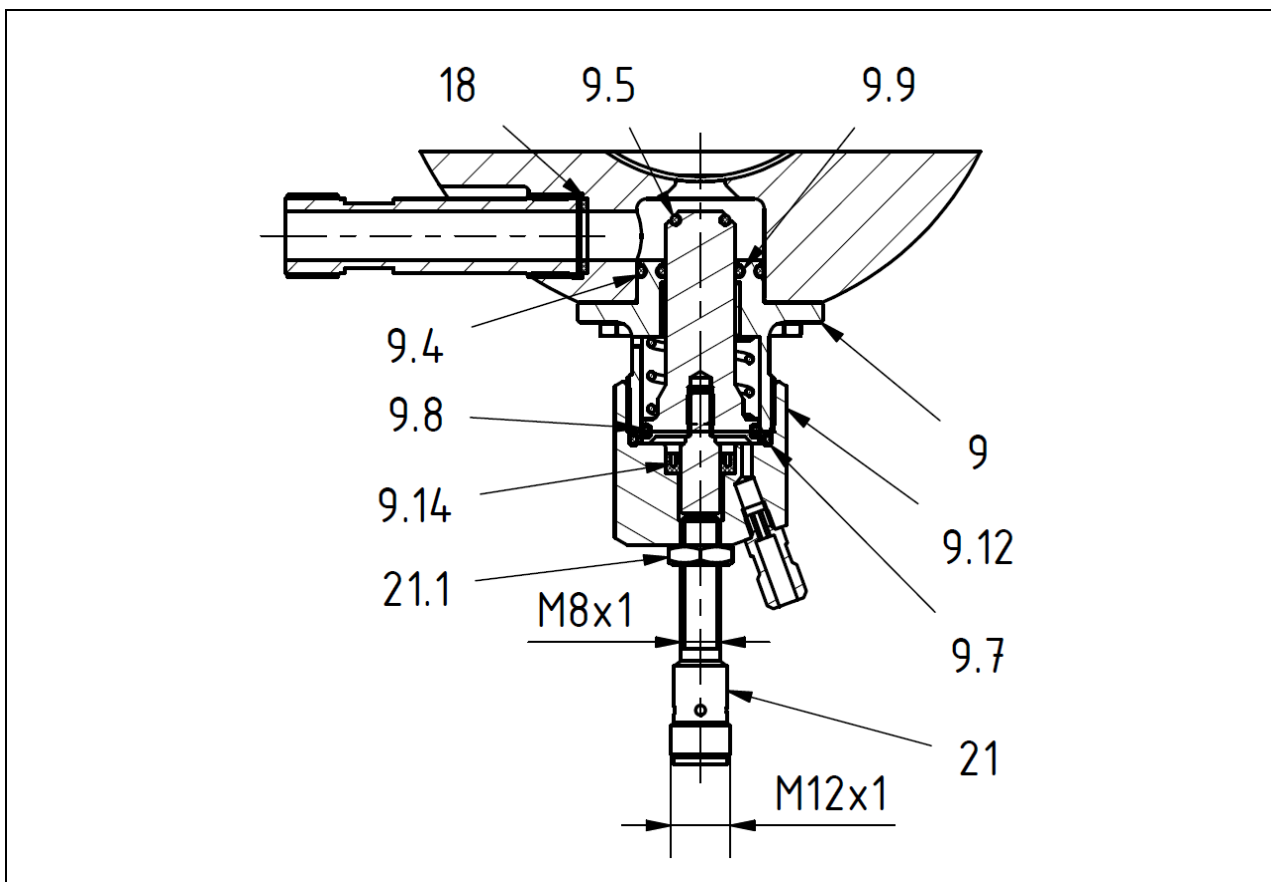


Fig. 6-11: Pneumatic auxiliary valve with feedback and seals

9	Auxiliary valve	9.12	M8 x 1 cap for switch
9.4	O-ring 22x2	9.14	Slotted ring
9.5	O-ring 8x2	18	Flat seal
9.7	Seal ring	21	M8 x 1 switch
9.8	O-ring 21x3	21.1	M8 x 1 locknut
9.9	O-ring 14x2		

- Screw one of the two supplied nuts (Fig. 6-11, item 21.1) approx. 10 mm onto the sensor (Fig. 6-11, item 21).
- Screw in the sensor as far as the stop, without exerting excessive force.

- Turn the sensor back by a half to three-quarter turn and secure the position by locking the nut (Fig. 6-11, item 21.1).

6.2.6 Assembly of the Auxiliary Valve with Seal Replacement

- Check the O-rings (Fig. 6-11, items 9.4, 9.5, 9.8, 9.9) slotted ring (Fig. 6-11, items 9.14) for damage.
- Clean the installation space and valve seat in the housing and check for any damage.
- Only for version with sensor: Change the slotted ring if required. Use 1 - 2 drops of super glue to secure it against slipping out. Make sure you do not get any glue on the sealing and sliding surfaces.
- Grease the O-rings and sliding surfaces with approved grease (BERULUB SIHAF 1).
- Apply an anti-seizing compound to the thread on the auxiliary valve housing, e.g. BECHEM ANTISEIZE.
- Fit the O-ring (Fig. 6-11, item 9.8) in the slot on the valve tappet.
- Fit the O-rings (Fig. 6-11, 9.4 and 9.9) on the housing.
- Fit the O-rings (Fig. 6-11, 9.8 and 9.5) on the tappet.
- Place the spring (Fig. 6-5, item 9.6) in the housing.
- Guide the valve tappet (Fig. 6-5, items 9.11 and 9.21) into the seat in the housing (Fig. 6-5, item 9.2).
- Place the seal ring (Fig. 6-11, item 9.7) into the slot provided for it in the auxiliary valve housing.
- Screw on the cap (Fig. 6-11, item 9.12) firmly (32 mm open-end wrench)
- Perform a function test and leak test under operating conditions.
- Check the freedom of movement of the tappet and that it returns to its position automatically when the control air is vented.
- Place the complete auxiliary valve into the holder in the valve housing and screw it in place with the screws (Fig. 6-4, item 9.1).
- Reconnect the compressed air supply to the auxiliary valves.

6.2.7 Access Protection Installation

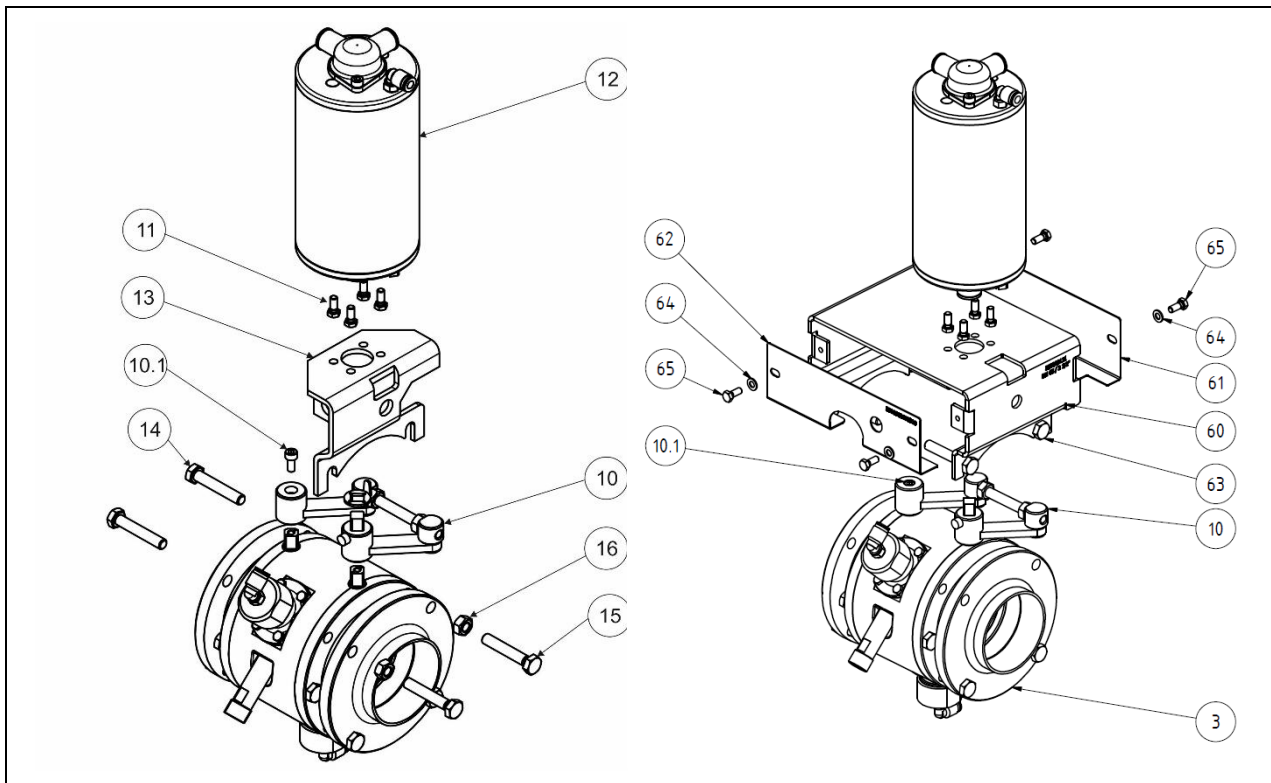


Fig. 6-12: Access Protection Installation

3	Outer flange	16	M8 hexagonal nut
10	Shift combination	60	Access protection bracket
10.1	M5 socket-head screw	61	Cover plate 1
11	Actuator screw group	62	Cover plate 2
12	Pneumatic Actuator	63	M8 hexagonal bolt
13	Holding bracket	64	Washer
14	M8 hexagonal bolt	65	Hexagonal bolt
15	M8 hexagonal bolt		

- Depressurize the pipe system and the compressed air connection of the pneumatic actuator and the auxiliary valves.
- Drain the pipe system.
- Disconnect the compressed air connection from the pneumatic actuator.
- Disconnect the plug connections to the switches and remove the switches from their holders.
- Unscrew the socket-head screw (Fig. 6-12, item 10.1).
- Unscrew the nuts (Fig. 6-12, item 16) on the holding bracket (Fig. 6-12, item 13) of the pneumatic actuator (Fig. 6-12, item 12).
- Pull out the entire “Pneumatic actuator with holding bracket” assembly group (Fig. 6-12, items 12 and 13), the position indicator (Fig. 6-12, item 17) and the shift combination (Fig. 6-12, item 10) in the direction of the axis.

- Unscrew and remove the two upper screws (Fig. 6-12, items 14 and 15) and the nuts (Fig. 6-12, item 16).
- Unscrew the hexagonal bolts (Fig. 6-12, item 11) and remove the holding bracket (Fig. 6-12, item 13) from the actuator.
- Screw the actuator (Fig. 6-12, item 12) onto the bracket (Fig. 6-12, item 60) using the hexagonal bolts (Fig. 6-12, item 11) until finger-tight.
- Fit the shift combination (Fig. 6-12, item 10) onto the square drive of the valve disc shafts and secure it with the socket-head screw (Fig. 6-12, item 10.1).
- Fit the position indicator (Fig. 6-12, item 17) on the square drive .
- Push the holding bracket with actuator (Fig. 6-12, item 60 and item 12) carefully over the outer flange (Fig. 6-12, item 3).
- When doing this, guide the square drive of the shift combination (Fig. 6-12, item 10) into the square socket of the actuator (Fig. 6-12, item 12).
- Screw the bracket (Fig. 6-12, item. 60) on tightly with the screws (Fig. 6-12, item 63) included in the retrofit kit.
- Check the valve disc position as described in section 6.2.3.
- Tighten the screws (Fig. 6-12, item 11).
- Install the switches for monitoring the position of the actuator into the holes in the bracket (Fig. 6-12, item 60, M12 x 1) and the cover plate (Fig. 6-12, item 62, hole diameter D = 13).
- Screw the cover plate (Fig. 6-12, item 62) tightly onto the bracket with two supplied washers (Fig. 6-12, item 64) and screws (Fig. 6-12, item 65).
- Re-establish the pneumatic connection to the actuator and the electrical connections to the proximity switches.
- Perform a function test by repeatedly switching to the “Open / Closed” positions (90°). Make sure that the position indicator (Fig. 6-12, item 13) performs a full 90° movement when doing this.
- Perform a leak test under operating conditions.
- Screw the cover plate (Fig. 6-12, item 61) tightly onto the bracket with two supplied washers (Fig. 6-12, item 64) and screws (Fig. 6-12, item 65).

7 Maintenance/Cleaning

WARNING

Risk of serious injury due to incorrect maintenance!

When using harmful or toxic media, or media which are hazardous in any other way, there is a risk of intoxication or chemical burns!

- The work may be performed only by an **expert**.
- Always adhere to the switch-off procedure before all cleaning, maintenance and repair work (see section 2.3.4).
- Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section “2.7 Personal Protective Equipment”).
- If in doubt, contact AWH.

WARNING



Risk of burns due to hot media!

There is a risk of burning if flow media has temperatures over +60 °C/+ 140 °F.

- Let the flow medium cool down prior to work.
- Drain the pipelines prior to disassembly work.
- Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section “2.7 Personal Protective Equipment”).

CAUTION



Risk of minor injury due to crushing.

There is a risk of crushing between individual components during cleaning, maintenance or repair work.

- Proceed with particular care with this type of work.
- Wear safety gloves when working (see section 2.7 Personal Protective Equipment).

NOTE

Pneumatic actuators:

See also section “4.3.1 Compressed Air Connection”.

Equip the compressed air line with a maintenance unit (pressure regulator, filter, water separator) as this will prolong the service life of the O-rings.

The pneumatic actuator should generally be operated with dry, oil-free air.

7.1 Cleaning/Maintenance Intervals

To ensure proper operation of the fitting, it must be cleaned and maintained at regular intervals.

- Define the cleaning interval depending on the operating environment and the type of flow medium used.
- Define the inspection intervals for gaskets depending on the operating environment and the type of flow medium used.
- The fitting is subject to vibrations during operation, which can loosen the screwed and clamp connections. To prevent damage, check the fitting for loose connections at regular intervals (recommended interval for single-shift operation: 3 months).



Refer to the relevant manufacturer's instructions for details on cleaning and maintenance work for supplier components.

7.2 Notes on Cleaning



WARNING



Risk of injury due to incorrect handling of cleaning agents!

- Store the cleaning agents in accordance with the relevant safety guidelines.
- When handling cleaning agents, follow the safety instructions on the cleaning agent manufacturer's data sheet.
- Always wear rubber gloves and protective goggles when cleaning (see section "2.7 Personal Protective Equipment").
- Take care not to touch the fitting or pipeline when processing hot media or during the sterilization process.

To clean the product when installed, simply wash the surfaces that come into contact with the media (CIP cleaning).

Cleaning agents:	3% nitric acid	max. +60 °C/+140 °F
	3% caustic soda	max. +80 °C/+176 °F

Please observe the following:

- Use only clean and chlorine-free water.
- Measure the quantities carefully to avoid overly strong concentrations of cleaning agent.
- Rinse with plenty of clean water after cleaning.

7.3 Spare Parts Stock

NOTE

Use only genuine spare parts, since only these will guarantee perfect functioning.

Replacement and accessory parts not supplied by AWH have not been checked or approved by AWH. Under certain circumstances, the installation and/or use of such products could therefore result in changes with negative results to the properties of the fitting specified by its design and the higher-level plant. AWH accepts no liability for any damage arising from the use of non-original parts or non-original accessory parts.

Standard parts can be obtained from specialist dealers.

Spare parts and the associated spare part numbers can be found in the Valve technology catalog (available on Internet page <http://www.awh.eu>).



Information on standard replacement and wearing parts such as valve seals, valve discs (DN 25 - DN 65), DN 125 - DN 150, 1" - 2 1/2", bearing bushes, etc. can be found on the product pages of the current AWH catalog on the Internet, or can be obtained directly from AWH.

When requesting spare parts, always specify the type of fitting.

The following details are important for all spare part requests or questions:

- Nominal width
- Sealing material
- Housing material
- Handle/pneumatic actuator
- Accessories (feedback, etc.)

Spare Parts List for the Leakage Butterfly Valve with Handle

Spare part	Article No.
Maintenance kit leakage butterfly valve DN 25 EPDM	340005191
Maintenance kit leakage butterfly valve DN 32 EPDM	340006191
Maintenance kit leakage butterfly valve DN 40 EPDM	340007191
Maintenance kit leakage butterfly valve DN 50 EPDM	340008191
Maintenance kit leakage butterfly valve DN 65 EPDM	340009191
Maintenance kit leakage butterfly valve DN 80 EPDM	340010191
Valve disc DN 25 leakage butterfly valve with end-stop and EPDM seal	340205302/1
Valve disc DN 25 leakage butterfly valve with end-stop and FKM seal	340205302/2
Valve disc DN 25 leakage butterfly valve with end-stop and HNBR seal	340205302/3

Spare part	Article No.
Valve disc DN 32 leakage butterfly valve with end-stop and EPDM seal	340206302/1
Valve disc DN 32 leakage butterfly valve with end-stop and FKM seal	340206302/2
Valve disc DN 32 leakage butterfly valve with end-stop and HNBR seal	340206302/3
Valve disc DN 40 leakage butterfly valve with end-stop	340207202
Valve disc DN 50 leakage butterfly valve with end-stop	340208252
Valve disc DN 65 leakage butterfly valve with end-stop	340209252
Valve disc DN 80 leakage butterfly valve 0° - 80°	340210142
Valve disc DN 80 leakage butterfly valve with end-stop	340210262
Valve disc DN 100 leakage butterfly valve 0° - 80°	340212142
Valve disc DN 100 leakage butterfly valve with end-stop	340212262

Maintenance Kit for the Leakage Butterfly Valve with Handle

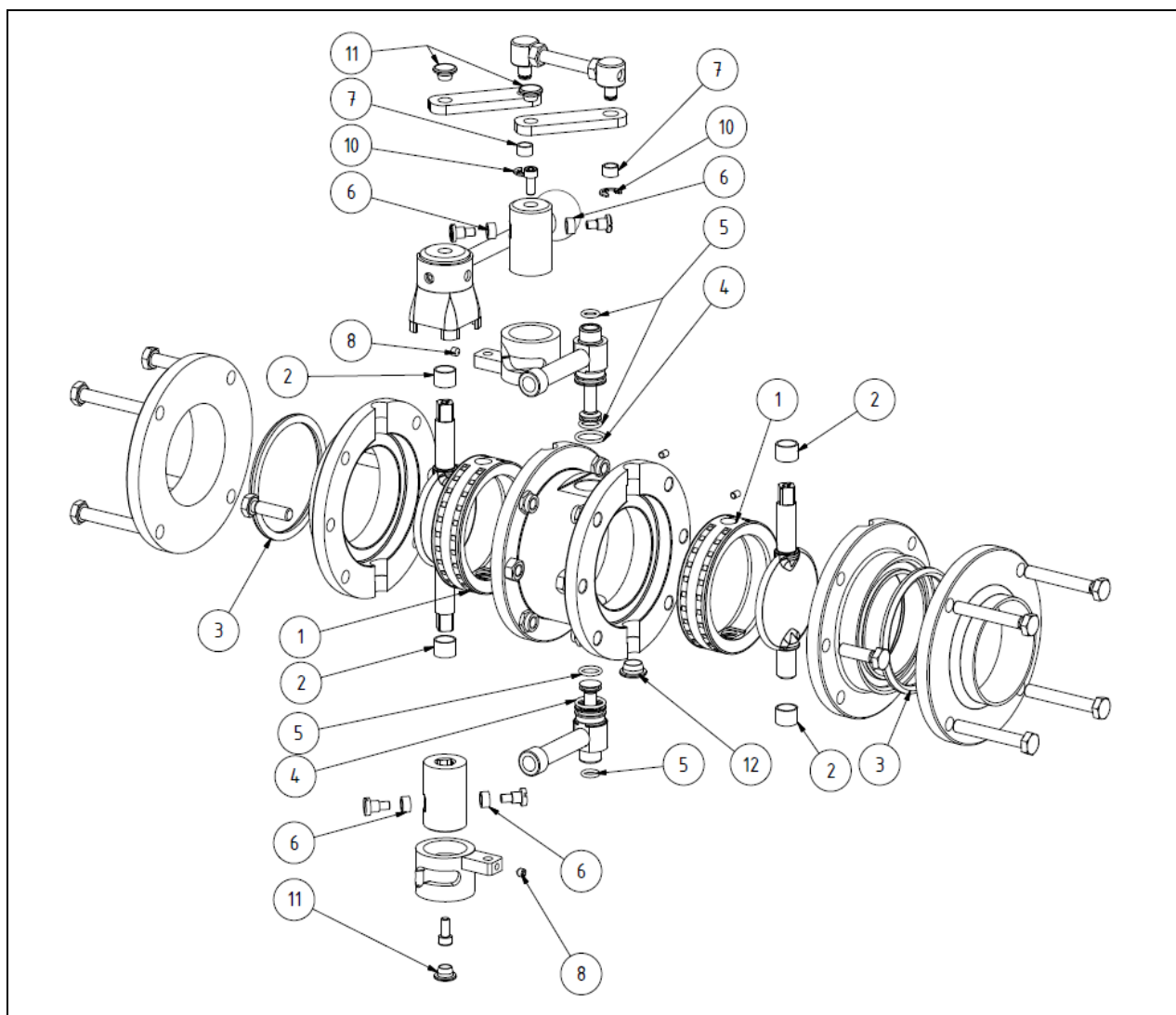


Fig. 7-1: Maintenance Kit for the Leakage Butterfly Valve with Handle

Item	Quantity	Article No.	Spare part	Material
1	2	380108001	Valve disc end seal DN 50	EPDM
2	4	381009014	SV bearing bushing DN 40 – 65	PTFE
3	2	1000800005054	Milk pipe threaded ring DN 50	EPDM
4	2	1060500001603	O-ring Ø 16x2	EPDM
5	4	1060500000854	O-ring Ø 8x2	EPDM
6	4	340208524	Control shaft bushing DN 25 – 100	IGLIDUR
7	2	1032	Plain bearing GSM 0810-06	IGLIDUR
8	2	430026	Set screw M5 x 5 DIN 914	A2
9	2	430105	Set screw M4 x 6 DIN 913	A2
10	2	450288	Lock washer Ø 7 DIN 6799	A2
11	2	900763	Blanking plug GPN300 F04	PHT
12	1	900767	Blanking plug GPN300 F091	PHT

Spare Parts List for the Leakage Butterfly Valve with Pneumatic Actuator

Spare part	Article No.
Valve disc DN 80 LSVP 1.4404	3510000800230
Valve disc DN 100 LSVP 1.4404	3510001000230
Valve disc 3" LSVP 1.4404	3510000600230
Valve disc 4" LSVP 1.4404	3510000620230
Auxiliary valve prepared for switch EPDM	3510000001030
Auxiliary valve prepared for switch FPM	3510000001230
Auxiliary valve without sensor EPDM	3510000002030
Auxiliary valve without sensor FPM	3510000002230
Service kit auxiliary valve LSVP EPDM	3510000003000
Service kit auxiliary valve LSVP FPM	3510000003200
Actuator for LSVP DN 25 – DN 100, 1"-4"	395212000
Actuator for LSVP DN 125 – DN 150	392920000
Cap for auxiliary valve M8 x 1 for switch	3510000004030
Switch for auxiliary valve	390135
Retrofit Set VMon for VMove	See catalog

For leakage butterfly valves with pneumatically actuated auxiliary valves we offer you a “service kit LSVP” containing wearing parts for auxiliary valves.

8 Faults

8.1 Safety Instructions



WARNING

Risk of serious injury due to incorrectly performed repair work!

When using harmful or toxic media, or media which are hazardous in any other way, there is a risk of intoxication or chemical burns!

- Troubleshooting work should only be carried out by specialist personnel.
- Always adhere to the switch-off procedure prior to repair work (see section 2.3.4).
- Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section “2.7 Personal Protective Equipment”).
- If in doubt, contact AWH.



WARNING



Risk of burns due to hot media!

There is a risk of burning if flow media has temperatures over +60 °C/+140 °F.

- Let the flow medium cool down prior to work.
- Drain the pipelines prior to disassembly work.
- Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section “2.7 Personal Protective Equipment”).

8.2 Faults and Remedial Action

Leakage Butterfly Valve with Handle

Fault	Cause	Remedy
Valve not actuating	Gasket faulty	Replace gasket
	Valve disc bent by pressure hammer	Replace valve disc and bearing bushes
	Bearing shaft pitted	Replace valve disc and bearing bushes
Auxiliary valve does not close	Valve tappet bent	Replace the valve tappet and seal
	Product deposits inside the valve	Cleaning, replacement of the seals or the complete auxiliary valve as necessary
	Bearing bushes on the control shaft faulty	Replace bearing bushes
	Screws on the control shaft broken	Replace control shaft
	Valve tappet is not actuated by the shifting lever	Check the seating and adjust the positioning and tighten if necessary.
	Shift linkage set incorrectly	Adjust the shift linkage
	Shift linkage has slipped out of the guide	Insert the connection piece into the holes in the switching lever and secure with the locking ring
Auxiliary valve leaking on the shaft	Seals faulty or worn	Replace seals
	Valve tappet bent	Replace the valve tappet and seal
	Valve tappet set incorrectly	Adjust the valve tappet
Auxiliary valve leaking on the housing	O-ring on the housing worn or faulty	Replace O-ring
	Hairline crack in the welded seam of the threaded nipple from excessive tightening torque or installation with tension	Replace the entire auxiliary valve, avoid tension, observe the specified tightening torque
Valve leaking	Gasket faulty or worn	Replace gasket

Leakage Butterfly Valve with Pneumatic Actuator

Fault	Cause	Remedy
Valve not moving	Lack of compressed air	Switch on the compressed air supply
	Actuator defective	Check and replace if necessary
	Valve disc bent by pressure hammer	Replace valve disc and bearing bushes
	Bearing shaft pitted	Replace valve disc and bearing bushes
	Gasket faulty	Replace gasket
Missing proximity switch signals	Loose cable connection at the switch	Tighten the cable
	Cable broken	Replace the cable
	Switch defective	Replace switch
	Power supply missing or defective	Check and remedy
Valve moving too slowly	Insufficient compressed air supply pressure	Increase air flow or air pressure
	Actuator exhaust port blocked	Unblock opening
Valve moves unevenly	Compressed air supply too low, media pressure too high	Increase air flow or air pressure
	Electric signals erratic	Check media pressure and adjust if necessary; remedy signal flow malfunction
Valve generating excessive mechanical noise	Valve or actuator defective	Replace valve or actuator
Valve leaking	Valve disc seals faulty or worn	Replace gasket
	Shift linkage has slipped out of the guide	Replace the plain bearing in the shift levers, insert the connection piece into the holes in the switching lever and secure with the locking ring
Auxiliary valve leaking on the housing	Cap of the auxiliary valve has come loose	Tighten cap
	O-rings, seals on the housing worn or faulty	Replace O-rings, seals
Auxiliary valve leaking on the shaft	O-rings faulty or worn	Replace O-rings
	Valve tappet bent	Replace the valve tappet and seal
Auxiliary valve does not close	O-ring on valve seat faulty or worn	Replace O-ring
	Product deposits in the valve seat	Cleaning

Fault	Cause	Remedy
	Lack of compressed air	Switch on compressed air, check compressed air supply
	Media pressure too high, control pressure too low	Avoid pressure shocks, ensure a minimum control pressure of 6 bar at the auxiliary valve.
Auxiliary valve does not open	Valve tappet sticks in the valve seat	Removal and thorough cleaning of the auxiliary valve and the valve seat
	Spring break	Replace spring
	Contamination, lack of lubrication	Cleaning, adequate greasing of the O-rings and sliding points

8.3 What to Do in Case of an Emergency

- Activate the emergency stop function on the higher-level plant (for example, by pressing the emergency stop switch).
- Shut off the media supply.

9 Decommissioning/Disposal

Once the fitting has reached the end of its service life, it must be removed and disposed of in an environmentally friendly manner. Disposal must be performed in accordance with the respective valid local, national and international regulations.

WARNING

Risk of serious injury due to incorrect decommissioning/disposal!

When using harmful or toxic media, or media which are hazardous in any other way, there is a risk of intoxication or chemical burns!

- The work may be performed only by an **expert**.
- Always adhere to the shutdown procedure prior to disassembly work.
- Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section “2.7 Personal Protective Equipment”).
- If in doubt, contact AWH.

9.1 Decommissioning and Removal

- Perform the switch-off procedure for the higher-level facility (see section 2.3.4).

WARNING



Risk of burns due to hot media!

There is a risk of burning if flow media has temperatures over +60 °C/+140 °F.

- Let the flow medium cool down prior to work.
- Drain the pipelines prior to disassembly work.
- Wear protective work clothing, protective gloves and protective goggles when carrying out the work (see section “2.7 Personal Protective Equipment”).

Only **experts** are permitted to perform the removal and disassembly of the fitting for disposal. Information regarding disassembly is listed in the chapter “6 Disassembly/Assembly”.

9.2 Disposal

CAUTION

Danger of injuries from harmful liquids which are a health hazard

When performing disposal, there is a risk of injury from contact with harmful liquids.

- Wear appropriate personal protective equipment (for example, protective goggles, protective gloves) (see section “2.7 Personal Protective Equipment”).

NOTE***Risk of environmental damage as a result of improper disposal!***

- *The fitting is mainly made of stainless steel (except for sealing material) and should be disposed of in accordance with the applicable local environmental regulations.*
- *Oils and cleaning agents are NOT permitted to flow into ground water, bodies of waters or in the sewer system and must be disposed of in accordance with local regulations and in compliance with the information contained in the cleaning agent manufacturer's safety data sheets.*
- *Contaminated cleaning tools (such as brushes, cloths etc.) must be disposed of in accordance with the manufacturer's specifications.*
- *Packaging material must be disposed of in accordance with the environmental regulations and recycled.*

Unless other arrangements have been made for return or disposal, disassembled components should be recycled:

- Scrap any parts made of metal
- Recycle any parts made of plastic

If necessary, contact a specialist company to arrange for disposal.

10 Declarations

On the following pages, declarations can be found for the following variants:

- Leakage butterfly valve with handle (standard design),
- Leakage butterfly valve with pneumatic actuator (standard design) and

Declarations for Fittings pursuant to the Pressure Equipment Directive 2014/68/EU

Fittings that come under the application area of Directive 2014/68/EC receive an EC Declaration of Conformity and a CE mark pursuant to that directive (see section 10.2).

Fittings that come under Article 4, paragraph 3 receive no EU declaration of conformity and no CE mark within the meaning of that directive (see sections 10.1, 10.3).

Declarations for Fittings pursuant to the Machinery Directive 2006/42/EC

Fittings that come under the application area of Directive 2006/42/EC are incomplete machines and receive a declaration for incorporation but no CE mark pursuant to that directive (see section 10.3).

10.1 Leakage Butterfly Valve with Handle DN 25 – 100, DN 1" – 4";

Armaturenwerk Hötensleben GmbH
 Schulstraße 5-6
 39393 Hötensleben, Germany

Declaration (Translation)

Manufacturer declaration pursuant to

EC Pressure Equipment Directive 2014/68/EU:

We hereby declare that the design of

Name: Leakage Butterfly Valve with Handle
Type: DN 25 – DN 100 / PN10
 DN 1" – 4" / PN10

is consistent with the following directives and standards in its delivered version:

Directive/Standard	Title	Version	Comments
2014/68/EU	EU Pressure Equipment Directive	05/2014	
DIN EN 12516-2	Industrial valves – Shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	10/2004	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 25 – 100 and DN 1" – 4" are categorized in accordance with Article 4, paragraph 3.			

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, Monday, May 18, 2020



Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:
 Armaturenwerk Hötensleben GmbH
 Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.2 Leakage Butterfly Valve with Handle DN 125 – 150

Armaturenwerk Hötensleben GmbH
Schulstraße 5-6
39393 Hötensleben, Germany

EU Declaration of Conformity (Translation)

EU declaration of conformity in accordance with

EC Pressure Equipment Directive 2014/68/EU:

We hereby declare that the design of

Name: Leakage Butterfly Valve with Handle

Type: DN 125 – DN 150 / PN10

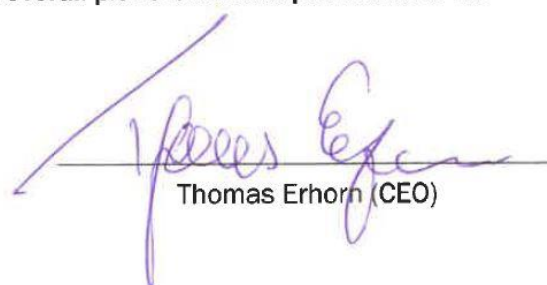
is consistent with the following directives and standards in its delivered version:

Directive/Standard	Title	Version	Comments
2014/68/EU	EU Pressure Equipment Directive	05/2014	Module A
DIN EN 12516-2	Industrial valves – shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	10/2004	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 125 – 150 are categorized in accordance with Category I.			

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, Monday, May 18, 2020



Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:

Armaturenwerk Hötensleben GmbH

Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.3 Leakage Butterfly Valve with Pneumatic Actuator

DN 25 – 100, DN 1" – 4";

Armaturenwerk Hötensleben GmbH
 Schulstraße 5-6
 39393 Hötensleben, Germany

Declaration (Translation)

- Declaration for incorporation pursuant to the EC Machinery Directive 2006/42/EC, Annex II B
- Manufacturer's declaration within the meaning of the EU Pressure Equipment Directive 2014/68/EU

We hereby declare that the design of

Name: Leakage butterfly valve with pneumatic actuator air/spring and pneumatically actuated auxiliary valves

Type: DN 25 – DN 100 / PN10
 DN 1" – 4" / PN10

is consistent with the following basic health and safety requirements of Directive 2006/42/EC:

1.1.2 – 1.1.7, 1.3, 1.4.1, 1.5.1 – 1.5.9, 1.5.15, 1., 5.16, 1.6, 1.7.1 – 1.7.3, 1.7.4, 1.7.4.1, 1.7.4.2., 1.7.4.3

The specific technical documents have been compiled in accordance with Directive 2006/42/EC, Annex VII, Part B.

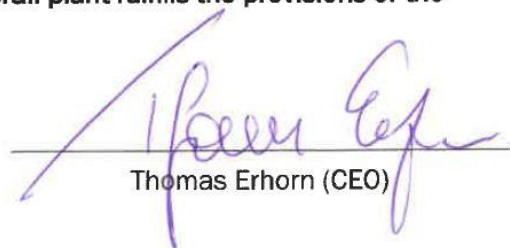
The fitting is consistent with the following guidelines and standards in its delivered version:

Directive/Standard	Title	Version	Comments
2014/68/EU	EU Pressure Equipment Directive	05/2014	
DIN EN 12516-2	Industrial valves – shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	10/2004	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 25 – 100 and DN 1" – 4" are categorized in accordance with Article 4, paragraph 3.			
2006/42/EC	EC Machinery Directive	05/2006	
DIN EN ISO 12100	Safety of machinery – General principles for design – Risk assessment and risk reduction	2010	

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, Monday, May 18, 2020



Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:

Armaturenwerk Hötensleben GmbH, Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

10.4 Leakage Butterfly Valve with Pneumatic Actuator DN 125 – 150

Armaturenwerk Hötensleben GmbH
Schulstraße 5-6
39393 Hötensleben, Germany

Declaration (Translation)

- Declaration for incorporation pursuant to the EC Machinery Directive 2006/42/EC, Annex II B
- EU Declaration of Conformity pursuant to the EU Pressure Equipment Directive 2014/68/EU

We hereby declare that the design of

Name: Leakage butterfly valve with pneumatic actuator air/spring and pneumatically actuated auxiliary valves
Type: DN 125 – DN 150 / PN10

is consistent with the following essential health and safety requirements of Directive 2006/42/EC: 1.1.2 – 1.1.7, 1.3, 1.4.1, 1.5.1 – 1.5.9, 1.5.15, 1., 5.16, 1.6, 1.7.1 – 1.7.3, 1.7.4, 1.7.4.1, 1.7.4.2., 1.7.4.3

The specific technical documents have been compiled in accordance with Directive 2006/42/EC, Annex VII, Part B.

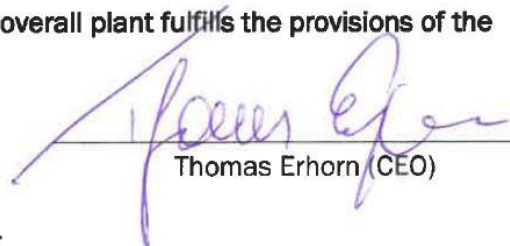
The fitting is consistent with the following guidelines and standards in its delivered version:

Directive/Standard	Title	Version	Comments
2014/68/EU	EU Pressure Equipment Directive	05/2014	Module A
DIN EN 12516-2	Industrial valves – shell design strength – Part 2: Calculation method for pressurized shells of steel fittings	10/2004	
AD 2000 information sheets	Regulations for pressure equipment (national standards)		
The fittings are designed for fluids in fluid group 1 and for gases in fluid group 2. Accordingly, the nominal widths DN 125 – 200 are categorized in accordance with Category I.			
2006/42/EC	EC Machinery Directive	05/2006	
DIN EN ISO 12100	Safety of machinery – General principles for design – Risk assessment and risk reduction	2010	

If any modifications are made to the fitting without our agreement, this declaration shall become void.

Commissioning is prohibited until it is determined that the overall plant fulfills the provisions of the directives.

Hötensleben, Monday, May 18, 2020



Thomas Erhorn (CEO)

Person authorized to compile the technical documentation:
Armaturenwerk Hötensleben GmbH
Mr. Guth, Schulstr. 5/6, 39393 Hötensleben, Germany

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