

Operating instructions

- Translation of the original -

Mixproof Butterfly Valve

Version 2012



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Availability and Completeness

These operating instructions constitute part of the valve delivery and must be kept available so that they can be referred to by authorised personnel at any time. No sections may be removed from these instructions. Should the operating instructions or individual pages be missing, they must be replaced at once.

Change Service

This documentation is subject to the Change Service of Guth Ventiltechnik GmbH. Changes may be made to this documentation without notice of such changes being given.

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guth ventile
FLUID PROCESS GROUP

Mixproof Butterfly Valve

1. Notes for the user



NOTICE

Please read this handbook carefully before you begin with the assembly of, commissioning of or any other work connected with this mixproof butterfly valve.

1.1 Intended use

The valve may only be used for areas of use authorised by Guth. It is developed and manufactured for commercial and industrial use for installation in piping systems for mixing protection for commercial and industrial use.

As flow media water, hot water and mineral oil as well as foodstuffs, beverages or their pre-products as well as pasty media, which are subject to a special hygienic standard, are foreseen. It has been developed and manufactured in accordance with the currently applicable safety standards. Therefore there is no hazard risk under normal conditions if it is used according to the specifications.

1.2 Notes on the guarantee

All obligations arising in connection with the guarantee are contained in the General Terms and Conditions of Guth Ventiltechnik GmbH.

1.3 Safety instructions

- **The mixer may only be fitted and commissioned by qualified personnel.**

Based on the definition laid down in EN 60204-1. Qualified personnel:

A person who, on the basis of his or her specialist training, has acquired knowledge and experience as well as knowledge of the relevant standards and can evaluate the work entrusted to him or her and any possible hazards.



- The valve may only be used for approved purposes.
- The company shall accept no liability for damage and operational malfunctions resulting from failure to observe these instructions.
- Technical modifications resulting in deviations from the illustrations and information contained in these instructions may be made without prior notice being given.
- The pneumatic actuators contain strongly pre-tensioned springs. This means that there is a risk of death if actuators are opened. Therefore the actuators may only be opened by qualified personnel that has been trained by the Guth company.
- Pneumatic actuators exert large positioning forces. Therefore moving parts may only be touched when not under tension or pressure.
- The device may only be fitted and commissioned in accordance with these operating instructions.
- The manufacturing process did not take account of safety precautions in respect of external fire.
- Conversion or modification of the fitting may only be carried out in agreement with the Guth Company.
- The original replacement parts supplied by the Guth Company serve the purpose of ensuring safety. Should other parts be used, the Guth Company shall accept no responsibility whatsoever for any damage that may result.
- The fitting is designed for connection to protective low voltage only.
- The fitting may only be disassembled when not connected to a voltage supply or under pressure.
- Prior to repair and maintenance operations the product line must be de-pressurised and free of the product. Product residues and cleaning agents must be removed as well.
- Fittings that come into contact with hazardous media must be decontaminated.
- Never touch the fitting or piping when hot liquids are being processed or the sterilization process is running.



- If hot or cold fitting parts represent hazards, then these parts must be shielded against the possibility of persons coming into contact with them by the plant operator.
- For fittings with pneumatic actuators, there is a crush hazard during operation of the actuator (crushing between the coupling piece and lantern).
- Therefore the actuator must always be rendered pressure-less during all assembly and disassembly work.

The valve may only be operated when it is in perfect working order. In addition to the documentation, instructions on the following also apply:







- Internal plant working and safety instructions
- National regulations in the country of implementation
- Generally accepted safety regulations
- Accident prevention regulations

Failure to observe the specified hazard warnings may pose a risk to persons as well as the environment, fitting and plant. Specifically, failure to observe the warnings may cause the following hazards to arise:

- the failure of important functions of the fitting and plant
- the failure of prescribed methods for maintenance and repairs
- hazards to persons caused by electrical, mechanical or chemical agents
- environmental hazards on account of leakage of hazardous substances

1.4 Danger symbols

Safety instructions and warnings serve to avoid danger to the lives and health of users or maintenance personnel and damage to property. Attention is drawn to them by means of the symbols defined here. The hazards are also highlighted where they may arise by means of danger symbols (pictograms). The meaning of the pictograms is as follows:

| Symbol | Signal word | Meaning |
|---|------------------|---|
|  | DANGER | Indicates that death, serious injury and/or major damage <u>will</u> occur if the corresponding safety precautions are not observed and implemented. |
|  | WARNING | Indicates that death, serious injury and/or major damage <u>can</u> occur if the corresponding safety precautions are not observed and implemented. |
|  | CAUTION | Indicates that minor injury and/or damage can occur if the corresponding safety precautions are not observed and implemented. |
|  | ATTENTION | Indicates that which may result in damages of the product itself or of adjacent vicinity occur if the corresponding safety precautions are not observed and implemented. |
|  | NOTICE | This refers to important information about the product itself or its usage to which special attention is to be drawn. |
|  | | Indicates that death, serious injury and/or major damage can occur as a result of an electric shock if the corresponding safety precautions are not observed and implemented. |

2. Functional description

All designs have in common that two pipe sections of a plant are separated twice by two mutually butterfly valve discs and gaskets, whereas the leakage chamber as a smooth gap between the discs can be drained or purged by an inner wall flush with an inlet or outlet valve.

The discs are always connected by a massive shift linkage and precisely positioned. Each disc is guided twice by a bushing.

The inlet or outlet valves have a standard 1/4 "connection where on site installed cleaning media inlet or discharge tubes can be mounted or by Guth available connection bends DN 10 can be attached.

The mix proof butterfly valve are mechanically or pneumatically actuated and interconnected, normally to the switching position of the valve discs and outlet valves and has a leakage chamber between the two butterfly valves.

The two interconnected valve discs are closed manually or pneumatically by a switching rod linkage. Precisely at the moment in which the flaps reach the sealing element the inlet-/outlet valve will be opened.

The installation position must be such as the outlet valve orientation is vertically downwards.

Therefore, the position of the actuator in upper or lower vertical position is determined.

This does not apply to the version with pneumatically actuated inlet and outlet valves, since the position of the actuator is not attached to the inlet and outlet valves.

3. Technical Data

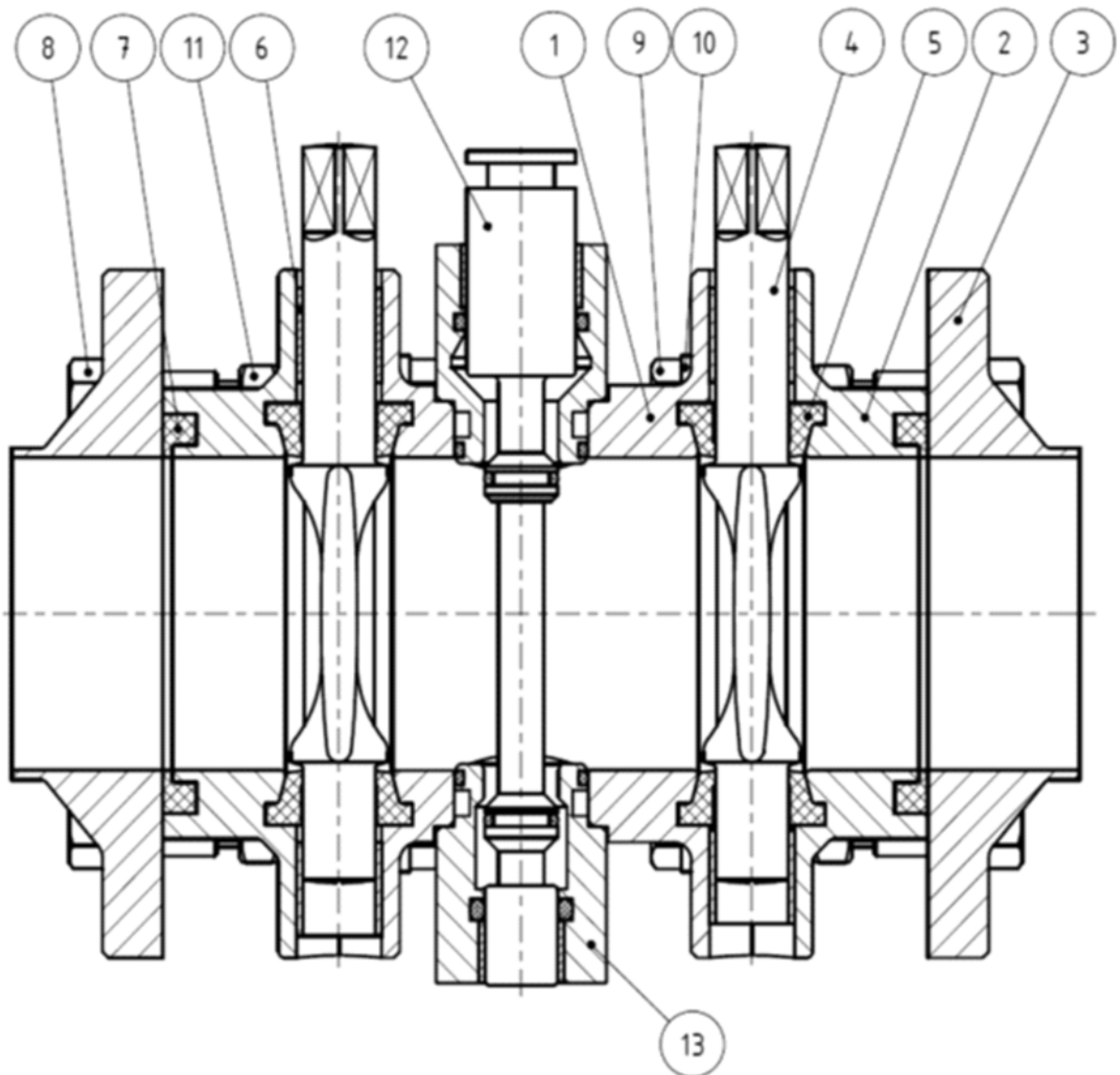
3.1 General description

Guth mixproof butterfly valves are developed, designed and manufactured for commercial and industrial operation for installation in piping systems to redirect a flow of liquid.

As flow media, hot water and mineral oil as well as foodstuffs, beverages or their pre-products as well as pasty media, which are subject to a special hygienic standard, are foreseen.

With the double disc valve sealing is reliably prevented a mixing of media through an unpressurized leakage drain.

3.2 Design of the standard valve

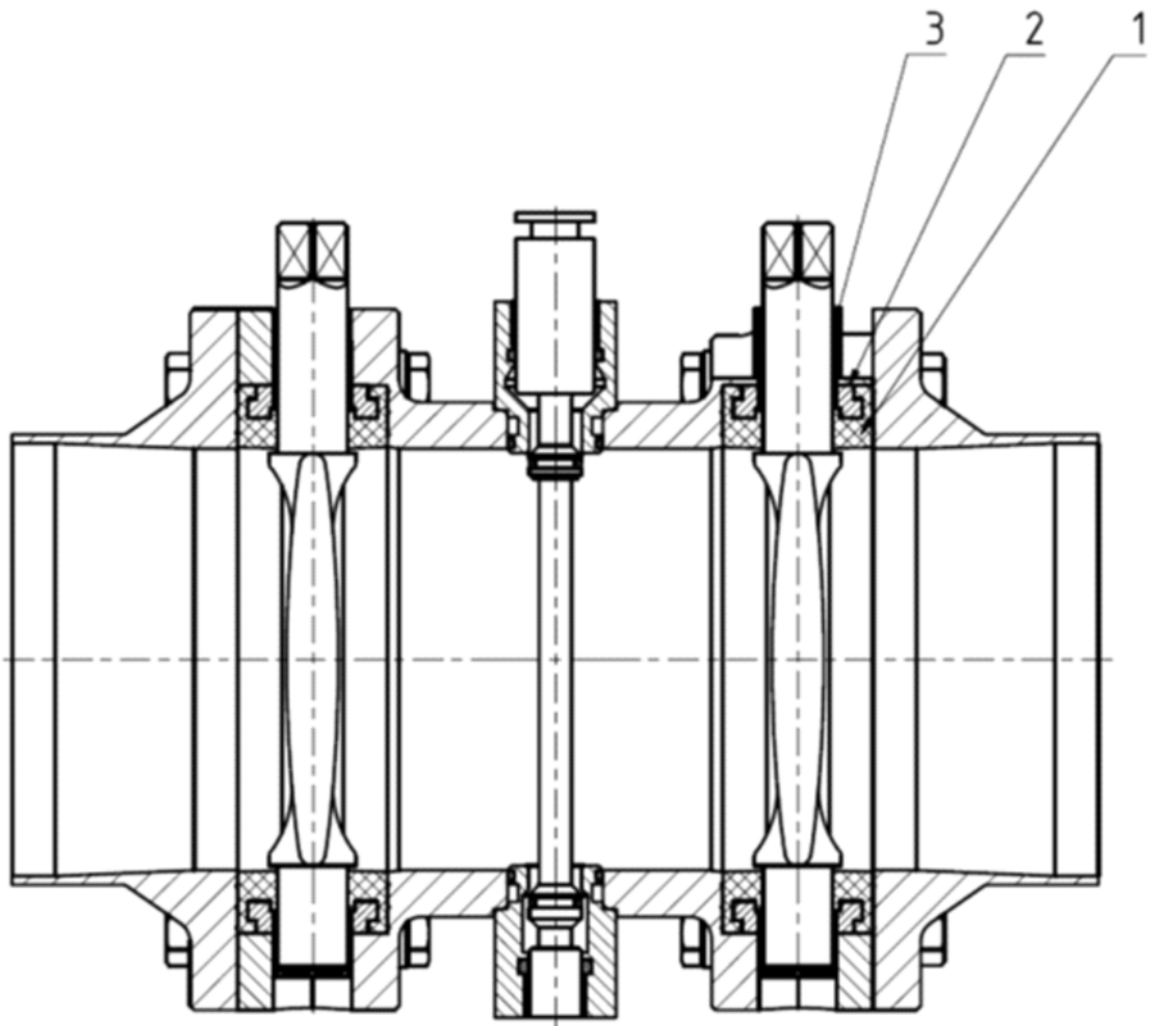


| | | | | | |
|----|---|-----------------------------|-------------------|----|--|
| 13 | 1 | Leckagegehäuse (UNTEN) | 8451.25 | 00 | |
| 12 | 1 | Leckageeinsatz (Drehnut) | 8454.20 | 01 | |
| 11 | 8 | Sechskantmutter DIN934 | 6821 934 M8 01 | | |
| 10 | 8 | Unterlegscheibe DIN 125 8.4 | 6831 125 8.4 | | |
| 9 | 8 | Sechskant - Schraube M8x40 | 6811 933 8X40 | | |
| 8 | 8 | Spannschrauben M8 | GN 140 | 00 | |
| 7 | 2 | Dichtring mit Bund DN50 | 01004050EO 000 EB | | |
| 6 | 4 | Buchse 1215 KSZ | 6470 241 1215 KSZ | | |
| 5 | 2 | Scheib Ventil - Dichtung | GN 65.6.50 E | 00 | |
| 4 | 2 | Ventilscheibe DN50 | 2233.02C | 00 | |
| 3 | 2 | Flansch DN50 | 4893.01.2 | 00 | |
| 2 | 2 | Gehäuseflansch DN 50 | 4893.01.1 | 00 | |
| 1 | 1 | Gehäuse DN 50 | 4813.01 | 00 | |

Fig. 1 Design of standard valve

3.3 Variants

- Available in DN 100 - 150 and OD 4" - 6"



| DN | Pos.1: Dichtung/disc valve seal/Joint de soupape à disque | Pos.2: Druckring/pressure ring/anneau de pression | Pos.3: Buchse/bushing/douille |
|-----|---|---|-------------------------------|
| 100 | 04352100EO 000 /2 Stk./pc. | 8403.01*3P /4 Stk./pc. | 6470 241 1615 KSZ /4 Stk./pc. |
| 125 | 04352125EO 000 /2 Stk./pc. | 8402.01*3P /4 Stk./pc. | 6470 241 1615 DUB /4 Stk./pc. |
| 150 | 04352150EO 000 /2 Stk./pc. | 8401.01*3P /4 Stk./pc. | 6470 241 1820 DUB /4 Stk./pc. |

Fig. 2 Design of sandwich valve

3.4 Design of the leakage valves

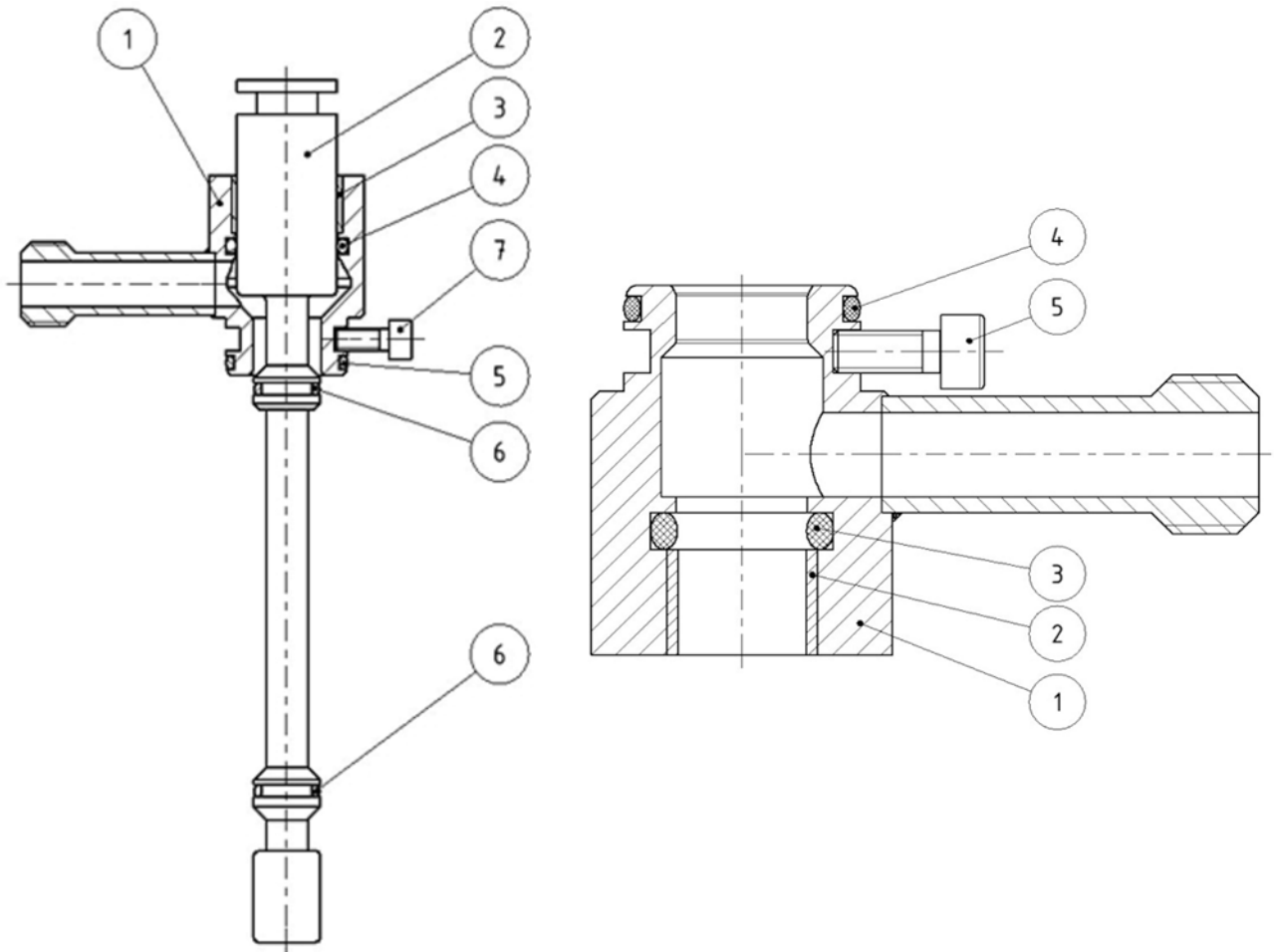


Fig. 3 Design of the leakage valve

| Leakage insert with rotary groove | | |
|-----------------------------------|----------|----------------------|
| Position | Quantity | Title |
| 1 | 1 | Leakage housing |
| 2 | 1 | Leakage piston |
| 3 | 1 | busching |
| 4 | 1 | O-ring |
| 5 | 1 | O-ring |
| 6 | 2 | O-ring |
| 7 | 1 | Hexagon socket screw |

| Leakage piston bottom | | |
|-----------------------|----------|----------------------|
| Position | Quantity | Title |
| 1 | 1 | Leakage housing |
| 2 | 1 | Busch |
| 3 | 1 | O-ring |
| 4 | 1 | O-ring |
| 5 | 1 | Hexagon socket screw |
| | | |
| | | |

3.5 Design of switch combination

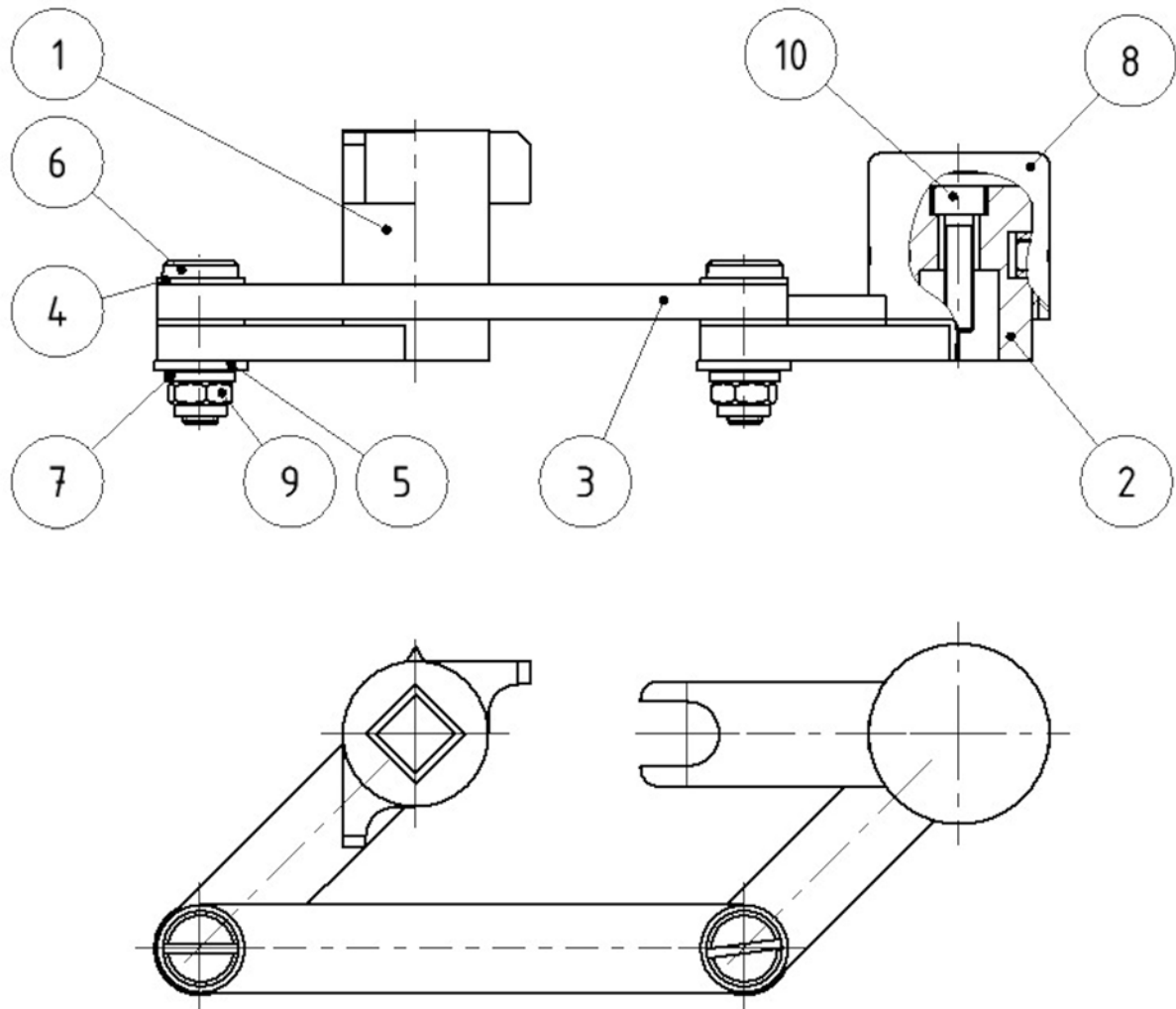


Fig. 4 Design of switch combination

| Switch combination | | |
|--------------------|----------|---------------------------|
| Position | Quantity | Title |
| 1 | 1 | Switch arm actuator |
| 2 | 1 | Switch arm control piston |
| 3 | 1 | Shifting rod |
| 4 | 4 | EBZ-washer |
| 5 | 2 | Washer |
| 6 | 2 | Flat head screw |
| 7 | 2 | Washer |
| 8 | 1 | Lift housing |
| 9 | 2 | Securing nut |
| 10 | 1 | Hexagon socket screw |

3.6 Design of the valve with pneumatic operated leakage valves

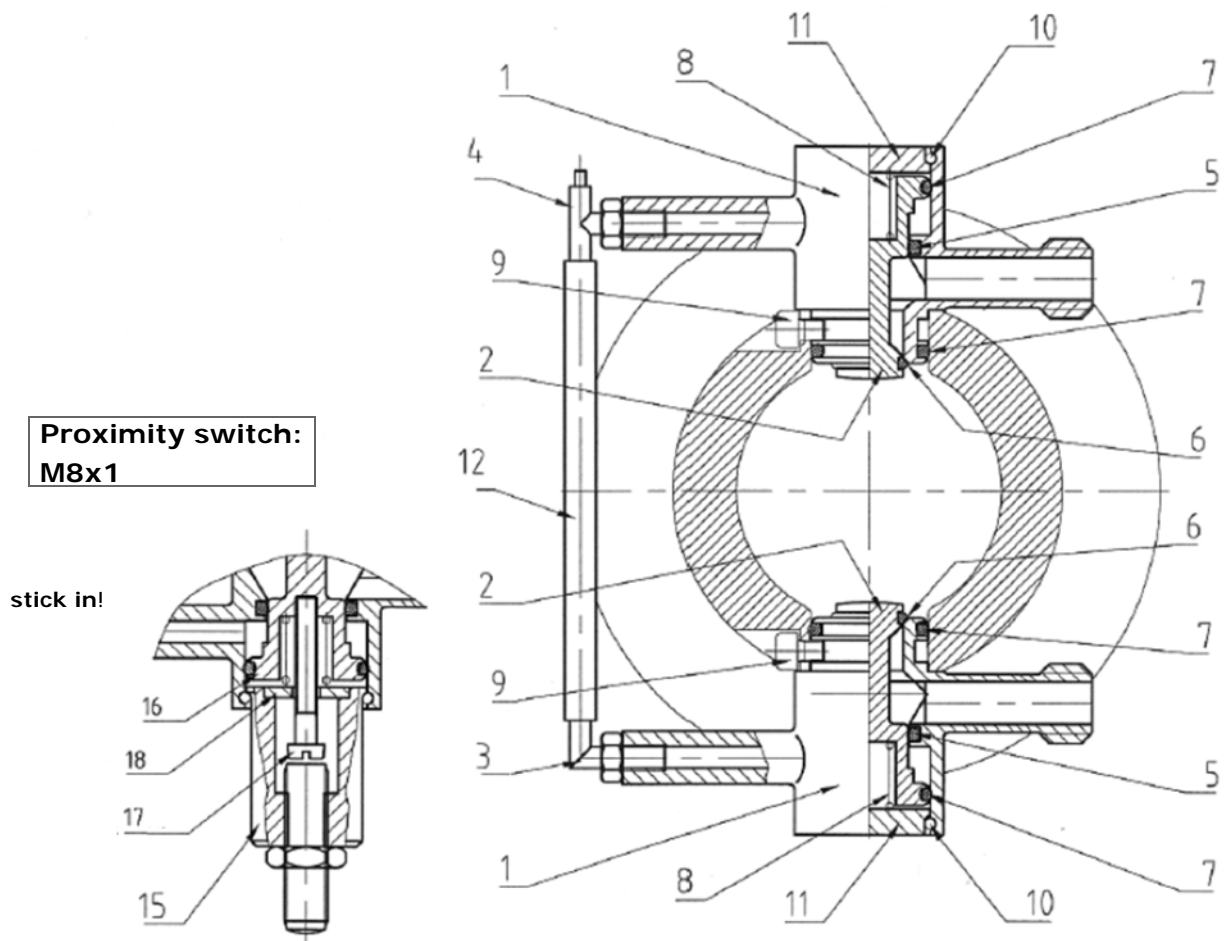


Fig. 5 Design of pneumatic operated leakage valves

| Leakage insert, pneumatic | | |
|---------------------------|----------|-------------------------------------|
| Position | Quantity | Title |
| 1 | 2 | Leakage housing |
| 2 | 2 | Leakage piston |
| 3 | 1 | Angle |
| 4 | 2 | T-piece |
| 5 | 1 | O-ring |
| 6 | 2 | O-ring |
| 7 | 4 | O-ring |
| 8 | 2 | Spring |
| 9 | 2 | Hexagon socket screw |
| 10 | 1 | O-ring |
| 11 | 2 | Spring plate |
| 12 | 1 | Air connection |
| 15 | 1 | Spring plate with feedback bracket |
| 16 | 2 | Leakage piston for feedback devices |
| 17 | 1 | Socket screw |
| 18 | 1 | Washer |

3.7 Design of handle unit

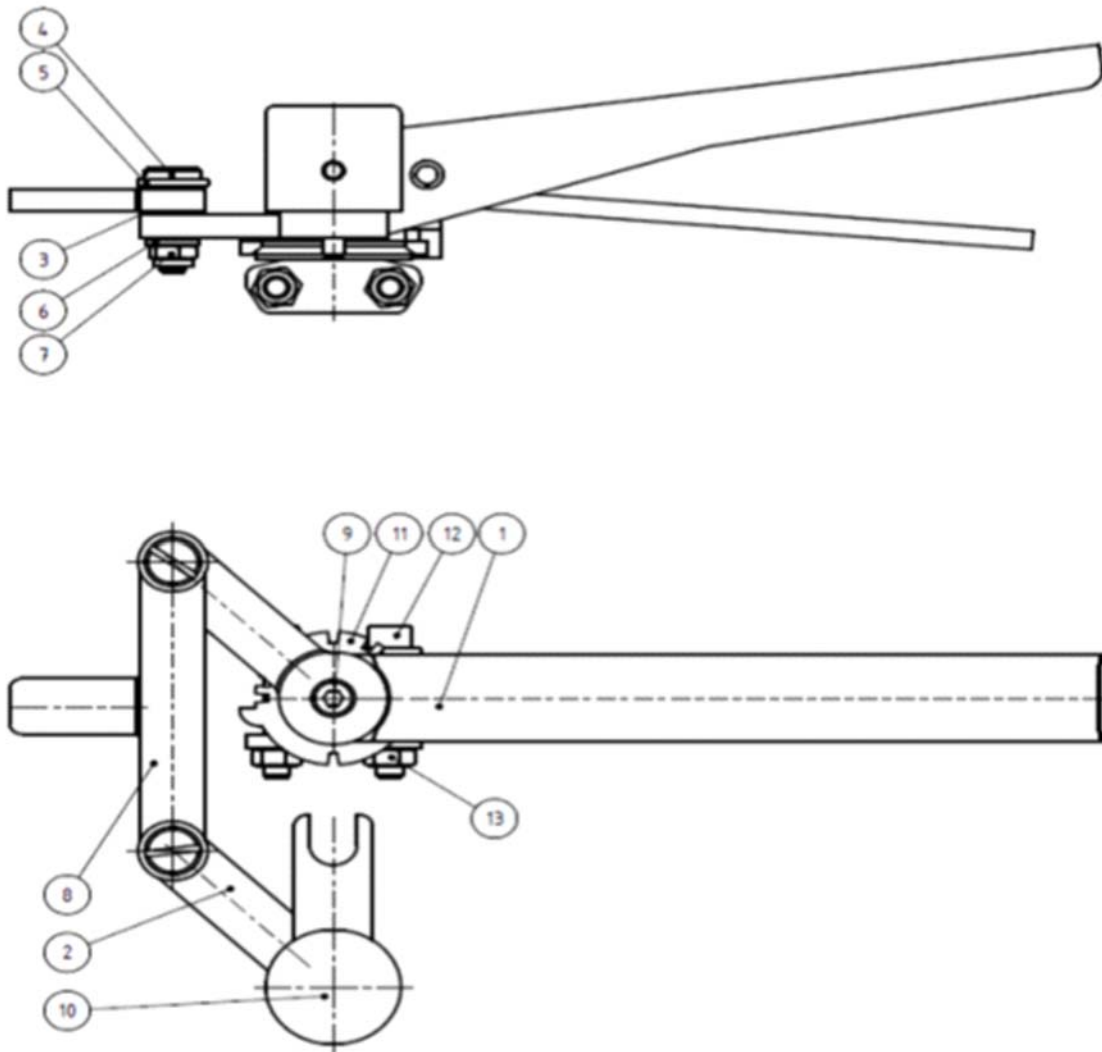


Fig. 6 Design of handle unit

| Manual control | | |
|----------------|----------|-------------------------------------|
| Position | Quantity | Title |
| 1 | 1 | Pincer grip |
| 2 | 1 | Switch arm control piston |
| 3 | 4 | EBZ-washer |
| 4 | 2 | Flat head screw |
| 5 | 2 | Washer 8 |
| 6 | 2 | Washer 6 |
| 7 | 2 | Securing nut |
| 8 | 1 | Shifting rod with feedback function |
| 9 | 2 | Hexagon socket screw |
| 10 | 1 | Lift housing |
| 11 | 1 | Ratchet disc |
| 12 | 2 | Hexagon socket screw |
| 13 | 2 | Hexagon nut |

3.8 Pneumatic units

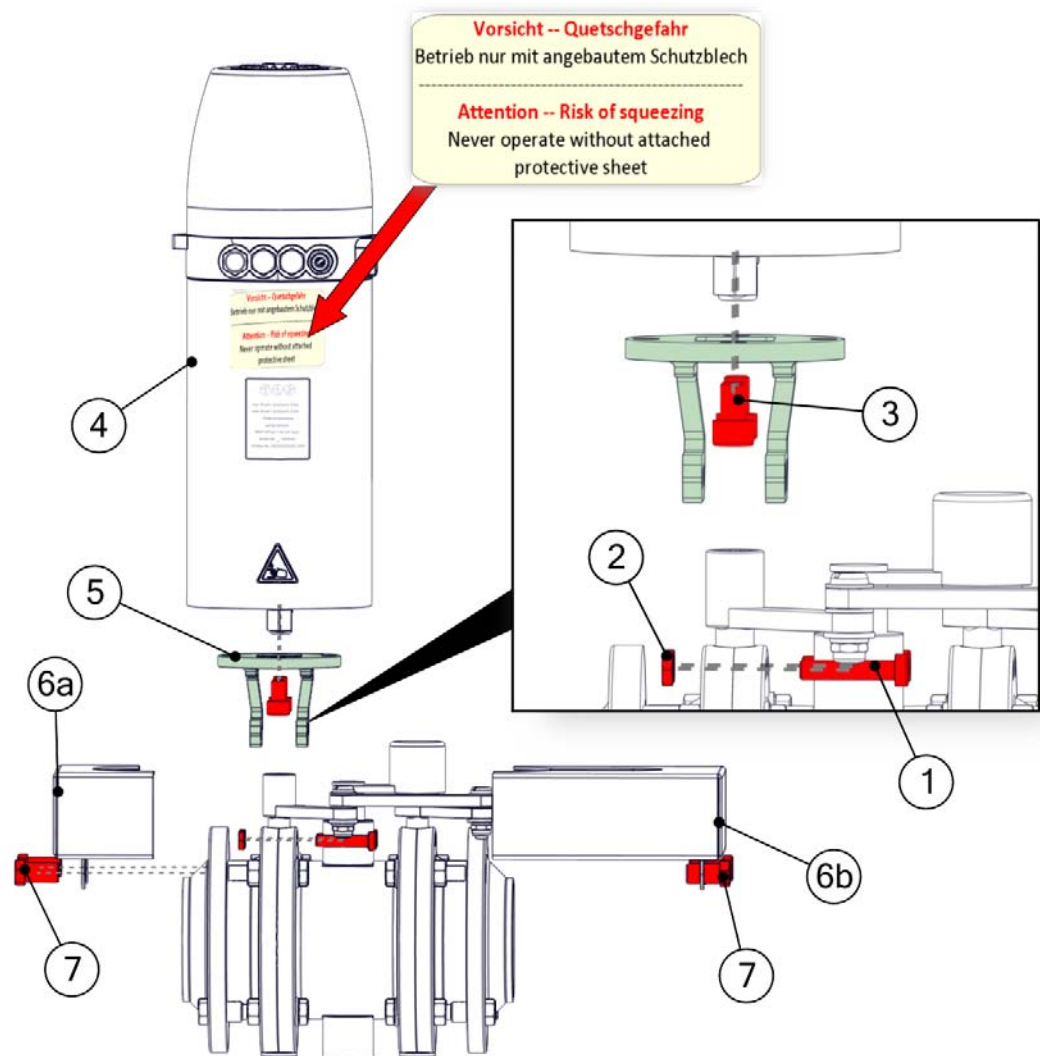


Fig. 7 Pneumatic unit



CAUTION

- There is a crush hazard between the coupling piece and the lantern during actuation of the actuator.
Therefore the actuator must always be rendered pressure-less during all assembly and disassembly work.

Unscrew the screws (7) and remove the protective sheet (6a) (6b).
Unscrew the screws (3) and remove the complete actuator (4).
Unscrew the screw connections (1)/(2) and remove holder (5).

4. Installation of the mixproof butterfly valve

4.1 Installation space

The type DSV valve has a compact design, so it can be installed practically anywhere in a plant. However, to prevent problems arising in connection with thermal, mechanical or vibrational issues, direct contact with other elements should be avoided. Also, the installation space for the valve is to be dimensioned such that the fitting can easily be accessed from all sides. There must be enough working room to allow for the removal, addition or adjustment of components or built-in units.

For safety reasons, sufficient distance should be maintained to parts of a plant from which steam or heat are released or heat is extracted to minimise exceeding or falling below the permitted temperatures of components. Especially where high process and ambient temperatures are involved, the valve should be installed in such a way that heat can be extracted as necessary.

4.2 Installation of the fitting

The "normal" installation position for the valve is vertical, with the actuator at the top, on account of the placement of the venting elements or for statics-related reasons.

Additionally this ensures the draining of the product in the valve housing. However, a lying position arrangement is possible as well.

If installed in a lying position the leakage outlet valves which are positioned at the side of the valve housing have to be actuated pneumatically to ensure drainage of the product out of the valve body. Where the device is installed lying down and component weight presents a problem, the actuator must be supported.

The vents of the spring space of the actuator and the regulator/control head should preferably be placed such that they are not directly exposed to spray or dripping water.

The valve is to be installed without pressure in the pipe system. It is especially important in this respect to take account of forces and torques arising in the pipe system on account of thermal expansion during operation that causes longitudinal stretching. Furthermore, it is to be ensured that vibrations resulting from plant operation or the flow behaviour of the medium are not transmitted to the fitting.

Prior to assembly, the pipe geometry and the connection dimensions must be defined according to the installation dimensions.

4.3 Piping connections

All Guth valves can be fitted with a very wide range of connectors for connection to connecting pipelines. These include intermediate flanges, threaded connectors acc. DIN 11851, clamped connectors, small flanges, DIN flanges as well as pipe connecting elements according to the SMS or BS/RJT standards. Also, models with ends for welding can be supplied. In the latter case it should be borne in mind that the entire inner fittings of the valve as well as all the mounted components with the actuator and control head must be removed so that welding can be done without any risk of damage to parts sensitive to heat or tension. After welding and rework of the seam is complete, the parts are to be reassembled.

4.4 Preparation of welding seam

The plant pipe ends to be welded are to be sawn flush and at right angles and deburred Align the housing welding ends to the pipe ends (radially and axially flush align).

Prior to welding in the fitting:

The entire valve insert (valve disks, valve seals, sockets, seals) is to be removed. During the welding work no seals may be present next to or in the valve housing.

Welding-in instructions:

| | |
|----------------------|--|
| Scope of usage: | Welded connections of welded-in fittings with pipes according to DIN 11850. We recommend preparing the seam according to DIN 2559. |
| Welding procedure: | TIG (Tungsten Inert Gas welding), as appropriate using orbital welding technique — flood pipe internally with forming gas so as to displace the air from the welding area. |
| certified Personnel: | To prevent damage, welding should be undertaken by certified personnel (EN287). |

➤ **Recommended welding filler materials**

| Plant parts | Filler material | | | |
|-------------|-----------------|--------|--------|--------|
| | 1.4316 | 1.4430 | 1.4404 | 1.4519 |
| 1.4301 | x | | | |
| 1.4306 | x | | | |
| 1.4401 | | x | | |
| 1.4404 | | x | | |
| 1.4435 | | x | x | x |
| 1.4571 | | x | x | |

Tab. 1 Examples for possible welding filler materials

Welding seam treatment:

As a rule, no reworking of the weld seam is needed inside the connecting pipe if the weld has been carried out properly. For the outside surface of the connecting pipe, we recommend passivating the weld seam (pickling using pickling paste).



CAUTION

- After welding, the valve housing must be thoroughly cleaned. Welding residue and dirt particles can cause damage to the seals.

4.5 Pneumatic connection

GUTH multi-turn actuators are delivered as standard with a pneumatic connector for standard 4 mm pneumatic hoses. In case of high ambient temperatures, a PP quality hose is recommended. Please refer to the corresponding data sheets to obtain the required air pressure. For reasons of functional safety and service life of the regulating device, the air quality should be high i.e. dry, de-oiled and filtered to 5 µm. For oiled compressed air the quality must be according to ISO VG32 Class 1.

4.6 Electrical connection

Connection to be carried out according to the operating instructions of the respective control head or electrical attachment components.

5. Commissioning

As a rule, the GUTH mixproof butterfly valve is delivered completely mounted and in accordance with the specification. Please see Chapter 4 for the installation as well as the connections.

6. General information



NOTICE

- The pumps have to be switched off prior to actuation of the mix proof butterfly valves. If not it could cause incalculable pressure peaks which could destroy the leakage valve. That has to be ensured during the process!

7. Maintenance and repair

Before cleaning, maintenance and repair work, the following switch-off procedure is to be maintained without fail:



CAUTION

In case of non-compliance, this can endanger life and limb of the personnel!

- De-energise higher-level plant/machine/device
- Switch off pneumatics
Check whether the butterfly valve is pressure-less.
- Switch off medium
Check whether the butterfly valve is pressure-less.
Pay attention to ensure that with media temperatures of more than 80 °C a cool-down phase is maintained.



NOTICE

- See the documents enclosed in the attachment for the maintenance and lubrication points as well as the maintenance and lubrication intervals.

Maintenance intervals:

- Practical maintenance intervals can only be determined empirically by the user as they depend on the conditions of operation involving, for instance,
 - hours of use per day,
 - switching frequency,
 - type and temperature of the product,
 - type and temperature of the cleaning agent,
 - surrounding conditions.

7.1 Grease plan

| Sealing materials | Grease type |
|--------------------------|-------------------------|
| - EPDM | Klüber Paraliq GTE 703 |
| - HNBR - FKM - VMQ | Klübersynth UH1 64-2403 |

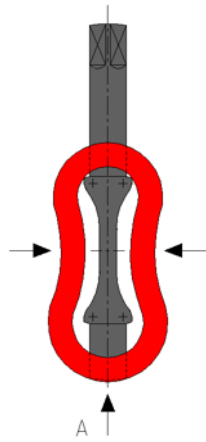
Tab. 2 Grease plan



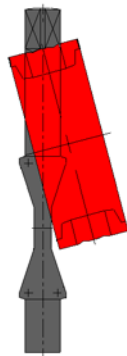
NOTICE

- If another grease is used, there is the danger that the sealing elements will be attacked.

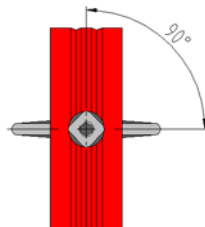
7.2 Seal mounting standard



Insert long shaft of the flap plate into the hole of the seal.



Shape seal and pull up over the short shaft of the flap plate in the direction of arrow A.



Position flat plate in seal acc. fig. Mount flap plate.

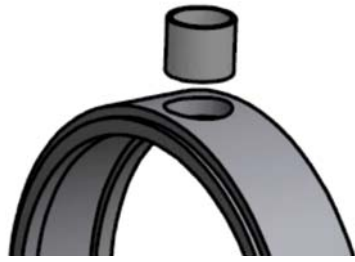
Fig. 8 Seal mounting standard



NOTICE

- Proceed carefully. Avoid damaging the seal!

7.3 Seal mounting sandwich



Press the bushings into the compression rings.

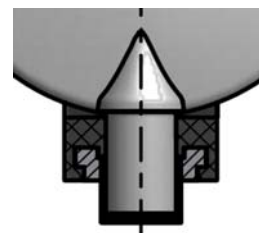
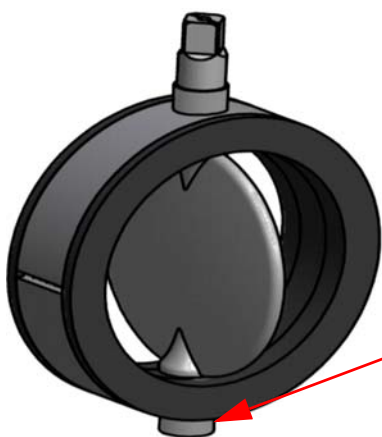


Seals assemble as in point 7.2.

Designation



Insert compression rings into the sealing groove. It is important to pay attention to the position marking!



Attention!

Check for correct position of the sealing ring in the seal groove.

Fig. 9 Seal mounting sandwich

7.4 Seal geometry and designation

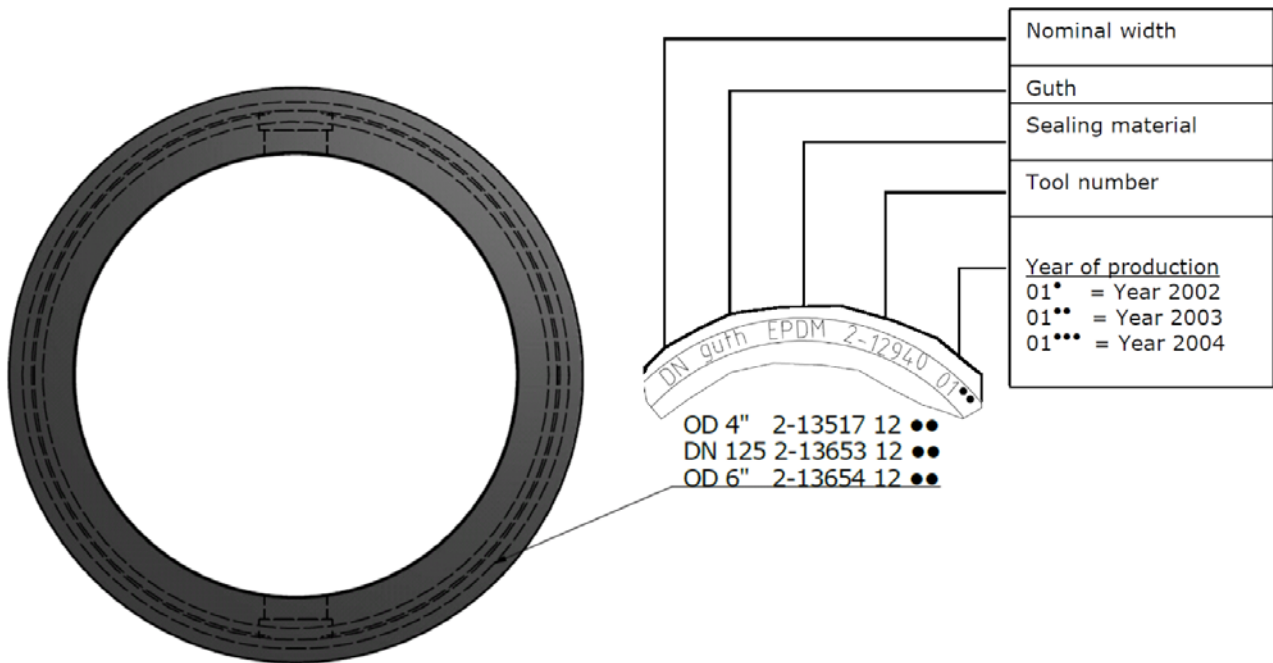


Fig. 10 Seal geometry and designation

7.5 Inspection

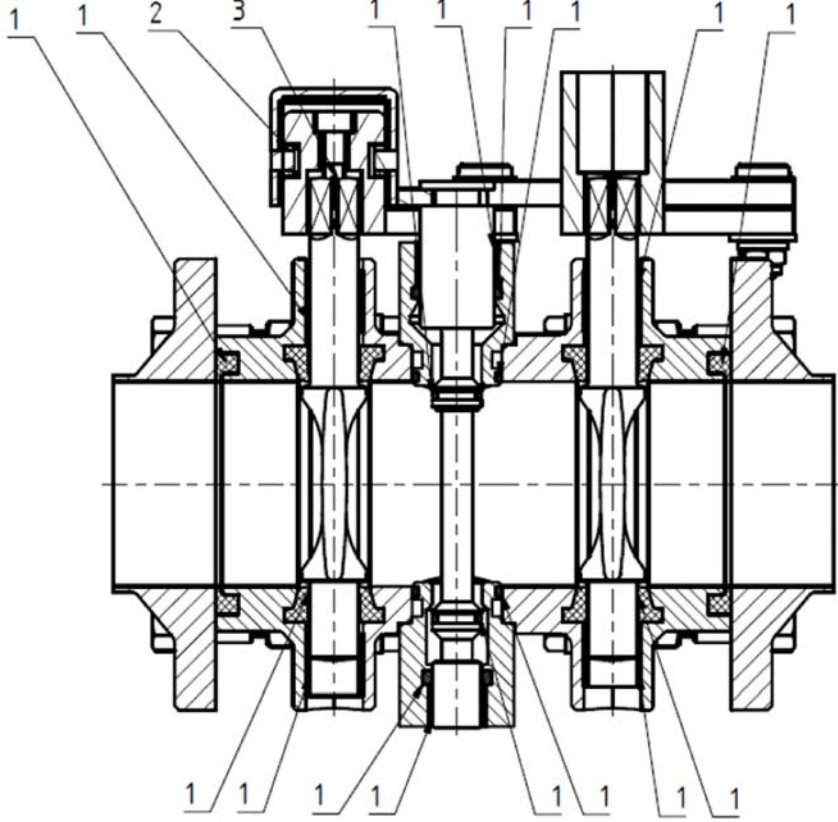
The butterfly valve needs very little maintenance. Nevertheless, it should be inspected regularly. We recommend carrying out three inspections within 24 months.

- small inspection: every 6 months
- medium inspection: every 12 months
- large inspection: every 24 months

During the inspection, the following should be checked:

- Tightness of all sealing points, especially on the actuator shaft and on the pneumatic connections.
- Response characteristic of the valve.

7.6 Lubrication and maintenance schedule standard



Wir verwenden/we use/Nous utilisons ce qui suit:

- 1: Hahn und Armaturen fett/fitting grease/Graisse pour robinet et robinetterie:
Klüber Lubrication: PARALIQ GTE 703
- 2: Hochtemp. Montagepaste/high-temp. mounting paste/Mastic de montage haute temp.:
Antisize "Goldfett" Fa. A. Schramm Hildritzhäusen
- 3: Dichtkleber Omnifit M50/threadlocker Omnifit M50/frein-filet Omnifit M50

| | | | | | | |
|--|-------------------|---|---|--------------|-------------------------------|--|
| Teil part | Stückz. quant. | Benennung und Rohmaße title and dimensions | Zeichn./Sach-Nr. drawing/item-nr. | Rev. rev. | Werkstoff material | Gewicht weight |
| Maße ohne Toleranzangabe nach measures without tolerances acc. to | | ISO 2768 mK | Oberflächen nach surfaces acc. to | | DIN ISO 1302 $\sqrt{Ra\ 1.6}$ | Werkstückkanten nach work piece edges acc. to |
| | | | Datum/date | Name/name | Maßstab/scale | |
| 6 | | | Geprüft/checked | | | guth Wilhelm Guth Ventiltechnik GmbH & Co. KG Horstring 16 D-76829 Landau |
| 5 | | | Bearbeitet/designed | 16.04.2014 | Klein | |
| 4 | | | Schmier- und Wartungsplan/lubrication and maintenance schedule/ Lubrification et le calendrier d'entretien | | | 8450.00W |
| 3 | | | Doppelscheibenventil/mixproof butterfly valve/ vanne papillon à chambre de fuite | | | Zeichnungs-Nr./drawing-nr. |
| 2 | | | | | | Tellenummer/ part-number |
| 1 | | | | | | 00 |
| Änd.Nr. rev.nr. | Zust. number | Änderung revision | Datum date | Name name | Index | |

Fig. 11 Lubrication and maintenance schedule standard



NOTICE

- Please pay attention to the lubricant manufacturer's safety data sheets!

7.7 Lubrication and maintenance schedule sandwich

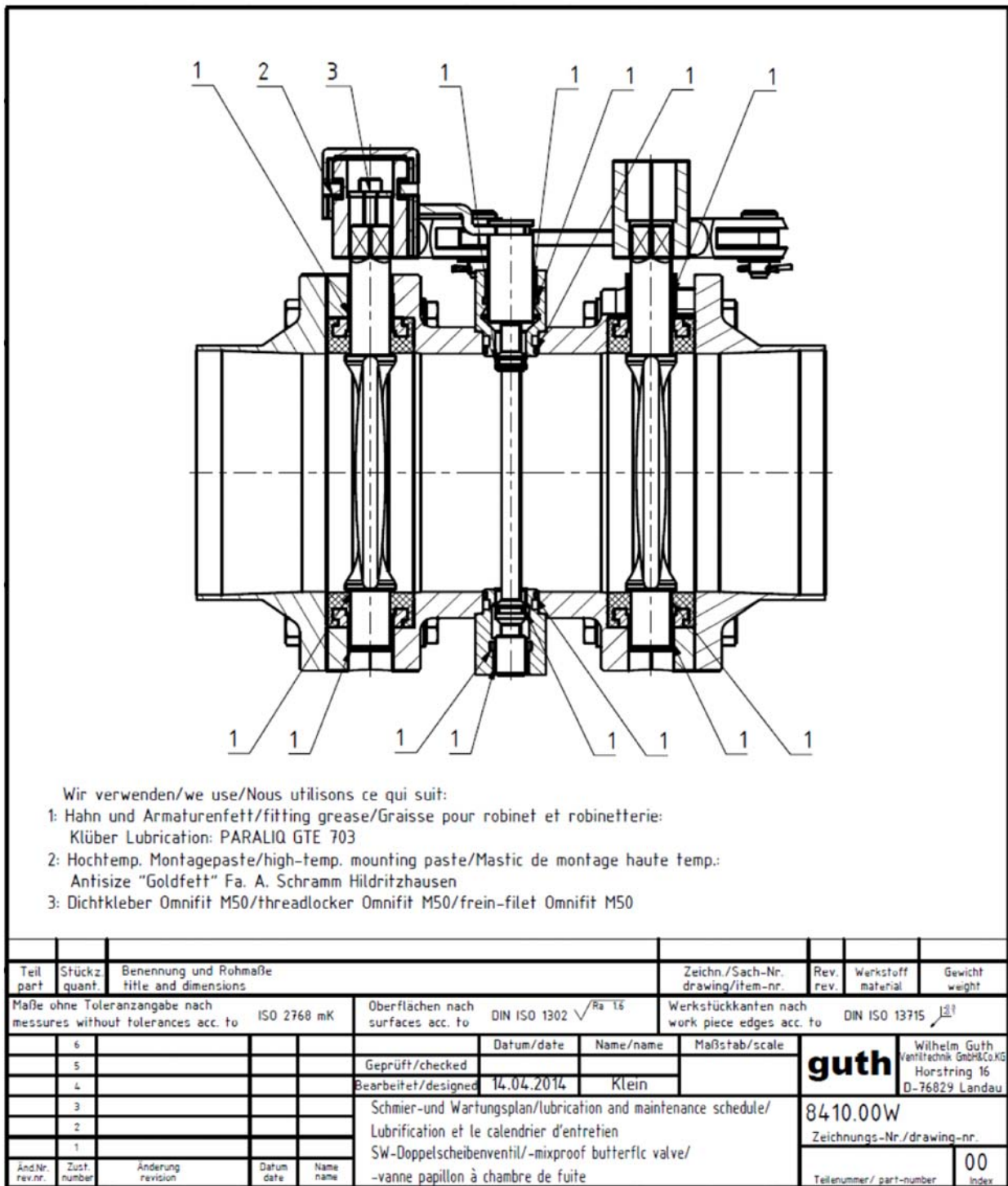


Fig. 12 Lubrication and maintenance schedule Sandwich valves



NOTICE

- Please pay attention to the lubricant manufacturer's safety data sheets!

7.8 Valve designation

Each valve carries a designation. This may be found on a butterfly valve half.

Examples for designation:

: **310125**

Valve number corresponding to order



NOTICE

- Please provide this number with every replacement part order!

8. Malfunctions

| Malfunction: | Cause: | Remedy: |
|---|--|---|
| - Valve does not moves | - no control air pressure | - switch on control air pressure |
| | - no electrical signal from controller | - recheck and ensure electrical signal |
| | - defective actuator | - inspect actuator - replace actuator if necessary |
| - No signal received | - cable at pilot valve or at initiator not connected | - fix cable |
| | - cable broken | - replace cable |
| | - defective initiator | - replace initiator |
| | - defective pilot valve | - replace pilot valve |
| | - faulty or missing electrical power supply | - check and ensure electrical power supply |
| - Valve moves too slow | - air pressure too low | - increase air pressure |
| | - clogged actuator vent hole | - clean the vent hole |
| - Valve moves unevenly | - air pressure too low | - increase air pressure |
| | - process media pressure too high | - check process media pressure and adjust if necessary |
| | - electrical signal unevenly | - remove disturbance of signal flow |
| - Valve causes excessive mechanical noise | - insufficient or missing lubrication | - lubricate sealing and guiding elements |
| - Leakage between the leakage chamber and the valve body connection | - improper installation | - replace sealing and if necessary the valve body as well |
| | - aging of the sealing element | |
| - Leaks or leakage of the seat seal of the inlet or outlet valve | - chemical attack of sealing material | - replace sealing elements |
| | - general mechanical wear | |
| | - aging of the sealing element | |

| Malfunction: | Cause: | Remedy: |
|--|---|--|
| - Leakage at the spindle sealing of the inlet or outlet valve | - chemical attack of sealing material | - replace sealing elements |
| | - general mechanical wear | |
| | - aging of the sealing element | |
| - Slackness in the shift linkage, with manual drive | - screws to fix the hub are loosened | - retighten screws properly, if excessive slackness in the joints, bolts and possibly connecting strut should be replaced |
| - Slackness in the shift linkage with pneumatic actuator, or stiffness | - screws to fix the hub are loosened | - re-tighten screws properly, if excessive slackness in the joints, bolts and possibly connecting strut should be replaced |
| | - loose glued-in allen screw on actuator side hub | |
| | - excessive axial slackness of actuator rotating shaft | - return actuator for reworking, change the axial bearing elements |
| - Leaks or leakage of the inlet or outlet valve at the fixing holes | - damaged or worn out O-ring | - in dependence of the damage reworking is possible or replacement of the parts is necessary |
| | - damage of the intermediate housing | |
| | - damage of the inlet or outlet valve body | |
| - Slackness within the manual switching unit | - Expanding of the locking sleeves | - replace the locking sleeves |
| | - Loosening of the connection between the locking sleeve and valve flange | - rework the locking sleeves |
| - Blocking of the manual actuation parts | - contamination of the linkage | - move the parts several times back and forth with simultaneous spraying of spray oil, this enables the linkage to move again in most of the cases |
| - Loss of torque within the pneumatical actuator | - high resistance internally of cylinder at piston groove or guidance hole of the piston or at the rotary shaft bearing | - replace the corresponding parts, such as: |
| | - bend guidance rod | - replace entire actuator |
| - increased axial slackness within the pneumatical actuator | - damaged or worn out O-ring | - lubricate groove, replace O-ring, lubricate cylinder internal surface, dry or blow out condensate if applicable |
| | - broken piston ring | - replace piston ring |
| - Defective or switching problem of the external mounted switches | - not aligned mounting position of the axes | - Alignment to be secured by small mechanical loading, if necessary replacement of fixation part |
| | - switching distance not on order | - adjustment of the correct switching distance of 1-3 mm |

Tab. 3_Malfunction

9. Cleaning and care

The valve is suitable for CIP (Cleaning in Place). The following should be borne in mind:

Pay attention to the cleaning agent manufacturer's safety data sheets!

The valve interior must be cleaned regularly.

Use only cleaning agents that do not damage the valve materials.

Use clean, chlorine-free water as a thinning agent.

Dose the cleaning agent step-by-step and avoid using concentrations that are too high.

After cleaning, flush with plenty of clean water.

Ensure that the flow of cleaning agent is compatible with the process.

Recommended cleaning agents:

NaOH = sodium hydroxide

HNO₃ = nitric acid



NOTICE

- The cleaning agents must be stored and disposed of observing the currently valid safety regulations.

Example for cleaning in the food industry for process valves in version EPDM:

| Cleaning step | Description | Exposure time |
|------------------------------|--|---------------|
| Pre-rinsing | Process water at ambient temperature | 15 minutes |
| Main cleaning I (lye step) | Lye in aqueous solution 0,5-2% by 70°C | 20-30 minutes |
| Inter-rinsing | Process water at ambient temperature | 15 minutes |
| Main cleaning II (acid step) | Acid in aqueous solution 1-1,5% by 55°C | 20-30 minutes |
| After-rinsing | Water(drinking water quality) at ambient temperature | 15 minutes |

10. Transport, Packaging and Disposal

10.1 Transport and Packaging

Prior to transport, the valves are carefully checked and packed. However, the possibility of damage during transport cannot be excluded.

➤ Unpacking:

Remove the protective caps from the pipe connections (if present) and any remaining packaging.

➤ Receiving inspection:

Check the received goods against the delivery note to ensure that no parts are missing!

➤ If damage is discovered:

Check the delivery for damage (visual inspection)!

➤ In case of complaint:

If the delivery has been damaged in transit:

- Get in touch immediately with the last shipper!
- Keep the packaging (in case the shipper wishes to inspect it or for returning the goods).

➤ Packaging for returning goods:

If possible, use the original packaging material.

- If queries arise in connection with packaging and transport safety please contact Guth Ventiltechnik GmbH.

➤ Storage in open air:

Storage in the open air is not permitted.

➤ Storage in closed spaces:

Storage conditions:

- Temperature: 0°C bis 30 °C
- Humidity (air): < 60 %

10.2 Disposal

The valves are made mainly of steel (with the exception of electrical components and seals). They are to be disposed of according to locally valid environmental protection regulations.

Cleaning agents must be disposed of in accordance with local regulations and the manufacturers' instructions on the safety data sheets.

11. Technical Information

11.1 Areas of use and materials

- Materials and surface quality (standard):
Others optionally on request)

| | |
|---|--------------------------------------|
| Parts in contact with product: | 1.4301 or 1.4404 AISI 304 or 316L |
| Other parts: | 1.4301; 304 |
| Surfaces in contact with product: | Ra ≤ 0.8 |
| Max. allowable air pressure for pneumatic actuator: | min. 6 bar - max. 8 bar |

- Maximum operating pressures (standard):

| DN / OD | max. PN |
|-----------|---------|
| 10 - 65 | 16 |
| 80 | 10 |
| 100 - 150 | 6 |
| 1" - 2,5" | 16 |
| 3" | 10 |
| 4" - 6" | 6 |

Tab. 4 Maximum operating pressures

- Area of use of the sealing materials:

| Material | Area of use | Max. temperature | |
|---|-------------|------------------|------------------|
| | | continuous | short-time |
| Silicone-rubber peroxide cross-linked, grey | Hot water | +100°C | +120°C |
| | Mineral oil | +120°C - 40°C | +150°C - 50°C |
| Fluorinated rubber filled with carbon-black, black (FKM) | Hot water | + 90°C | +110°C |
| | Mineral oil | +165°C - 10°C | +190°C - 15°C |
| EPDM, peroxide cross-linked, black (with integrated lubricant) | Air, dry | +120°C | +145°C |
| | Hot vapour | +145°C - 35°C | +170°C - 40°C |
| HNBR, peroxide cross-linked, dark grey | Hot water | +130°C | +150°C |
| | Mineral oil | +150°C - 15°C | +170°C - 20°C |

Tab. 5_Area of use of the sealing materials



NOTICE

- Test resistance to media, cleaning agents and temperature!

11.2 Tightening torques

The table contains non-binding guide values that apply to bolts and nuts according to DIN 912, 931, 933 and 934/ ISO 4762, 4014, 4017, 4032 of stainless steels A2 and A4.

They assume a coefficient of friction of $\mu=0.12$ for standard bolts and nuts without lubrication.



NOTICE

- Additional lubrication of the thread substantially changes the friction coefficient and results in non-definable tightening ratios!

The tightening torques specified here may only be taken as very rough and non-binding, approximate values (see VDI 2230).

| | Strength class 50 'e.g. rotating parts' | Strength class 70 'Standard A2-70, A4-70' | Strength class 80 'e.g. A4.80' |
|--------|--|--|-----------------------------------|
| Thread | Tightening torque in Nm | Tightening torque in Nm | Tightening torque in Nm |
| M 5 | 1.7 | 3.5 | 4.7 |
| M 6 | 3.0 | 6.0 | 8.0 |
| M 8 | 7.1 | 16.0 | 22.0 |
| M 10 | 14.0 | 32.0 | 43.0 |
| M 12 | 24.0 | 56.0 | 75.0 |
| M 16 | 59.0 | 135.0 | 180.0 |
| M 20 | 114.0 | 280.0 | 370.0 |
| M 24 | 198.0 | 455.0 | 605.0 |
| M 30 | 193.0 | 1050.0 | 1400.0 |

Tab. 6 Tightening torque

Konformitätserklärung *Declaration of Conformity*

Im Sinne der EG-Richtlinien 2006/42/EG Anhang II(1) und 2014/68/EU, Artikel 6 Abs.2.
In compliance with EC Machine Directive 2006/42/EC Annex II(1) B and 2014/68/EU, Article 6 Clause 2.

Hersteller / *Manufacturer:* **Guth Ventiltechnik GmbH**
Horstring 16, D-76829 Landau

Hiermit erklären wir für die unten aufgeführten Produkte:

Alle Ventile oder auch Druckgeräte mit einem Betriebsdruck über 0,5 bar fallen in den Anwendungsbereich der EG-Druckgeräterichtlinie 2014/68/EU. Neben den druckgerätespezifischen Anforderungen werden insbesondere die einschlägigen Anforderungen des Anhangs I der EG-Maschinenrichtlinie 2006/42/EG angewendet und erfüllt. Die technischen Unterlagen können der benannten Stelle auf Verlangen übermittelt werden.

Die aufgeführten Ventile oder auch Druckgeräte sind als nichtselbständige Geräte zum Einbau in eine Maschine oder in eine Anlage bestimmt, wobei diese erst dann in Betrieb genommen werden darf, wenn sichergestellt ist, dass die Gesamtmaschine oder Anlage den einschlägigen EG-Richtlinien entspricht.

Ventile oder auch Druckgeräte ohne CE-Kennzeichen erfüllen die Anforderungen des Artikels 4 Abs.3 der Richtlinie 2014/68/EU.

We herewith declare for the products mentioned below:

All valves or pressure equipment with an operating pressure above 0,5 bars are subject to the scope of Pressure Equipment Directive 2014/68/EU. The specific requirements for pressure equipment and particular the relevant requirements of Annex I of the Machine Directive 2006/42/EC are both applied and fulfilled. On request by a national authority the technical documents can be transmitted.

The valves or pressure equipment are designed to be assembled to another machine or installation as a partly completed unit. Its use it not allowed until the conformity with the provisions of all relevant directives has been ensured.

Valves or pressure equipment without CE-marking correspond to Article 4 Clause 3 of the Directive 2014/68/EU.

| Bezeichnung/ <i>Name of product</i> | Nennweite/ <i>Nominal size</i> | max. PN | Kategorie <i>category</i> |
|---|-----------------------------------|---------|------------------------------|
| Sitz- und Wechselventile / <i>Seat and Change over valves</i> | DN 32 – 150 / OD 1" – 6" | 80 | Artikel 4, Absatz 3 / I-III |
| Scheibenventile / <i>Butterfly valves</i> | DN 32 – 150 / OD 1" – 6" | 40 | Artikel 4, Absatz 3 / I-III |
| Kugelhähne / <i>Ball valves</i> | DN 32 – 100 / OD 1" – 4" | 10 | Artikel 4, Absatz 3 / I-II |
| Druckbehälter / <i>Pressure tank</i> | V 0,5 - 1500L | 40 | Artikel 4, Absatz 3 / I-III |
| Rohrleitungen / <i>Pipelines</i> | DN 8 - 250 | 80 | Artikel 4, Absatz 3 / I-III |
| Baugruppen und Kundenspezifische Teile / <i>Assemblies & customised parts</i> | DN 8 – 250 / V 0,5 – 1500L | 32 | Artikel 4, Absatz 3 / I-III |

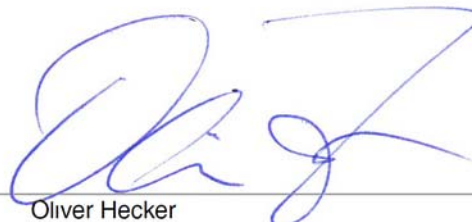
Angewandte Richtlinien / *Applied guidelines:*

| | |
|------------|---|
| 2006/42/EG | Maschinenrichtlinie / <i>Machinery Directive</i> |
| 2006/95/EG | Niederspannungsrichtlinie / <i>Low voltage Directive</i> |
| 2014/68/EU | Druckgeräterichtlinie / <i>Pressure equipment directive</i> |

Angewandte Normen, technische Spezifikationen / *Applied national Standards, technical specifications:*

| | |
|-----------------------|---|
| DIN EN ISO 60204-1 | Sicherheit von Maschinen / <i>Safety of machinery</i> |
| DIN EN 12266 | Industriearmaturen -Prüfung von Armaturen / <i>Industrial valves - Testing of metallic valves</i> |
| AD 2000, DIN EN 12516 | Armaturengehäuse -Auslegung / <i>Industrial valves - Shell design strength</i> |

Landau, 01.07.2016



Oliver Hecker
Geschäftsführer / General Manager