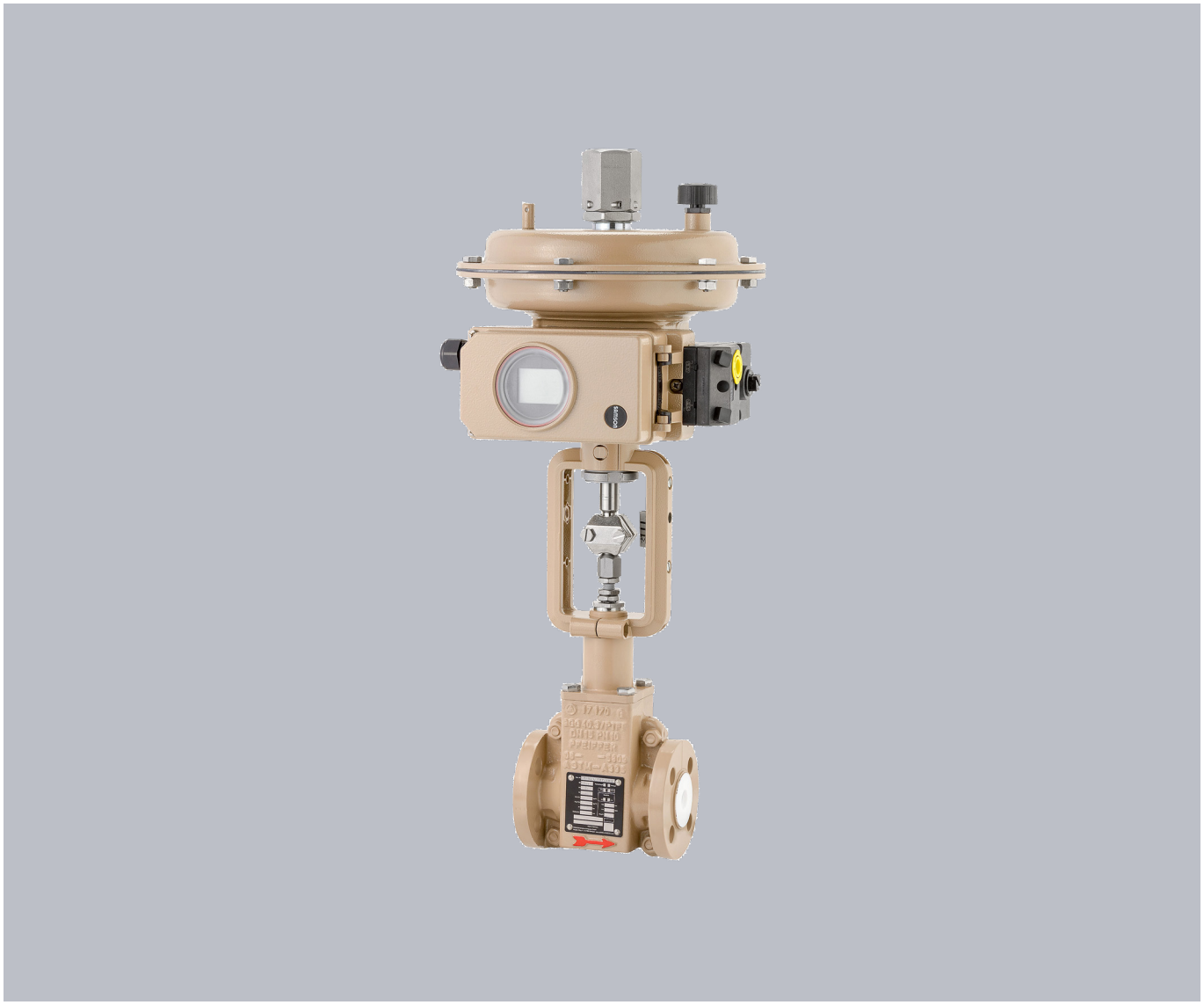
# MOUNTING AND OPERATING INSTRUCTIONS

AND EVERYTHING FLOWS

## EB 06a

Translation of the original manual



# Micro-flow valve BR 06a • DIN version

to combine with actuators

April 2025 edition

CE

**PFEIFFER Chemie-Armaturenbau GmbH · Hooghe Weg 41 · 47906 Kempen · Germany**
Phone: +49 2152 2005-0
sales-pfeiffer-de@samsongroup.com · https://pfeiffer.samsongroup.com

**Note regarding this installation and operating manual**

This Installation and Operating Manual (EB) provides guidance for safe assembly and operation.

The notes and instructions in this EB are binding when handling PFEIFFER devices. The figures and illustrations in this EB are examples and must therefore be considered as such.

⇨ For safe and correct use, read this EB carefully prior to use and keep it for later reference.

⇨ In the case of questions that go beyond the scope of this EB, please contact the After Sales Service at PFEIFFER Chemie-Armaturenbau GmbH.

⇨ This manual only applies to the micro-flow valve itself, the respective additional manual applies for the mounted actuator.

**Definition of signal words**

**DANGER**

*Hazardous situations that lead to death or serious injuries*

**WARNING**

*Situations that can lead to death or serious injuries*

***NOTE***

*Property damage and malfunctions*

***Info***

*Additional information*

***Tip***

*Recommended action*

# Contents

# 1 Safety instructions and safety measures

## 1.1 Intended use

The BR 06a micro-flow valve is equipped with a manual gear or in combination with an actuator and intended for the regulation of the volume flow, pressure and temperature of fluid, gaseous or vaporous media.

– The valve and its actuator are designed for precisely defined conditions (e.g. operating pressure, utilised medium, temperature).

  Therefore the operator must make sure that the valve is only used when the conditions of use comply with the design criteria defined in the order.

  If the operator would like to use the valve in other applications or environments, they must contact PFEIFFER.

– Manual valves are only intended for use, after installation in a pipe system, to cut off the media (mainly corrosive), let it flow through or regulate it within the permitted pressure and temperature limits.

– Automated valves are only intended for use, after installation in a pipe system and after connecting the actuator to the control, to cut off the media (mainly corrosive), let it flow through or regulate it within the permitted pressure and temperature limits.

– The data sheet contains the permissible pressure and temperature range for these valves ▶ TB 06a.

– The safety regulations that apply to the pipe system in which the valves are installed and to the control system to which the actuator is connected also apply to the valves.

  This manual only provides safety instructions that are to be observed additionally for valves.

  There may be additional safety instructions in the manuals for the actuator assemblies.

– It is assumed that this chapter is observed when using the valve as intended.

**Reasonably foreseeable erroneous use and unintended use**

The valve is not suited for the following areas of use:

– Use outside of the technical data and the limits defined by the design.

– Use outside of the limited defined by the peripheral devices installed on the valve.

Furthermore, the following activities are considered unintended use:

– Use of third-party spare parts.

– Performance of maintenance and repair work that is not described.

**Qualification of operating personnel**

The valve may only be disassembled, dismantled, assembled and commissioned by qualified specialist personnel trained in pressurised pipes who are familiar with the assembly, commissioning and operation of this product.

– Specialist personnel in terms of this installation and operating manual are persons who, on the basis of their vocational education, knowledge and experience and knowledge of the relevant standards, are capable of evaluating the assigned tasks and identifying possible hazards.

**Personal protective equipment**

Depending on the utilized medium, PFEIFFER recommends the following protective equipment:

– Protective garments, protective gloves and eye protection when using hot, cold, aggressive and/or corrosive media.

– Hearing protection when working near the valves.

– Request additional protective equipment from the plant operator.

**Prohibition of modifications**

Changes to the product are not permitted without consulting PFEIFFER. Non-compliance invalidates the warranty and product guarantee. PFEIFFER shall not be held liable for any resulting property damage or personal injury.

**Protective devices**

In the case of a power supply failure, the automated valve automatically switches to a certain fail-safe position, see Fail-safe positions”in Chapter “3 Design and principle of operation”.

– The fail-safe position corresponds to the effective direction and is indicated on the type plate of SAMSON actuators, see the actuator documentation.

– The valve is to be included in the equipotential bonding of the plant.

**Warning of residual risks**

To prevent personal injury or property damage, the operator and operating personnel must use suitable measures to prevent the hazards that can result from the flow medium and operating pressure as well as the signal pressure and moving parts of the valve.

– Therefore, the operator and operating personnel must observe all the hazard information, warning information and information in this installation and operating manual.

**Obligation of the operator to exercise diligence**

The operator is responsible for proper operation as well as compliance with the safety regulations.

– The operator is responsible for providing operating personnel with this installation and operating manual

as well as the applicable documents and to provide instructions on proper operation.

– Furthermore, the operator must ensure that operating personnel and third parties are not endangered.

It is not the responsibility of PFEIFFER and therefore when using the value ensure that:

– The valve is only used as intended as described in this chapter.
– A actuator unit that is subsequently installed on the valve is adapted to the valve and is correctly adjusted in the end positions, and in particular in the closed position of the valve.
– The pipe system and control system are properly installed and regularly checked. The wall thickness of the valve body is measured such that an additional load of the usual magnitude is taken into account for a pipe system installed properly in this way.
– The valve is connected properly to these systems.
– The customary flow rates in continuous operation are not exceeded in this pipe system.
– PFEIFFER is contacted in the case of abnormal operating conditions, such as vibrations, hydraulic shock, cavitation and also small amounts of solid matter in the medium, especially abrasive matter.

**Obligation of operating personnel to exercise diligence**

Operating personnel must be familiar with this installation and operating manual and the applicable documents and comply with the indicated hazard information, warning information and other information. Furthermore, operating personnel must be familiar with the applicable regulations concerning occupational safety and accident prevention and observe them.

**Applicable standards and directives**

– The valves fulfil the requirements of the European Pressure Equipment Directive 2014/68/EU and the European Machinery Directive 2006/42/EC.

  In the case of valves provided with a CE marking, the Declaration of Conformity provides information about the conformity assessment procedure that was used.

  The corresponding declarations of conformity are available in the Annex of this EB, see chapter “14 Certificates“.
– According to an ignition hazard assessment according to DIN EN ISO 80079-36, PFEIFFER valves do not have any own potential ignition sources and therefore are not subject to Directive 2014/34/EU.

  CE marking based on this standard is not permitted. The inclusion of valves in the equipotential bonding of a plant applies independently of the directive for all metal parts in potentially explosive areas.

  Valves with plastic lining (PFA, PTFE) through which chargeable media flows during operation, must be provided with an electrostatically dissipative plastic lining whose surface resistance does not exceed a value of 1 GΩ ($10^9$ Ω) in accordance with DIN EN ISO 80079-36.

## 1.2 Notes regarding possible severe personnel injury

**⚠ DANGER**

***Hazards and ineffectiveness of the warranty!***

*In the case of non-compliance with the following hazard and warning information, hazards may arise and the warranty provided by PFEIFFER may become invalid.*

⇨ *Observe the following hazards and warning information.*
⇨ *Contact PFEIFFER in the case of questions:*

***Hazards and damage due to unsuitable valves!***

*Valves whose permissible pressure/temperature range (=”rating”) is not sufficient for the operating conditions can pose a danger to the user and cause damage to the pipe system.*

⇨ *Only operate valves whose permissible pressure/temperature range (=”rating”) are sufficient for the operating conditions, see the data sheet ▶ TB 06a)*

***Risk of bursting of the pressure equipment!***

*Valves and pipes are pressure equipment. Improper opening can cause the bursting of valve components.*

⇨ *Observe the maximum permissible pressure the valve and plant.*
⇨ *Before working on the valve, depressurise the concerned plant parts and the valve.*
⇨ *Before removing the valve from the pipe, completely release the pressure in the pipe so that the medium does not escape uncontrolled from the line.*
⇨ *Empty the medium from the concerned plant parts and valve. (Wear protective equipment).*

## 1.3 Notes regarding possible personnel injury

**⚠ WARNING**

***Hazards due to incorrect valve use!***

*The incorrect use of the valve can represent a hazard for the user and cause damage to the pipe system that are then no longer the responsibility of PFEIFFER.*

⇨ *The lining selected for the parts of the valve that come into contact with the media must be suitable for the utilised media, pressures and temperatures.*

**⚠ WARNING**

***Danger of burning due to hot or cold components and pipes!***

*Depending on the utilised medium, valve components and pipes can become very hot or very cold and cause burns upon contact.*

⇨ *Valves must be protected against contact in the case of operating temperatures >+50 °C or <-20 °C together with the pipe connections.*

***Danger of crushing due to moving parts!***

The valve contains moving parts (actuator and plug stem) that can lead to crushing if reaching into it.

⇨ *Do not reach into the yoke during operation.*

⇨ *When working on the valve, interrupt and lock pneumatic energy and the control signal.*

***Danger of injury during the switching operation if performing test runs on valves not installed in the pipe!***

⇨ *Do not reach into the valve. This can result in serious injuries.*

***Danger of injury due to venting the actuator!***

*During operation, when regulating or opening and closing the valve, the actuator can be ventilated.*

⇨ *Install the valve such that the actuator does not ventilate at eye level.*

⇨ *Use suitable silencers and plugs.*

⇨ *Wear eye protection and, if necessary, hearing protection when working near the valve.*

***Danger of injury due to prestressed springs!***

*Valves that are equipped with preloaded actuator springs are under mechanical tension. These valves, in combination with the pneumatic SAMSON actuators, can be identified by the elongated screws on the bottom of the actuator.*

⇨ *Before working on the actuator, release the compression from the preloaded springs, see the corresponding actuator documentation.*

***Danger of injury due to residual medium in the valve!***

*When a valve must be removed from a pipe, medium can escape from the pipe or the valve.*

⇨ *In the case of media that is harmful to health or hazardous, the pipe must be completely emptied before a valve can be removed.*

⇨ *Pay attention to the afterflow of residuals or residuals that remain in dead spots.*

***Danger of injury due to the releasing of body screw connections!***

*If the body screw connections must be released, medium can escape from the valve.*

⇨ *The screw connections on the connection of the body and bonnet flange may only be released or loosened after the valve has been removed.*

⇨ *During reassembly, tighten the screws according to Table 15-1 in Chapter "15.1.1 Tightening torques" using a torque wrench.*

**⚠ WARNING**

***Dangers due to use as an end fitting!***

*During normal operation, in particular with gaseous, hot and/or hazardous media, spraying medium can cause hazards. It must be kept in mind that the media is usually hazardous!*

⇨ *A blind flange must be assembled on the free connecting pieces or the valve must be secured against unauthorized actuation.*

⇨ *If a valve used as an end fitting in a pressurised line is opened, this may only be done with extreme caution so that the escaping medium does not cause any damage.*

***Deviation of the breakaway and actuating forces due to non-actuation of the valve!***

*Depending on the period of time of non-actuation, the breakaway and actuation forces can deviate considerably from the actuating power data in the data sheet.*

*It is recommended to actuate the valve at regular intervals.*

⇨ *In consideration of the design, actuation must take place during the year.*

⇨ *Indicate the duration of non-actuation when making an enquiry, so that this condition is taken into consideration in the actuator design.*

⇨ *In the case of retrofitted actuators by the operator, the correct actuator design as regards the duration of non-actuation is no longer the responsibility of PFEIFFER.*

## 1.4 Notes regarding possible property damage

**NOTE**

***Damage to the valve due to contamination!***

*Contamination (e.g. solid particles) in the pipes can damage the valve.*

⇨ *The plant operator is responsible for cleaning the pipes in the plant.*

⇨ *Rinse the pipes prior to commissioning.*

⇨ *Observe the maximum permissible pressure the valve and plant.*

***Damage to the valve due to unsuitable medium properties!***

*The valve is designed for a medium with certain properties. Other media can damage the valve.*

⇨ *Only use a medium that corresponds to the design criteria.*

***Damage to the valve and leakage due to excessively high or low tightening torques!***

*The valve components must be tightened with specific torques. Deviating torques can lead to valve leakage or damage.*

⇨ *Excessively tightened components are subject to increased wear.*

⇨ *Insufficiently tightened components can cause leakage.*

⇨ *Observe the tightening torques, see Table 15-1 in Chapter "15.1.1 Tightening torques".*

**NOTE**

***Damage to the valve due to unsuitable tools!***
*Unsuitable tools can damage the valve.*
⇨ *Suitable tools are required to work on the valve, see Chapter "15.1.3 Tools".*

***Damage to the valve due to unsuitable lubricants!***
*Unsuitable lubricants can corrode and damage the surface.*
⇨ *The valve material requires suitable lubricants, see Chapter "15.1.2 Lubricants".*

## 1.5 Warning notes on the device

**Warning of moving parts**

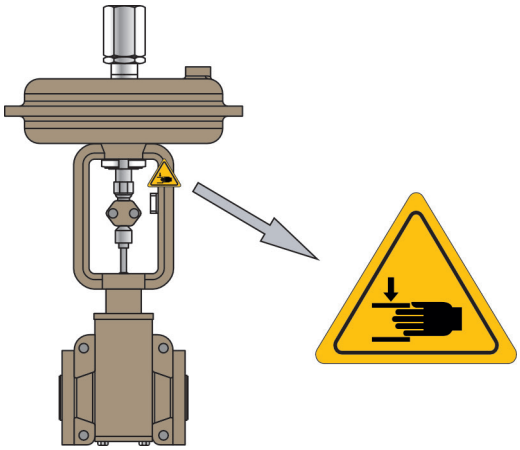


**Fig. 1-1:** *Warning of moving parts*

There is a danger of crushing due to the lifting movements of the actuator and plug stem when reaching into the yoke as long as the pneumatic power is connected to the actuator.

# 2 Markings on the device

Each valve using has the following marking.

**Table 2-1:** *Marking on the type plate and on the body of the valve*

| Item | for | Marking | Remark |
|---|---|---|---|
| 1 | Manufacturer | PFEIFFER | Address see Chapter “15.3 Service” |
| 2 | Valve type | BR (and number value) | e.g. BR 06a = Series 06a, see the PFEIFFER data sheet |
| 3 | Body material | e.g. EN-JS 1049 | No. of the material standard according to DIN EN 1563 (previous: GGG 40.3) |
| 4 | Size | DN (and number value) | Number value in [mm], e.g. DN 15 |
| 5 | Maximum pressure | PN (and number value) | Number value in [bar], e.g. PN 10 at room temperature |
| 6 | Max. permissible operating temperature | TS (and number value) | PS are TS are related values here at the max. permissible operating temperature with the max. permissible operating overpressure, see the Pressure-Temperature Diagram on the data sheet ▶ TB 06a |
| | Max. permissible operating pressure | PS (and number value) | |
| 7 | Test pressure | PT (and number value) | The test pressure must be observed depending on the device |
| 8 | Manufacturer number from 2018 | e.g. 351234/001/001 | 35 1234 /001 /001<br>Valve no. within the item<br>Item in the order<br>Order<br>Year of manufacture (38=2018, 39=2019, 30=2020, 31=202, 32=2022, 33=2023, 34=2024, 35=2025 etc.) |
| | Manufacturer number 2009 to 2017 | e.g. 211234/001/001 | 21 1234 /001 /001<br>Valve no. within the item<br>Item in the order<br>Order<br>Year of manufacture (29=2009, 20=2010, 21=2011, 22=2012 etc.) |
| | Manufacturer number until 2008 | e.g. 2071234/001/001 | 207 1234 /001 /001<br>Valve no. within the item<br>Item in the order<br>Order<br>Year of manufacture (205=2005, 206=2006, 207=2007 etc.) |
| 9 | Seat diameter | e.g. 6 mm | Number value in [mm] |
| 10 | Year of manufacture | e.g. 2025 | The year of manufacture is affixed on the valve |
| 11 | Plug version | e.g. Parabolic plug | Marking for “Parabolic plug” |
| 12 | Lining | e.g. PTFE | Marking for BR 06a “PTFE” |
| 13 | Characteristic curve | e.g. =% | Marking for “linear” or “equal percentage” |
| 14 | Travel | e.g. 10 mm | Number value in [mm] |
| 15 | Kvs | e.g. 0.63 | Number value in [$m^3$/h] |
| 16 | Conformity | CE | Conformity is certified separately by PFEIFFER |
| | Code No. | 0035 | “Notified body” according to EU Directive = TÜV Rheinland Service GmbH |
| 17 | Flow direction | ➔ | Attention: see the note in Chapter “5.4 Installing the valve in the pipe” |
| 18 | Test point number | e.g. F123201-1 | Specified by the customer |
| 19 | Materials | | Materials outside of the standard in the case of parts in contact with the media |
| 20 | TA-Luft 2021 | | Stamp |
| 21 | Data/Matrix code | | Sticker |

***Info***

*Markings on the body and the type plate must be permanent so that the valve remains identifiable.*

## 2.1 Marking guidelines BR 06a

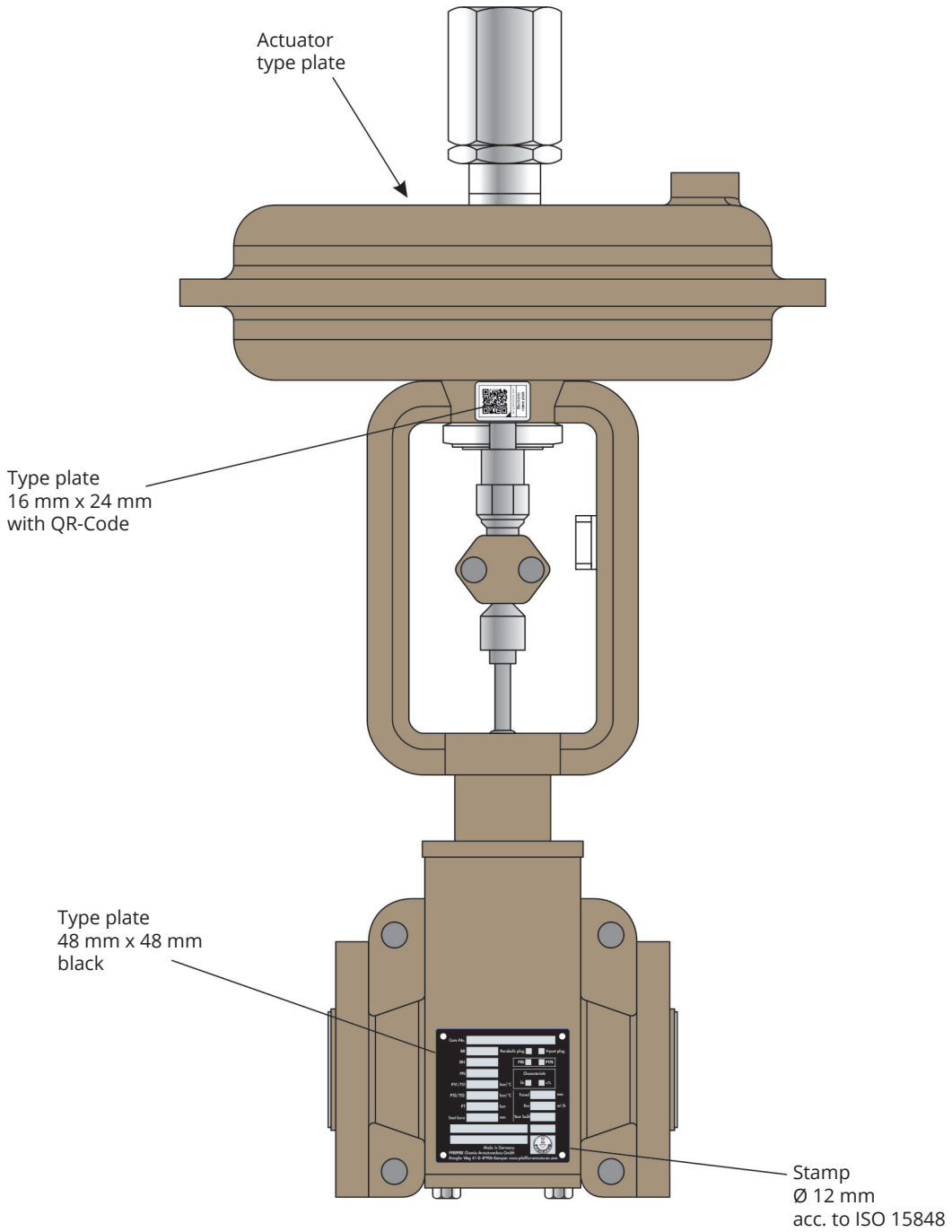



**Fig. 2-1:** *Marking location on valve BR 06a*

## 2.2 Type plates

### 2.2.1 Valve type plate

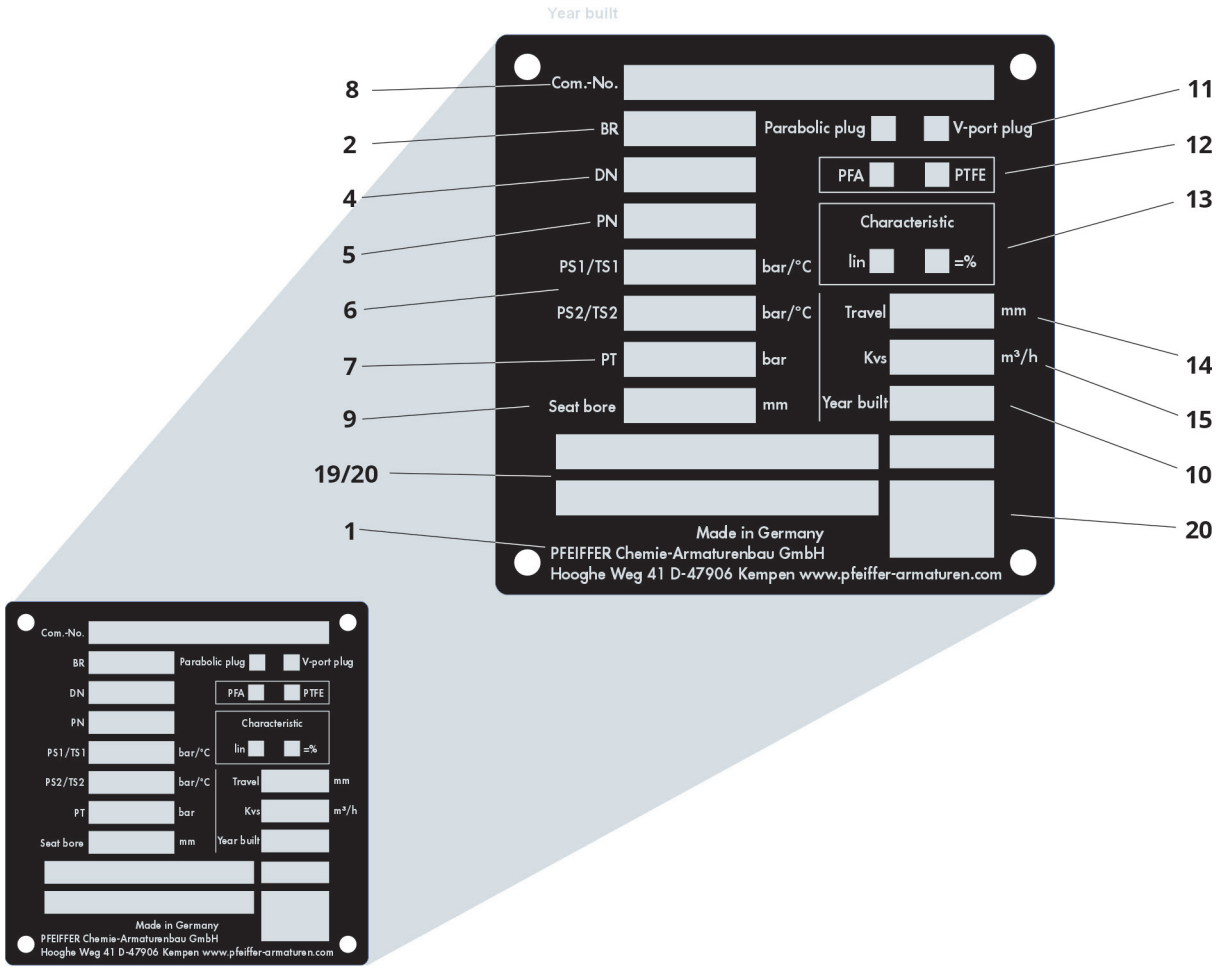



**Fig. 2-2:** *Marking positions of the type plate on the valve BR 06a*

### 2.2.2 Actuator type plate

The type plate is affixed to the cover. The type plate contains all the information required to identify the appliance, see the corresponding actuator documentation.

## 2.3 Material marking

The valves are marked on the body with material specification, see Table 2-1.

Further specifications can be requested from PFEIFFER.

## 2.4 Electronic type plate

An electronic type plate can be provided on PFEIFFER fittings. The serial number and the Data/Matrix code are the key features of this electronic type plate.

This helps to implement IEC 61406 on SAMSON products.

An appliance-specific website provides comprehensive information about this type plate. To access it, enter the serial number or scan the Data/Matrix code.

### 2.4.1 Type plate with QR-Code

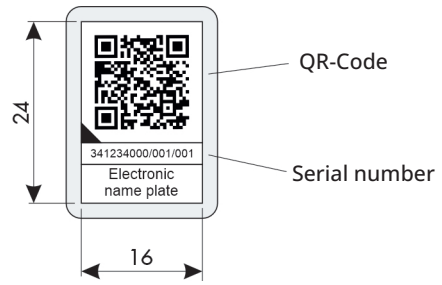



**Fig. 2-3:** *Electronic type plate*

## 2.5 TA-Luft licence plate

PFEIFFER valves can be equipped with packing in accordance with TA-Luft. This serves to implement TA-Luft 2021 for PFEIFFER products.

Valves designed in accordance with TA-Luft are labelled with a stamp on the type plate, see Fig. 2-1 and Fig. 2-4.

### 2.5.1 TA-Luft stamp

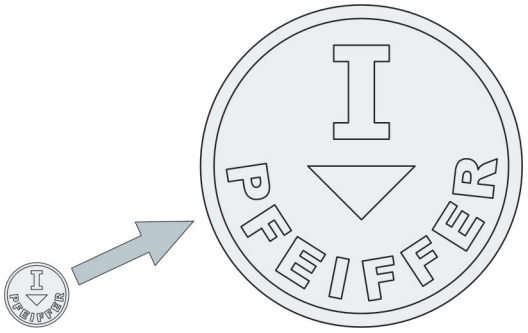



**Fig. 2-4:** *Stamp*

# 3 Design and principle of operation

**Function and principle of operation**

The process medium flows through the valve in the flow-to-open direction. The valve plug position determines the cross-sectional area of flow between the seat (14) and the plug (19). The valve plug (19) is connected over the stem (10) to the actuator stem.

The PTFE bellows (11) seals the area between the valve body (1) and stem (10). In the standard version, the bellow unit is suitable for operating pressures (p2) up to 6 bar.

In addition, the stem is sealed by a PTFE V-ring packing (12) which is spring supported by disc springs (13) positioned above the packing.

The PTFE seat (14) is screwed into the valve body (1) over a thread suitable for plastic.

**NOTE**

***Damage to the valve due to cavitation!***
*Lined valves are not suitable for operation with cavitation. Contact PFEIFFER in the case of questions.*

**Fail-safe positions**

Depending on the mounting of the pneumatic actuator, the valve has two fail-safe positions that are activated when the pressure is released as well when the supply air fails:

- **Valve with spring-close actuator [STAF]:**

  If the air supply fails, the valve is closed. The valve opens when the signal pressure increases, acting against the force of the springs.
- **Valve with spring-open actuator [STEF]:**

  If the air supply fails, the valve is opened. The valve closes when the signal pressure increases, acting against the force of the springs.

**Changing the fail-safe position**

The fail-safe position of the actuator can be reversed if required. To do so, see the installation and operating manual for the respective pneumatic actuator.

**Operating elements and functions**

The BR 06a valve can be selected in the following versions:

- With a pneumatic SAMSON actuating drive.
- With a manual SAMSON actuator.
- With actuators from other manufacturers.

## 3.1 Variants

- Lining with special compounds, e.g. PTFE-conductive
- Plug and seat also made of special material (e.g. tantalum)

## 3.2 Additional fittings

**Strainer**

PFEIFFER recommends installing a strainer in front of the valve body. A strainer prevents the solid content in the medium from damaging the valve.

**Bypass and shut-off valves**

PFEIFFER recommends installing a shut-off valve in front of the strainer as well as behind the valve and to create a bypass. By means of the bypass, the entire plant does not have to be decommissioned during maintenance and repair work on the valve.

**Insulation**

The valves can be insulated to reduce the passage of heat energy.

Observe the notes in Chapter " 5 Assembly".

**Test connection (Option)**

In the version with bellows sealing, a test connection (e.g. ¼" thread) can be used on the upper flange to check the tightness of the bellows.

**Grip protection**

Under conditions of use that require a high level of safety (e.g. if the valve is freely accessible to untrained specialist personnel), PFEIFFER offers a safety guard to prevent the risk of crushing due to moving parts (actuating drive and plug stem).

## 3.3 Attachments

The following accessories are available either individually or in combinations:

- Positioner
- Limit switch
- Solenoid valves
- Supply air regulator/filter
- Pressure gauge mounting blocks
- Pneumatic volume booster

Other additional equipment is possible according to specifications on request.

## 3.4 Technical data

The type plates of the valve and actuator give information about the valve version, see Chapter "2 Markings on the device".

**Info**

*Detailed information is available on the data sheet ▶ TB 06a.*

## 3.5 Valve assembly

The current version of the BR 06a valve manufactured after 2015 has design differences in the area of the stem sealing in comparison to the version manufactured before 2015 so that they cannot be documented in one construction manual.

- **Chapter 3.5.1** describes the assembly of the current valve **manufactured after 2015**.
- **Chapter 3.5.2** describes the assembly of the valve **manufactured before 2006**.

**Preparation of the assembly**

To assemble the valve, all parts must be prepared, e. g. the parts are carefully cleaned and placed on a soft mat (rubber mat or other). Keep in mind that plastic parts are almost always very soft and very delicate, and in particular the sealing surfaces may not be damaged.

**Note**

***Damage due to incorrect lubricant when installing the ball valve!***

*– When assembling the stem, bellows, plug, bonnet flange and all other parts of the stem sealing in contact with media, only use water-free grease.*

*– PFEIFFER recommends suitable lubricants for the respective areas of application of the ball valve, see chapter 15.1.2.*

***Damage to the valve body assembly due to disassembly!***

*The valve body, made of spheroidal cast iron, forms together with the PTFE-liner and the bonnet a complete unit, which together with the grooved pins, screws and nuts are screwed together*

⇨ *The modular unit of the body may not be disassembled any more.*

**Info**

*The positions and arrangements of the individual parts shown in the drawings must be observed during assembly.*

### 3.5.1 Valve assembly manufactured after 2015

#### 3.5.1.1 Valve body assembly

⇨ Clamp the valve body (1) with the flange in a vice so that the bearing area of the seat is easily reached.

⇨ Screw in the PTFE seat (14) using a suitable special tool into the thread of the body (1).

**NOTE**

***Damage to the valve due to improper assembly!***

*The thread on the seat and in the valve are delicate and can be damaged*

⇨ *Do not twist the seat when screwing in and do not damage the thread.*

**Info**

*For the tightening torque of the seat, see Table 15-2 in chapter '15.1.1 Tightening torques'.*

⇨ Rework the inside diameter of the seat if necessary.

#### 3.5.1.2 Assembly of the stem

**NOTE**

***Damage to the parts of the stem sealing in contact with media due to unsuitable grease.***

⇨ *When assembling the stem, bellows, plug and all other parts of the stem sealing in contact with media, only use water-free grease.*

⇨ Grease the stem (10) on the bottom thread.

**Info**

*In some versions, the stem consists of three individual parts, whereby the guide is preassembled by a snap ring with the stem.*

⇨ Screw the bellows (11) with a preassembled washer and bush onto the greased thread of the stem (10).

**Tip**

*Due to the sliding property of the PTFE, we recommend using an emery cloth to prevent the bellows from sliding when screwing it onto the stem.*

**Info**

To make it easy to push on the plug stem, a small notch is made in the bellows to let air escape.

⇨ Push the plug (19) onto the bellows (11).

⇨ Secure the connection between the plug and bellows with a PTFE cord (20) inserted as far as possible.

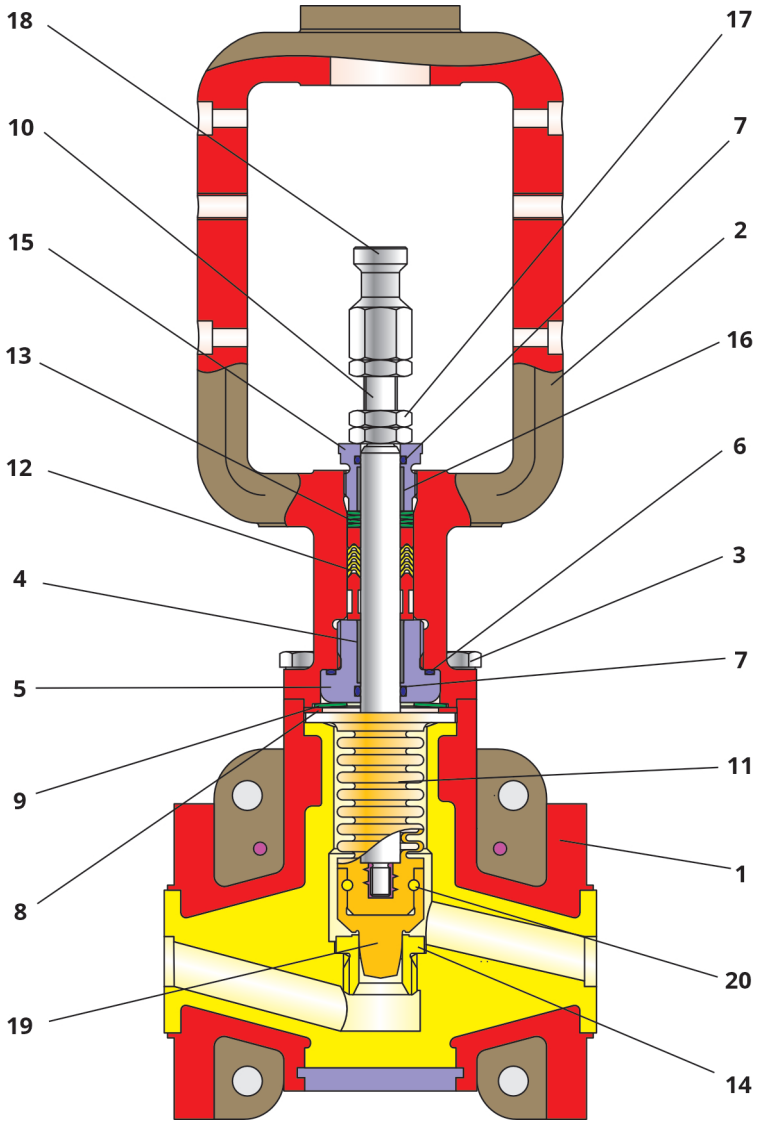



**Fig. 3-1:** *Sectional diagram of a valve manufactured after 2015*

**Table 3-1:** *Parts list*

| Item | Description |
|---|---|
| 1 | Main body with liner |
| 2 | Bonnet with yoke |
| 3 | Screw |
| 4 | Bearing bush |
| 5 | Guide bush |
| 6 | O-ring |
| 7 | O-ring |
| 8 | Thrust washer |
| 9 | Disc spring |
| 10 | Stem |

| Item | Description |
|---|---|
| 11 | Bellows |
| 12 | V-ring packing |
| 13 | Disc spring set |
| 14 | Seat |
| 15 | Stuffing box |
| 16 | Bearing bush |
| 17 | Nut |
| 18 | Coupling |
| 19 | Plug |
| 20 | Cord |

### 3.5.1.3 Assembling the bonnet

⇨ Insert the o-ring (7) into the inner groove of the stuffing box (15).

⇨ Press the upper bearing bush (16) into the bottom part of the stuffing box (15).

⇨ Grease the stuffing box (15) on the thread.

⇨ Screw the stuffing box (15) into the upper thread of the bonnet (2) so that the outer groove of the stuffing box is still visible.

**Info**

*Do not screw the stuffing box (15) into the bonnet flange as far as it will go.*

⇨ Clamp the bonnet (2) at the yoke in a vice with the flange opening facing upwards.

⇨ Insert the disc spring set (13) into the provided hole. Arrangement of the disc springs, see Fig. 3-1.

⇨ Insert the base ring, V-rings of the packing (12) and thrust ring one after the other. The arrangement of the V-ring packing is shown in the drawing in Fig. 3-1.

⇨ Press the lower bearing bush (4) into the upper part of the guide bush (5).

⇨ Insert the o-ring (7) into the inner groove and o-ring (6) in the collar groove of the guide bush (5).

⇨ Grease the guide bush (5) on the thread.

⇨ Screw the threaded bush into the bonnet (2) as far as it will go.

**NOTE**

***Damage to the threaded bush due to improper assembly!***

⇨ *The threaded bush must not be inserted at a slanted angle when screw it into the bonnet.*

### 3.5.1.4 Final assembly of the bonnet

⇨ Insert the disc spring (9) and thrust washer (8) in the bonnet (2). Refer to the drawing Fig. 3-1 for the arrangement of parts.

⇨ Place the preassembled stem in the bonnet (2), see Chapter 3.5.1.2.

⇨ Press the flange of the bellows (11) into the turned recess of the bonnet (2).

### 3.5.1.5 Assembling the valve

⇨ Clamp the preassembled valve body, see Chapter 3.5.1.1, in a vice with the bonnet opening facing upwards.

⇨ Place the preassembled bonnet, see Chapter 3.5.1.4, onto the valve body carefully.

⇨ Screw the screws (3) into the valve body. Tighten the screws evenly in a criss-cross pattern.

**NOTE**

***Damage to the stem due to twisting!***

*To avoid damage to the parts during assembly, the bonnet, (2) of the plug (19) must not come in contact with the seat (14).*

⇨ *Before tightening the screw connection, pull the stem up as far as it will go.*

**Info**

*The permissible torque for retightening the connection of the bonnet can be found in Table 15-1 in Chapter "15.1.1 Tightening torques".*

⇨ Tighten the stuffing box (15) after adjusting the valve.

⇨ Screw the lock nuts (17) onto the stem. Adjust the nuts, see Chapter "5.3.1 Travel adjustment with separately supplied SAMSON actuator".

## 3.5.2 Valve assembly manufactured before 2015

### 3.5.2.1 Assembly of the stem

**NOTE**

***Damage to the parts of the stem sealing in contact with media due to unsuitable grease.***

⇨ *When assembling the stem, bellows, plug and all other parts of the stem sealing in contact with media, only use water-free grease.*

⇨ Grease the stem (10) on the bottom thread.

**Info**

*In some versions, the stem consists of three individual parts, whereby the guide is preassembled by a snap ring with the stem.*

⇨ Screw the bellows (11) with a preassembled washer and bush onto the greased thread of the stem (10).

**Tip**

*Due to the sliding property of the PTFE, we recommend using an emery cloth to prevent the bellows from sliding when screwing it onto the stem.*

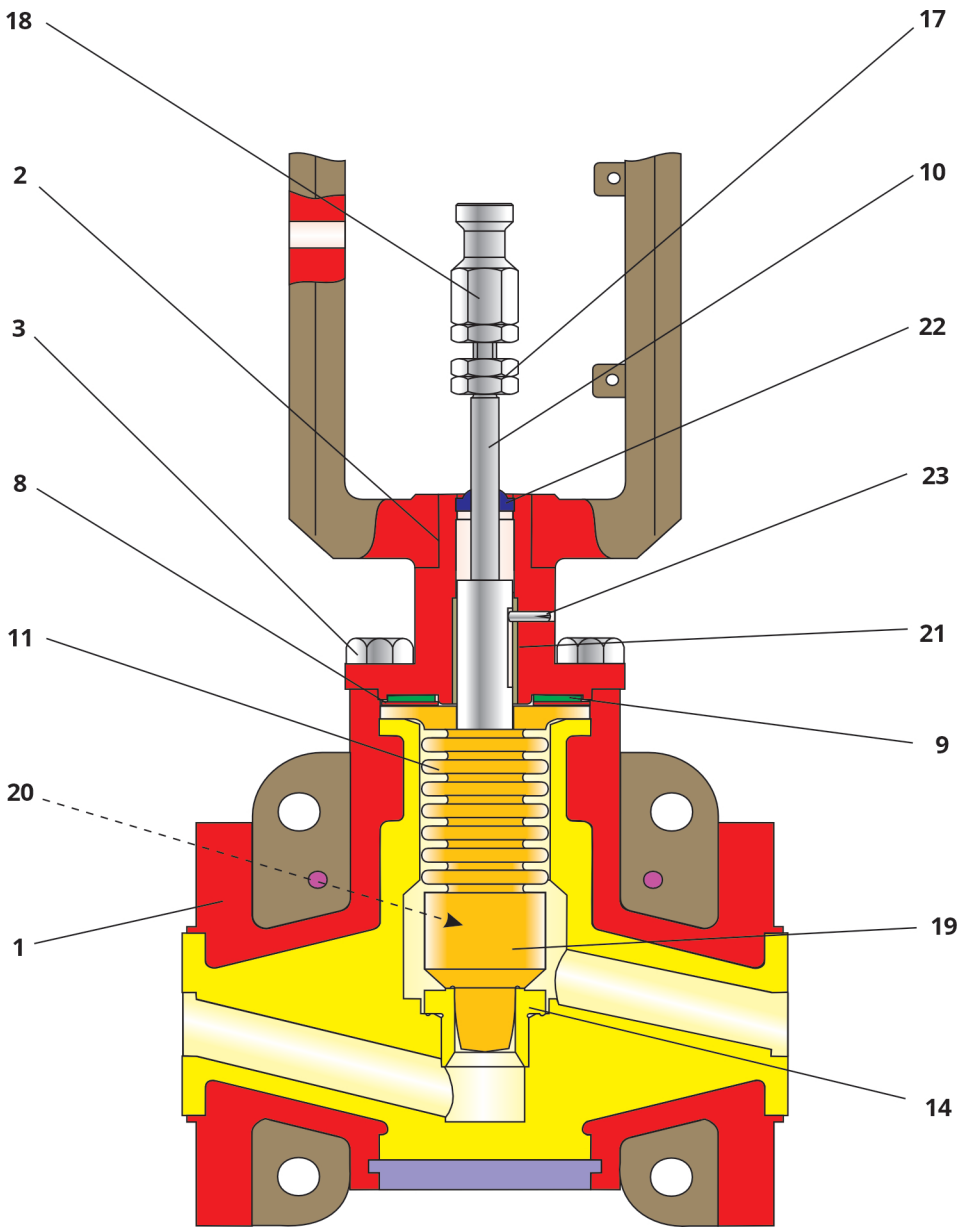



**Fig. 3-2:** *Sectional diagram of a valve manufactured before 2015*

**Table 3-1:** *Parts list*

| Item | Description |
|---|---|
| 1 | Main body with liner |
| 2 | Bonnet with yoke |
| 3 | Screw |
| 8 | Thrust washer |
| 9 | Disc spring |
| 10 | Stem |
| 11 | Bellows |
| 14 | Seat |

| Item | Description |
|---|---|
| 17 | Nut |
| 18 | Coupling |
| 19 | Plug |
| 20 | Cord |
| 21 | Bush |
| 22 | Wiper ring |
| 23 | Grooved pin |

**Info**

To make it easy to push on the plug stem, a small notch is made in the bellows to let air escape.

⇨ Push the plug (19) onto the bellows (11).

⇨ Secure the connection between the plug and bellows with a PTFE cord (20) inserted as far as possible.

⇨ The thrust ring (8) and the disc spring (9) are placed on the upper side of bellows flange (11). Refer to the explosion drawing (Fig. 3-2) when positioning the disc springs.

### 3.5.2.2 Assembling the bonnet

⇨ Apply Loctite to the Glycodur bush (21). Press the Glycodur bush (21) into the bonnet (2).

⇨ Through the existing bore in the bonnet (2) drill a 3 mm hole in one side of the glycodur bushing. (21).

⇨ Press the locating groove pin (23) into the bore.

⇨ The wipe off ring (22) is inserted into the upper part of the bonnet (2).

⇨ Insert the pre-assembled stem (see section 3.5.2.1) into the bonnet.

**Info**

*The locating groove pin (23) in the bonnet must be guided into the slot of the stem unit.*

### 3.5.2.3 Assembling the valve body

**NOTE**

***Damage to the valve body assembly due to disassembly!***

*The valve body, made of spheroidal cast iron, forms together with the PTFE-liner and the bonnet a complete unit, which together with the grooved pins, screws and nuts are screwed together*

⇨ *The modular unit of the body may not be disassembled any more.*

⇨ Clamp the valve body (1) with the flange in a vice so that the bearing area of the seat is easily reached.

⇨ Screw in the PTFE seat (14) using a suitable special tool into the thread of the body (1).

**NOTE**

***Damage to the valve due to improper assembly!***

*The thread on the seat and in the valve are delicate and can be damaged*

⇨ *Do not twist the seat when screwing in and do not damage the thread.*

**Info**

*For the tightening torque of the seat, see Table 15-2 in chapter '15.1.1 Tightening torques'.*

⇨ Rework the inside diameter of the seat if necessary.

### 3.5.2.4 Assembling the valve

⇨ Clamp the preassembled valve body, see Chapter 3.5.2.3, in a vice with the bonnet opening facing upwards.

⇨ Place the preassembled bonnet, see Chapter 3.5.2.2, onto the valve body carefully.

⇨ Screw the screws (3) into the valve body. Tighten the screws evenly in a criss-cross pattern.

**NOTE**

***Damage to the stem due to twisting!***

*To avoid damage to the parts during assembly, the bonnet, (2) of the plug (19) must not come in contact with the seat (14).*

⇨ *Before tightening the screw connection, pull the stem up as far as it will go.*

**Info**

*The permissible torque for retightening the connection of the bonnet can be found in Table 15-1 in Chapter "15.1.1 Tightening torques".*

⇨ Screw the lock nuts (17) onto the stem. Adjust the nuts, see Chapter "5.3.1 Travel adjustment with separately supplied SAMSON actuator".

# 4 Shipment and on-site transport

The work described in this chapter may only be performed by specialist personnel qualified to perform the corresponding task.

**NOTE**

***Damage to the valve due to improper transport and storage!***

⇨ *Valves with lining must be handled, transported and stored with care.*

## 4.1 Packaging and dispatch

This chapter describes the packaging, labelling and transport of goods intended for transport by truck, air freight, sea freight and courier services.

**Info**

*This description covers the standard packaging for shipping within Germany and abroad.*

⇨ *The packaging procedures described in this chapter apply solely to transport to the destination during a given transport period.*

⇨ *Clarify any deviating packaging instructions with the dispatch department before accepting the order.*

### 4.1.1 General packaging instructions

Packaging describes an effective form of protection of goods for despatch. The packaging is designed to withstand the handling and transport of goods over various transport routes (sea, air, land) and any environmental and weather conditions that may occur during this time during a period of up to six months.

– Packaging and protective materials do not contain any asbestos
– No hay, straw or other plant-based materials are used as packaging. Nails are used for the construction of crates
– The cargo is protected against damage from normal impact (knocks, bumps) and corrosion (normal rain or marine environment).
– Stacking of freight is not permitted for any transport route.

### 4.1.2 Standard packaging

The goods are packed in cardboard boxes that are filled with plastic flakes.

⇨ Pack goods up to and including 30 kg exclusively in a cardboard box without a pallet and fill it with plastic flakes.

⇨ Seal each cardboard box with adhesive tape.

Depending on size and volume, straps can also be used on cardboard boxes weighing less than 30 kg.

⇨ Pack goods weighing 30 kg or more in a cardboard box and fill with plastic flakes.

⇨ Seal the box with adhesive tape, pack it on a pallet and strap it down.

### 4.1.3 Materials

**Table 4-2:** *Dimensions*

| Description | Dimensions | Material |
|---|---|---|
| Standard pallet | 80 x 60 cm | |
| | 120 x 80 cm | |
| Standard cardboard box | 18 x 18 x 18 cm | Corrugated cardboard box |
| | 50 x 10 x 35 cm | Corrugated cardboard box |
| | 32 x 32 x 23 cm | Corrugated cardboard box |
| | 40 x 40 x 30 cm | Corrugated cardboard box |
| | 45 x 37 x 37 cm | Corrugated cardboard box |
| | 80 x 60 x 80 cm | Corrugated cardboard box |
| | 120 x 80 x 120 cm | Flat-pack corrugated cardboard container |
| Filling material | Plastic flakes<br>FLO-PAK in acc. with directive 94/62/EC. | |

### 4.1.4 Packaging for dispatch by truck or air freight

Package goods for transport by truck or air freight as described under ‘Standard packaging’, see section 4.1.2.

### 4.1.5 Packaging for dispatch by sea freight

⇨ To protect the goods, only use wooden crates for dispatch by sea freight. Do not use standard packaging.

⇨ Package goods in wooden crates in accordance with ISPM 15. Seal the crates with nails.

⇨ Filling material: Aluminium bags with Trocellen products.

### 4.1.6 Additional service for packaging and dispatch

Over and above the standard packaging mentioned above, additional services are available at an extra charge.

- Foil filling material
- Filling material – filling foam flakes (made by Trocellen)
- Goods individually packaged in PE bags
- Maritime transport packaging
- Wooden crates
- Long-term preservation
- Photos
- Special markings and additional markings on the packages in accordance with customer specifications
- Special markings of individual items of goods using labels or adhesive stickers in accordance with customer stipulations
- Acceptance tests of packaging

## 4.1.7 Marking

### 4.1.7.1 Packaging symbols

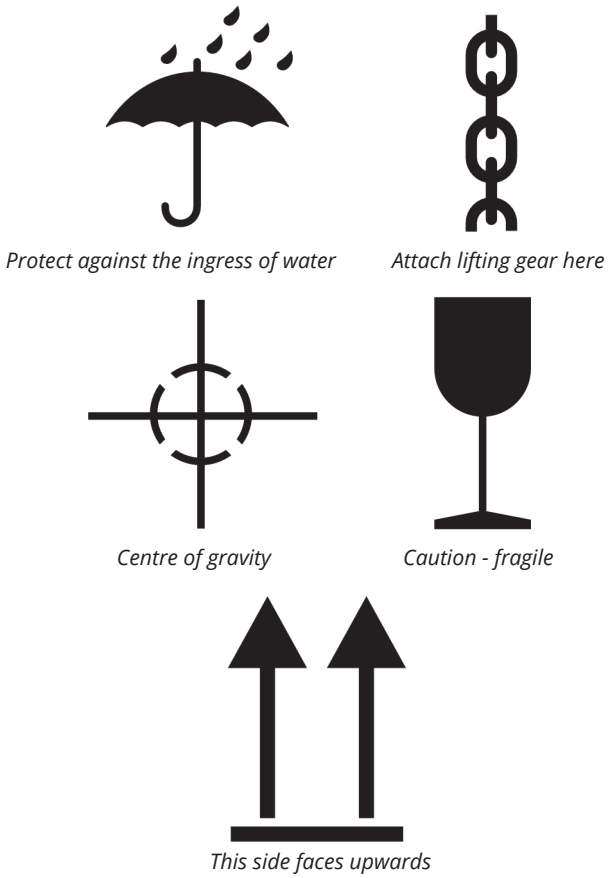



**Fig. 4-1:** *Example of packaging symbols*

⇨ Mark all attachment points with a chain symbol.

⇨ Indicate suitable handling methods using the symbols on the packaging. The symbols used comply with DIN 55402.

### 4.1.7.2 Delivery note

Marking and a delivery note constitute part of the package. The delivery note includes the following details:

- Customer name
- Order number
- Consignment number
- Destination
- Country of destination
- Numbers of the corresponding packages (for example 1 of 3 - indicated directly on the package)

## 4.2 Accepting delivery

Perform the following steps after receiving the goods:

⇨ Check the scope of supply. Compare the delivered goods with the delivery note.

⇨ Check the supply for transport damage. Report transport damage to PFEIFFER and the transport company (see the delivery note).

⇨ Also check the packaging for damage. If damage is detected, immediately notify PFEIFFER and the transport company. If no report is made, PFEIFFER shall not retrospectively recognise any complaint about damage sustained by the goods while in transit.

⇨ If the goods are not unpacked immediately after arrival at their destination, store the cardboard boxes and crates in a dry, closed and heated storage area.

**Tip**

*Subject to compliance with the above conditions, undamaged packaging provides protection for a total of six months (transport and storage).*

## 4.3 Unpacking the valve

**NOTE**

***Damage to the plastic lining!***

*Protect the lined valve surfaces in particular prior to/during installation.*

⇨ *Transport the valve in its original packaging to the installation site and unpack it only there.*

Perform the following steps before lifting and installing the valve:

⇨ Unpack the valve.

⇨ Dispose of the packaging properly.

**NOTE**

***Damage to the valve due to the ingress of foreign matter!***
*The protective caps on the valve inlet and outlet prevent foreign matter from entering the valve and damaging it. Only remove the protective caps prior to installation in the pipe.*

## 4.4 Transporting and lifting the valve

**DANGER**

***Danger due to falling of suspended loads!***
*Do not stand under suspended loads.*

***Danger of injury due to the tipping of the valve!***
⇨ *Observe the centre of gravity of the valve.*
⇨ *Secure the valve against tipping and twisting.*

**WARNING**

***Overturning of the lifting equipment and damage to the load lifting equipment by exceeding the lifting capacity!***
⇨ *Only used approved lifting equipment and load lifting equipment whose lifting capacity corresponds at least to the weight of the valve including the actuator.*
⇨ *Take the weights from the respective data sheet.*

**NOTE**

***Damage to the valve due to improper fastening of the sling!***
*The welded-on lifting eyes on SAMSON actuators are used only for actuator assembling and disassembling as well as for lifting the actuator without the valve. This lifting eye is not intended for lifting the complete valve.*
⇨ *When lifting the valve, make sure that the entire load is carried by the sling that is fastened to the valve body.*
⇨ *Do not fasten the load-bearing sling to the actuator, hand wheel or other components.*
⇨ *Do not use the control air lines, accessories or other components with safety functions for suspension or damage them.*

### 4.4.1 Transporting

The valve can be transported using lifting equipment such as a crane or a forklift.

⇨ Leave the valve on the pallet or in the transport container for transport.

⇨ Valves that weigh more than approx. 10 kg should be transported on a pallet (or supported similarly) (also to the installation site). The packaging should protect the scratch-sensitive plastic lining of the valve against damage.

⇨ Comply with the transport conditions.

**Transport conditions**

⇨ Protect the valve against external influences, such as impacts.

⇨ Do not damage the corrosion protection (paint, surface coating). Repair damage immediately.

⇨ Protect the valve against moisture and dirt.

### 4.4.2 Lifting

Normal manual force is generally sufficient for lifting and installing the BR 06a valve in the pipework.

If necessary, valves can be lifted using lifting equipment such as a crane or forklift truck.

**Conditions for lifting**

⇨ Use a hook with a safety clamp as the suspension element so that the sling cannot slip off the hook during lifting and transport, see Fig. 4-2.

⇨ Secure the sling against shifting and slipping off.

⇨ Fasten the sling such that it can be removed again after installation in the pipe.

⇨ Avoid swinging and tipping the valve.

⇨ In the case of interruptions in work, do not leave the lifting equipment suspended in the air for a long period of time.

⇨ Lift the valve aligned in the same direction in which it will be installed in the pipe.

⇨ Always lift the valve in the centre of gravity of the load to prevent uncontrolled tipping.

⇨ Also secure the valve to prevent it from tipping to the side.

**DANGER**

***Danger due to incorrect lifting and transport!***
*The lifting points for the lifting slings shown in the schematic drawing serve as examples for most valve variants. On site the conditions for lifting and transporting the valve can change however.*
⇨ *The operator makes sure that the valve is lifted and transported safely.*

**Lifting the valve**

⇨ Fasten a lifting sling to each flange of the housing and on the suspension element (e.g. hook) of the crane or forklift, see Fig. 4-2.

When doing so, ensure the safety, bearing capacity and length of the lifting slings

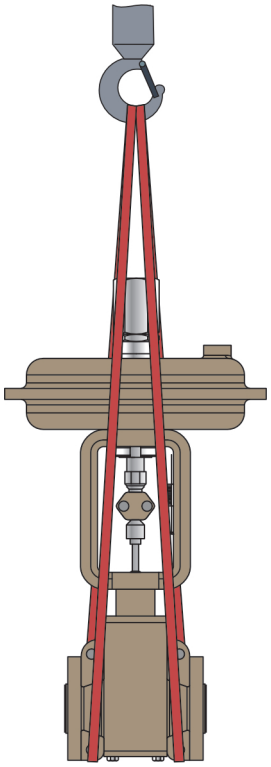


**Fig. 4-2:** *Schematic drawing of the lifting points on the valve*

- ⇨ Lift the valve carefully. Check if the load lifting equipment holds.
- ⇨ Move the valve at a constant speed to the installation site.
- ⇨ Install the valve in the pipe, see chapter 5.4.
- ⇨ After installation in the pipe: check that the flanges are firmly tightened and that the valve holds in the pipe.
- ⇨ Remove the lifting slings.

## 4.5 Storing the valve

**NOTE**

***Damage to the valve due to improper storage!***

- ⇨ *Comply with the storage conditions.*
- ⇨ *Avoid long storage periods.*
- ⇨ *In the case of deviating storage conditions and a longer storage period, contact PFEIFFER.*

**Info**

*PFEIFFER recommends checking the valve and the storage conditions regularly during a longer storage period.*

- ⇨ In the case of storage prior to installation, the valve should normally be stored in a closed room where it is protected against harmful influences such as impacts, dirt or moisture. PFEIFFER recommends a room temperature of 25 °C ±15 °C.
- ⇨ In particular, the actuator and the ends of the valve to the pipe connection may not be damaged by mechanical or any other influences.
- ⇨ Prevent condensation in damp rooms. Use a desiccant or heater.
- ⇨ The valve must be stored in its protective packaging and/or with the protective caps on the connection ends.

  The packaging should protect the scratch-sensitive plastic lining of the valve against damage.
- ⇨ Valves are usually delivered in the fail-safe position. They must be stored in the position in which they were delivered. The actuating device must not be actuated.
- ⇨ Do not place any objects on the valve.
- ⇨ Do not stack the valves.

# 5 Installation

The work described in this chapter may only be performed by specialist personnel qualified to perform the corresponding task.

The following instructions apply additionally for valves.

Observe chapter “4.3 Transporting and lifting the valve” for transport to the installation site.

## 5.1 Installation conditions

### Operator level

The operator level for the valve is the front view on all operating elements of the valve including the attachments from the perspective of operating personnel.

The plant operator must make sure that operating personnel can carry out all work after the device is installed safely and can access it easily from the operator level.

### Pipe routing

The guidelines applicable on site apply for the installation of valves in the pipe. Install the valves such that there is low vibration and no mechanical stress.

Observe the sections “Installation orientation” and “Support and mounting” in this chapter.

Install the valve so there is enough space to replace the actuator and valve as well as to perform maintenance work.

### Installation position

The valve can be installed in any installation position. PFEIFFER recommends however to install the valve in general so that the actuator points up in a vertical position.

In the following versions the valve with the actuator must be installed pointing upwards:

– Valves with insulating part.

⇨ In the case of deviations from this installation position, contact PFEIFFER.

### Support and mounting

The plant manufacturer is responsible for the selection and implementation of a suitable support or mounting for the installed valve as well as the pipe.

**NOTE**

***Damage to the valve due to improper support!***

⇨ *Support the valve in the piping only at the body.*

⇨ *Do not support at the end cap or bonnet flange.*

⇨ *Support must be vibration-free.*

### Venting

Vents are screwed into the exhaust air connections of pneumatic and electropneumatic devices to ensure that the generated exhaust air can be released to the outside (protection against overpressure in the device). Furthermore, vents allow the intake of air (protection against underpressure in the device).

⇨ Carry out venting on the side that faces away from the operator level.

⇨ When connecting the attachments, make sure that they can be accessed from the operator level safely and easily.

## 5.2 Preparing for assembly

Valves with lining must be handled, transported and stored with care, see Chapter “4 Shipment and on-site transport”.

**Perform the following steps after receiving the goods:**

⇨ Check the scope of supply. Compare the delivered goods with the delivery note.

⇨ Check the supply for transport damage. Report transport damage to PFEIFFER and the transport company (see the delivery note).

**Ensure the following conditions prior to assembly:**

– The valve is clean.

– The valve data on the type plate (type, nominal size, material, nominal pressure and temperature range) matches the plant conditions (nominal size and nominal pressure of the pipe, medium temperature, etc.).

  For details about the type plate, see Chapter “2 Markings on the device”.

– Desired or required additional fittings, see Chapter “3.2 Additional fittings”, are installed or prepared as far as necessary before the assembly of the valve.

## 5.3 Assembling the valve and actuator

PFEIFFER valves are supplied in working order.

In individual cases, the actuator and valve are delivered separately and must be assembled.

The tasks are listed below that are necessary for assembly and prior to the commissioning of the valve.

**WARNING**

***Danger and damage due to retrofitting an actuator unit!***

*The subsequent fitting of an actuator unit can pose a danger to the user and cause damage to the pipe system.*

⇨ *The travel torque, displacement and adjustment of the “OPEN” and “CLOSED” end stops must be adapted to the valve.*

**⚠ WARNING**

***Danger and damage due to use of an electrical actuator!***

⇨ *It must be made sure that the valve in the "CLOSED" position is turned off by the signal of the torque switch.*

⇨ *In the "OPEN" position, the valve must be turned off by the limit switch.*

⇨ *For further instructions, see the electrical actuator manual.*

***Danger and damage due to high external loads on an actuator unit!***

*Actuators are not "stepladders".*

⇨ *Loads may not be applied to the actuators as they can damage or destroy the valve.*

***Danger and damage due to heavy actuator units!***

*Actuators that are heavier than the weight of the valve can pose a danger to the user and cause damage to the pipe system.*

⇨ *These actuators must be supported if they generate a bending stress on the valve due to their size and/or installation situation.*

**NOTE**

***Damage to the valve due to incorrect travel adjustment!***

*If a SAMSON actuator is retrofitted, a preadjustment of the travel is necessary:*

⇨ *For details about travel adjustment, see Chapter "5.3.1 Travel adjustment with separately supplied SAMSON actuator".*

*The actuating device is adjusted to the operating data specified in the order:*

⇨ *The adjustment of the "OPEN" and "CLOSED" end stops is the responsibility of the user.*

**Info**

***Take a note of the alignment of the actuator.***

*The orientation of the actuator and valve is defined in a 4-digit code, see manual ▶ SAMLooP actuator alignment.*

### 5.3.1 Travel adjustment with separately supplied SAMSON actuator

With a separately supplied valve and SAMSON actuator, the dimension "H" from the upper edge of the coupling nut to the upper edge of the yoke must be adjusted according to the table and is checked during assembly.

**Table 5-1:** *Travel adjustment when installing SAMSON actuators (valve closed)*

| DN | Actuator | H |
|---|---|---|
| 6 bis 15 | 240 | 75 ± 0,1 |

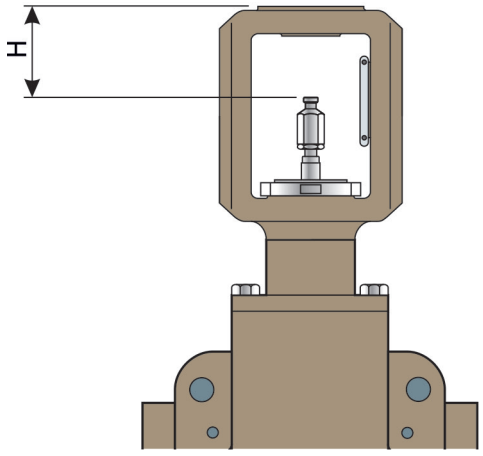



**Fig. 5-1:** *Travel adjustment*

### 5.3.2 Actuator travel limit

In some cases, a travel limit is required for the actuator. Details about the travel limit can be found in the corresponding actuator documentation.

**For SAMSON actuators:**

– Pneumatic actuator type 3271 and type 3277, actuator surfaces: 240 cm², see the Installation and Operating Manual ▶ EB 8310-6, Chapter "6.2 Travel limits".

Details about the other actuators can also be found in the corresponding actuator documentation.

## 5.4 Installing the valve in the pipe

### 5.4.1 General

**NOTE**

***Damage to the lined valve surface due to improper transport and installation!***

*Before and during installation, the lined surfaces can be damaged and must be specifically protected.*

⇨ *Transport the valve in its original packaging to the installation site and unpack it only there.*

⇨ *Handle the valve with care and observe the instructions for the flange connection.*

***Damage to the plastic lined surfaces on the body due to improper installation!***

⇨ *The use of PTFE flange seals is recommended.*

⇨ *The counterflanges must have smooth sealing surfaces.*

⇨ *Other shapes must be agreed upon with PFEIFFER.*

⇨ Inspect the valve and actuator for transport damage. Damaged valves or actuators may not be installed.

⇨ A functional test is to be carried out at the beginning of installation only for manually-operated valves: The valve must close and open correctly. Detected malfunctions must be fixed before commissioning. See also chapter 8 “Malfunction”.

**DANGER**

***Danger due to exceeding the limits of use!***
*Exceeding the limits of use can pose a danger to the user and cause damage to the pipe system.*
⇨ *No valve may be installed whose permissible pressure/ temperature range is not sufficient for the operating conditions.*
⇨ *The max. permissible limits of use are marked on the valve, see Chapter “2 Markings on the device”.*
⇨ *The permissible range is defined in Chapter “1 Safety instructions and safety measures”.*

⇨ Make sure that only valves are installed whose pressure classes, connection type (flow rate), type of lining and connection dimensions match the conditions of use. See the corresponding marking on the valve.
⇨ The connection ends of the pipes must align with the valve connections and have plane-parallel ends. Connection flanges that are not plane parallel can damage the PTFE lining during installation!
⇨ The connection data for the actuator unit must match the control data. See the type plate(s) on the actuator unit.
⇨ Prior to installation, the valve and the connected pipe must be carefully cleaned of any contamination, in particular solid foreign matter.
⇨ The sealing surfaces on the flange connection and the utilized flange seals must in particular be free of all contamination during installation.
⇨ An arrow is marked on the body. The direction of the arrow must correspond to the direction of flow in the pipe.

***Info***

***It may be necessary in special cases for a valve to be tight against the direction of flow.***
*For installation in these special cases, contact PFEIFFER as this could lead to an excessive strain on the bellows, seat, plug, etc.*

⇨ When pushing in the valve (and the flange seals) into an already assembled pipe, the distance between the pipe ends must be measured such that all sealing surfaces (and seals) remain undamaged.

***NOTE***

***Tightening the body screws.***
*As the PTFE plastic sealing surfaces tend to flow, it is strongly recommended, after a long storage period of the lined valve, to retighten the body screws after installation using the tightening torques according to Table 15-1 in Chapter “15.1.1 Tightening torques“.*

***Tightening the flange connections.***
*The flange connections must be tightened in at least three steps at the same time and in a criss-cross pattern with the torques indicated in Table 15-3 in Chapter “15.1.1 Tightening torques”.*
*Torque wrenches must be used to ensure that the torque is reached but not exceeded.*

⇨ Vents are screwed into the exhaust air connections of pneumatic and electropneumatic devices to ensure that the generated exhaust air can be released to the outside (protection against overpressure in the device).
Furthermore, vents allow the intake of air (protection against underpressure in the device).
⇨ Carry out venting on the side that faces away from the working area of operating personnel.
⇨ When installing peripheral devices, make sure that they can be operated from the working area of operating personnel.

## 5.4.2 Installing the valve

⇨ Close the valve in the pipe for the duration of the installation.
⇨ Remove the protective caps on the valve openings prior to installation.
⇨ Lift the valve with suitable lifting equipment at the installation site, see chapter “4.3 Transporting and lifting the valve”. When doing so observe the flow direction of the valve. An arrow on the valve indicates the flow direction.
⇨ Make sure that the correct flange seals are used.
⇨ Clean the sealing surfaces on the valve and pipe.
⇨ Screw the pipe together with the valve without tension.
⇨ After installing the valve, open it slowly in the pipe.

***NOTE***

***Damage to the valve due to a sudden pressure increase and resulting high flow speed!***
*Open the valve slowly in the pipe during commissioning.*

⇨ Check the correct function of the valve.

## 5.5 Checking the assembled valve

### 5.5.1 Functional check

**⚠ WARNING**

***Danger of injury due to pressurised components and escaping medium!***
*– Do not loosen the test connection while the valve is pressurised.*

***Danger of crushing due to moving actuator stem and stem!***
*– Do not reach into the yoke as long as the pneumatic power is connected to the actuator.*
*– Before working on the valve, interrupt and lock pneumatic energy and the control signal.*
*– Do not allow the jamming of objects in the yoke to hinder the operation of the stem and actuator stem.*
*– If the actuator stem and stem are blocked (e.g. due to "seizure" if not actuated for a long period of time"), release the residual energy of the actuator (spring tension) before releasing the blockage, see the corresponding actuator documentation.*

***Danger of injury due to escaping exhaust air!***
*During operation, when regulating or when opening and closing the valve, exhaust air can escape, for example from the actuator.*
⇨ *Wear eye protection and, if necessary, hearing protection when working near valves.*

⇨ At the end of installation, perform a functional test with the control signals:

The valve must close and open correctly according to the control commands. Detected malfunctions must be fixed before commissioning, see Chapter "8 Malfunction".

**⚠ WARNING**

***Danger due to improperly executed control commands!***
*Incorrectly executed control commands can cause serious injuries or even death and cause damage to the pipe system.*
⇨ *Check the actuator unit and control command., see chapter "8 Malfunction"*

### 5.5.2 Pressure test of the pipe section

The pressure test was already performed on the valves by PFEIFFER. Observe the following for the pressure test of a pipe section with installed valves:

⇨ First carefully rinse newly installed pipe systems in order to wash out all foreign matter.

⇨ Ensure the following conditions for the pressure test:

– Retract the plug in order to open the valve.
– Valve open: The test pressure may not exceed the value 1.5 x PN (according to the type plate) or the marked test pressure PT.

If a valve leaks, observe chapter "8 Malfunction".

***Info***
*The plant operator is responsible for performing the pressure test.*
*After Sales Service at PFEIFFER can provide you with support for the planning and implementation of a pressure test specific to your plant.*

### 5.5.3 Travel movement

The travel movement of the actuator stem must be linear without any jerky movements.

⇨ Open and close the valve. When doing so, observe the movement of the actuator stem.

⇨ Set the maximum and minimum control signal in succession to check the end positions of the valve.

⇨ Check the display on the travel indicator.

### 5.5.4 Fail-safe position

⇨ Close and vent the signal pressure line.

⇨ Check whether the valve moves to the fail-safe position, see "Fail-safe positions in Chapter "3 Design and principle of operation".

# 6 Start-up

The work described in this chapter may only be performed by specialist personnel qualified to perform the corresponding task.

**⚠ WARNING**

***Danger of burning due to hot or cold components and pipe!***

*Valve components and pipes can become very hot or very cold during operation and cause burns upon contact.*

⇨ *Let the components and pipes cool down or warm up.*

⇨ *Wear protective garments and protective gloves.*

***Danger of injury due to pressurised components and escaping medium!***

⇨ *Do not loosen the test connection while the valve is pressurised.*

***Danger of crushing due to moving actuator stem and stem!***

⇨ *Do not reach into the yoke as long as the pneumatic power is connected to the actuator.*

⇨ *Before working on the valve, interrupt and lock pneumatic energy and the control signal.*

⇨ *Do not allow the jamming of objects in the yoke to hinder the operation of the stem and actuator stem.*

⇨ *If the actuator stem and stem are blocked (e.g. due to "seizure" if not actuated for a long period of time"), release the residual energy of the actuator (spring tension) before releasing the blockage, see the corresponding actuator documentation.*

***Danger of injury due to escaping exhaust air!***

*During operation, when regulating or when opening and closing the valve, exhaust air can escape, for example from the actuator.*

⇨ *Wear eye protection and, if necessary, hearing protection when working near valves.*

**Ensure the following conditions prior to commissioning/recommissioning:**

– The valve is installed properly in the pipe, see Chapter "5.4 Installing the valve in the pipe".

– The leak and function tests have been completed successfully, see Chapter "5.5 Testing the assembled valve".

– No residual water is present in the flow section of the valve in order to prevent a possible reaction with the medium.

– The current conditions in the concerned plant section correspond to the design of the valve, see Intended use in Chapter "1 Safety instructions and safety measures".

**Commissioning/recommissioning**

⇨ The PTFE plastic sealing surfaces tend to flow. After commissioning and reaching the operating temperature, it is strongly recommended that all flange connections between the pipe and valve are retightened with the corresponding tightening torques, see Table 15-3 in Chapter "15.1.1 Tightening torque".

⇨ If required, retighten the screw connection of the body parts, see Table 15-1 in Chapter "15.1.1 Tightening torques".

⇨ Open the valve slowly in the pipe. Opening slowly prevents a sudden increase in pressure and a resulting high flow speed that damages the valve.

⇨ Check the correct function of the valve.

# 7 Operation

As soon as the commissioning/recommissioning work is complete, see Chapter “6 Start-up”, the valve is ready for operation.

**⚠ WARNING**

***Danger of burning due to hot or cold components and pipe!***

*Valve components and pipes can become very hot or very cold during operation and cause burns upon contact.*

⇨ *Let the components and pipes cool down or warm up.*

⇨ *Wear protective garments and protective gloves.*

***Danger of injury due to pressurised components and escaping medium!***

⇨ *Do not loosen the test connection while the valve is pressurised.*

***Danger of crushing due to moving actuator stem and stem!***

⇨ *Do not reach into the yoke as long as the pneumatic power is connected to the actuator.*

⇨ *Before working on the valve, interrupt and lock pneumatic energy and the control signal.*

⇨ *Do not allow the jamming of objects in the yoke to hinder the operation of the stem and actuator stem.*

⇨ *If the actuator stem and stem are blocked (e.g. due to “seizure” if not actuated for a long period of time”), release the residual energy of the actuator (spring tension) before releasing the blockage, see the corresponding actuator documentation.*

***Danger of injury due to escaping exhaust air!***

*During operation, when regulating or when opening and closing the valve, exhaust air can escape, for example from the actuator.*

⇨ *Wear eye protection and, if necessary, hearing protection when working near valves.*

**Observe the following points during operation:**

⇨ The PTFE plastic sealing surfaces tend to flow. After commissioning and reaching the operating temperature, it is strongly recommended that all flange connections between the pipe and valve are retightened with the corresponding tightening torques, see Table 15-3 in Chapter “15.1.1 Tightening torque”.

⇨ If required, retighten the screw connection of the body parts, see Table 15-1 in Chapter “15.1.1 Tightening torques”.

⇨ The valve/actuator unit must be actuated with the control signals.

– Valves that were delivered from the factory with an actuator are precisely adjusted. The user is responsible for any changes they make.

– For the manual operation or manual override of the actuator (if present), normal manual forces are sufficient and the use of extensions to increase the actuation torque is not permitted.

– Valves with a bellows generally have a test connection (e.g. ¼“) between the bellows and the outer stem sealing. This makes it possible to check if the bellows is not damaged.

– Upon customer request, these valves can also be equipped without a test connection.

⇨ If a valve leaks, observe chapter “8 Malfunction”.

# 8 Malfunction

When rectifying the faults, chapter "1 Safety instructions and safety measures" must be observed.

## 8.1 Detecting and rectifying errors

| Type of fault | Possible cause | Measure |
|---|---|---|
| Leaks in the pipe connection | The flange connection of the lined valve is leaky | Tighten the flange screws.<br>**NOTE**<br>***An excessive tightening torque when retightening the flange screws can damage the valve and pipe.***<br>*The permissible torque for retightening the pipe flange screws is limited.*<br>Retighten the flange connection with the respective tightening torque, see Table 15-3 in Chapter "15.1.1 Tightening torques".<br>If necessary, increase the torque 20%. |
| | The flange connection is still leaky after retightening | Loosen the flange connection and remove the valve, see chapter "1 Safety instructions and safety measures".<br>Check the plane parallelism of the flange connection and correct if it is not sufficient.<br>Check the surfaces on all flanges. If the plastic lining is damaged, replace the valve together with its flange seal.<br>Check the flange seals. If the seals are damaged, replace them. |
| Leaks in the body parts | The bonnet flange connection loosened | Retighten the flange connection with the respective tightening torque, see Table 15-1 in Chapter "15.1.1 Tightening torques". |
| | Body parts untight after retightening | Replace the body sealing and/or valve, see chapter "1 Safety instructions and safety measures". |
| Increased medium flow rate with valved closed | Leakage in the closed position | Remove and inspect the valve, see chapter "1 Safety instructions and safety measures". |
| | The valve is damaged | Repairs are necessary.<br>Remove the valve, see chapter "1 Safety instructions and safety measures".<br>Request spare parts from PFEIFFER, see Chapter "15.2 Spare parts". For the required repair instructions, see Chapter "12 Repairs". |
| Leaks in the stem sealing | Medium escapes at the wiper ring of the upper spindle bushing, at the stuffing box or at the optional test connection | If the valve is leaking at the spindle bushing, the stuffing box or the optional test connection, the bellows is defective.<br>Repairs are necessary.<br>Remove the valve, see chapter "1 Safety instructions and safety measures".<br>Disassemble the valve and replace the bellows.<br>Request spare parts from PFEIFFER, see Chapter "15.2 Spare parts". For the required repair instructions, see Chapter "12 Repairs". |
| Malfunction. | The actuator unit or control does not react | Check the actuator unit and control command. |
| | The actuator and control are OK | Remove and inspect the valve, see chapter "1 Safety instructions and safety measures". |
| | The valve is damaged | Repairs are necessary.<br>Remove the valve, see chapter "1 Safety instructions and safety measures".<br>Request spare parts from PFEIFFER, see Chapter "15.2 Spare parts". For the required repair instructions, see Chapter "12 Repairs". |

| Type of fault | Possible cause | Measure |
|---|---|---|
| Problems in the actuator unit. | The pneumatic actuator must be removed | Disconnect the connection to the control pressure.<br>Remove the actuator from the valve, observe the “Safety instructions and safety measures”, see the included actuator unit manuals. |

*Info*

– *In the case of faults that are not listed in the table, contact the After Sales Service at PFEIFFER.*
– *Spare parts must be ordered indicating all the data according to the valve marking. Only original parts from PFEIFFER Chemie-Armaturenbau GmbH may be installed.*
– *If it is determined after removal that the PTFE lining is not sufficiently resistant for the medium, parts must be selected made of a suitable material.*

## 8.2 Carrying out emergency measures

In the case of a power supply failure, the valve automatically switches to the preset fail-safe position, (see “Fail-safe positions” in Chapter “3 Design and principle of operation”.

The system operator is responsible for emergency measures.

**In case of a valve fault:**

– Close the valves upstream and downstream of the valve so that no medium flows through the valve.
– Troubleshoot the error, see chapter „8.1 Detecting and rectifying errors“.
– Rectify the fault that can be fixed as indicated in the instructions provided in this installation and operating manual. For faults that cannot be fixed, contact the After Sales Service at PFEIFFER.

**Recommissioning after faults**

See Chapter “6 Start-up”.

# 9 Servicing

The work described in this chapter may only be performed by specialist personnel qualified to perform the corresponding task.

The following documents are required in addition for the maintenance of the valve:

– Installation and operating manual for the installed actuator, e.g ▶ EB 8310-X for actuators type 3271 and type 3277 or the corresponding actuator documentation of other manufacturers.

**⚠ WARNING**

***Danger of burning due to hot or cold components and pipe!***

*Valve components and pipes can become very hot or very cold during operation and cause burns upon contact.*

⇨ *Let the components and pipes cool down or warm up.*

⇨ *Wear protective garments and protective gloves.*

***Danger of injury due to pressurised components and escaping medium!***

⇨ *Do not loosen the test connection while the valve is pressurised.*

***Danger of crushing due to moving actuator stem and stem!***

⇨ *Do not reach into the yoke as long as the pneumatic power is connected to the actuator.*

⇨ *Before working on the valve, interrupt and lock pneumatic energy and the control signal.*

⇨ *Do not allow the jamming of objects in the yoke to hinder the operation of the stem and actuator stem.*

⇨ *If the actuator stem and stem are blocked (e.g. due to "seizure" if not actuated for a long period of time"), release the residual energy of the actuator (spring tension) before releasing the blockage, see the corresponding actuator documentation.*

***Danger of injury due to escaping exhaust air!***

*During operation, when regulating or when opening and closing the valve, exhaust air can escape, for example from the actuator.*

⇨ *Wear eye protection and, if necessary, hearing protection when working near valves.*

***Danger of injury due to prestressed springs!***

*Actuators with preloaded actuator springs are pressurised. These actuators can be identified by the elongated screws on the bottom of the actuator.*

⇨ *Release the compression from the preloaded springs before working on the actuator, see the corresponding actuator documentation.*

***Danger of injury due to residual medium in the valve!***

*When working on the valve, residual medium can escape and, depending on the medium properties, cause injuries (e.g. scalding, chemical burns).*

⇨ *Wear protective garments, protective gloves and eye protection.*

**NOTE**

***Damage to the valve due to excessively high or low tightening torques!***

*The valve components must be tightened with specific torques. Excessively tightened components are subject to increased wear. Insufficiently tightened components can cause leakage.*

⇨ *Observe the tightening torques, see Table 15-1 in Chapter "15.1.1 Tightening torques".*

***Damage to the valve due to unsuitable tools!***

⇨ *Only use tools approved by PFEIFFER, see Chapter "15.1.3 Tools".*

***Damage to the valve due to unsuitable lubricants!***

⇨ *Only use lubricants approved by PFEIFFER, see Chapter "15.1.2 Lubricants".*

**Info**

***The valve was checked by PFEIFFER prior to delivery.***

– *Certain test results certified by PFEIFFER are no longer valid when disassembling the valve. This includes the test for seat leakage and the leak test (outer tightness).*

– *If maintenance and repair work is performed without approval from the After Sales Service of PFEIFFER, the product guarantee will be voided.*

– *Only use original parts from PFEIFFER as spare parts that correspond to the original specification.*

– *Wear parts are not covered by the warranty.*

## 9.1 Periodic tests

⇨ Depending on the conditions of use, the valve must be checked at defined intervals in order to take remedial measures prior to possible malfunctions. The plant operator is responsible for preparing a suitable test plan

⇨ PFEIFFER recommends the following inspections that can be carried out during operation:

| Test | Measures in the case of a negative test result |
|---|---|
| If present, check the test connection and bellows sealing for tightness. **WARNING!** Danger of injury due to pressurised components and escaping medium! Do not loosen the test connection while the valve is pressurised. | Decommission the valve, see chapter "10 Decommissioning". Contact the After Sales Service at PFEIFFER to repair the bellows, see chapter "12 Repairs". |

| Test | Measures in the case of a negative test result |
|---|---|
| Check the lifting movement of the actuator stem and stem for linear, smooth movement. | Tighten the packing correctly. |
| | If the actuator stem and stem are blocked, remove the blockage. **WARNING!** If the actuator stem and stem are blocked (e.g. due to "seizure" if not actuated for a long period of time) they can release unexpectedly and move uncontrolled. This can lead to crushing if reaching into them. Before trying to release a blockage of the actuator stem and stem, interrupt and lock the pneumatic energy and the control signal. Release the residual energy of the actuator (spring tension or compressed air reservoir) before releasing the blockage, see the corresponding actuator documentation. |
| If possible, check the fail-safe position of the valve by briefly interrupting the power supply. | Decommission the valve, see chapter "10 Decommissioning". Then determine the cause and remedy it, see Chapter "8 Malfunctions". |

## 9.2 Maintenance work

⇨ The valve must be prepared before all maintenance work, see Chapter 12 "Repairs".

⇨ After all maintenance work, the valve must be checked prior to recommissioning, see Chapter "5.5 Checking the mounted valve".

### 9.2.1 Replacing the seat and plug

***NOTE***

***Damage to the sealing surfaces on the seat and plug due to incorrect maintenance!***

⇨ *Always replace the seat and plug together.*

⇨ Check the condition of the plug and seat.

⇨ Remove the seat (14) and plug (19) as described in chapter "12.3 Replacing the plug and seat". Check the seat as well as all plastic parts for damage and if in doubt replace them.

## 9.3 Ordering spare parts and consumables

Information about spare parts, lubricants and tools can be received from the After Sales Service at PFEIFFER.

**Spare parts**

Information on spare parts can be found in Chapter "15.2 Spare parts".

# 10 Decommissioning

The work described in this chapter may only be performed by specialist personnel qualified to perform the corresponding task.

**⚠ WARNING**

***Danger of burning due to hot or cold components and pipe!***

*Valve components and pipes can become very hot or very cold during operation and cause burns upon contact.*

⇨ *Let the components and pipes cool down or warm up.*

⇨ *Wear protective garments and protective gloves.*

***Danger of injury due to pressurised components and escaping medium!***

⇨ *Do not loosen the test connection while the valve is pressurised.*

***Danger of crushing due to moving actuator stem and stem!***

⇨ *Do not reach into the yoke as long as the pneumatic power is connected to the actuator.*

⇨ *Before working on the valve, interrupt and lock pneumatic energy and the control signal.*

⇨ *Do not allow the jamming of objects in the yoke to hinder the operation of the stem and actuator stem.*

⇨ *If the actuator stem and stem are blocked (e.g. due to "seizure" if not actuated for a long period of time"), release the residual energy of the actuator (spring tension) before releasing the blockage, see the corresponding actuator documentation.*

***Danger of injury due to escaping exhaust air!***

*During operation, when regulating or when opening and closing the valve, exhaust air can escape, for example from the actuator.*

⇨ *Wear eye protection and, if necessary, hearing protection when working near valves.*

***Danger of injury due to residual medium in the valve!***

*When working on the valve, residual medium can escape and, depending on the medium properties, cause injuries (e.g. scalding, chemical burns).*

⇨ *Wear protective garments, protective gloves and eye protection.*

⇨ *Do not loosen the test connection while the valve is pressurised.*

To decommission the valve for maintenance and repair work or for disassembly, perform the following steps:

⇨ Close the valves upstream and downstream of the valve so that no medium flows through the valve.

⇨ Empty the pipe and valve completely.

⇨ Shut off the pneumatic power and lock it, to depressurise the actuator.

⇨ Let the pipe and valve components cool down or warm up.

# 11 Removal

The work described in this chapter may only be performed by specialist personnel qualified to perform the corresponding task.

**⚠ WARNING**

***Danger of burning due to hot or cold components and pipe!***
*Valve components and pipes can become very hot or very cold during operation and cause burns upon contact.*
⇨ *Let the components and pipes cool down or warm up.*
⇨ *Wear protective garments and protective gloves.*

***Danger of crushing due to moving actuator stem and stem!***
⇨ *Do not reach into the yoke as long as the pneumatic power is connected to the actuator.*
⇨ *Before working on the valve, interrupt and lock pneumatic energy and the control signal.*
⇨ *Do not allow the jamming of objects in the yoke to hinder the operation of the stem and actuator stem.*
⇨ *If the actuator stem and stem are blocked (e.g. due to "seizure" if not actuated for a long period of time"), release the residual energy of the actuator (spring tension) before releasing the blockage, see the corresponding actuator documentation.*

***Danger of injury due to residual medium in the valve!***
*When working on the valve, residual medium can escape and, depending on the medium properties, cause injuries (e.g. scalding, chemical burns).*
⇨ *Wear protective garments, protective gloves and eye protection.*
⇨ *Do not loosen the test connection while the valve is pressurised.*

***Danger of injury due to prestressed springs!***
⇨ *SAMSON actuators with preloaded actuator springs are pressurised. These actuators can be identified by the elongated screws on the bottom of the actuator.*
⇨ *Before working on the actuator, release the compression from the preloaded springs.*

Prior to disassembly, make sure that the following conditions are met:

– The valve is decommissioned, see chapter "10 Decommissioning".

## 11.1 Removing the valve from the pipe

⇨ Loosen the flange connection.
⇨ Remove the valve from the pipe, see Chapter "4.3 Transporting and lifting the valve".

**⚠ WARNING**

***If a used valve is sent to PFEIFFER for service:***
*The valves must be decontaminated properly in advance.*

⇨ When returning a used valve, include the safety data sheet for the medium as well as confirmation of decontamination of the valve. Otherwise the valve will not be accepted.

**Tip**

– *PFEIFFER recommends documenting the following contamination data in the form ▶ FM 8.7-6 "Declaration regarding the contamination of PFEIFFER valves and components".*
– *This form is available at ▶ https://pfeiffer.samsongroup.com.*

## 11.2 Disassembling the actuator

See the corresponding actuator documentation.

# 12 Repairs

If the valve no longer works properly or if it does not work at all, it is defective and must be repaired or replaced.

**WARNING**

***Danger due to defective lining!***

⇨ *The lining may not be repaired!*

**NOTE**

***Damage to the valve due to improper maintenance and repair!***

⇨ *Do not perform maintenance and repair work on your own.*

⇨ *Contact the After Sales Service at PFEIFFER for maintenance and repair work.*

In special cases, certain maintenance and repair work may be performed.

The work described in this chapter may only be performed by specialist personnel qualified to perform the corresponding task.

The following instructions apply additionally for valves. For decommissioning and disassembly, observe Chapter “10 Decommissioning” and Chapter “11 Disassembly”.

## 12.1 Replacing the bellows

**Info**

*Valves up to year of manufacture 2015 and from year of manufacture 2015*

If a leak is found at the wiper ring (22), at the stuffing box (15) or at an optional test connection, the bellows (11) is defective.

⇨ Check the condition of the bellows.

Disassemble the valve for the removal of the bellows. For this purpose, observe Chapter “1 Safety instructions and safety measures”.

⇨ Clamp the assembled valve with the bonnet flange facing up in a vice.

⇨ Release the screws (3).

⇨ Carefully lift the bonnet up off the valve body and place it on a clean, even surface.

⇨ Check the bellows as well as all plastic parts for damage and if in doubt replace them.

⇨ Assemble the valve as described in Chapter 3.5.1 or Chapter 3.5.2.

## 12.2 Replacing the bellows and the packing

**Info**

*Only valve from year of manufacture 2015.*

If a leak is detected at the stuffing box (15), the v-ring packing (12) and the bellows (11) may be defective.

⇨ Check the condition of the packing and the bellows.

Disassemble the valve for the removal of the stuffing box and the bellows. For this purpose, observe Chapter “1 Safety instructions and safety measures”.

⇨ Place the valve with the stem guide facing up on an even work surface.

⇨ Release the stuffing box (15) and screw it out of the bonnet flange.

⇨ Remove the disc spring set (13).

⇨ Remove the V-ring packing (12), check for damage and if in doubt replace it.

⇨ Remove the bellows (11) as described in Chapter “12.1 Replacing the bellows”. Check the bellows as well as all plastic parts for damage and if in doubt replace them also.

⇨ Assemble the valve as described in Chapter 3.5.1 or Chapter 3.5.2.

## 12.3 Replacing the plug and the seat

If a leak is found in the flow, the seat (14) and the plug (19) can be defective.

⇨ Check the condition of the plug and the seat.

Disassemble the valve for the removal of the seat. For this purpose, observe Chapter “1 Safety instructions and safety measures”.

⇨ Clamp the valve with the stem guide facing down in a vice.

⇨ Release the screws (3).

⇨ Carefully lift the bonnet up off the valve body and place it on a clean, even surface.

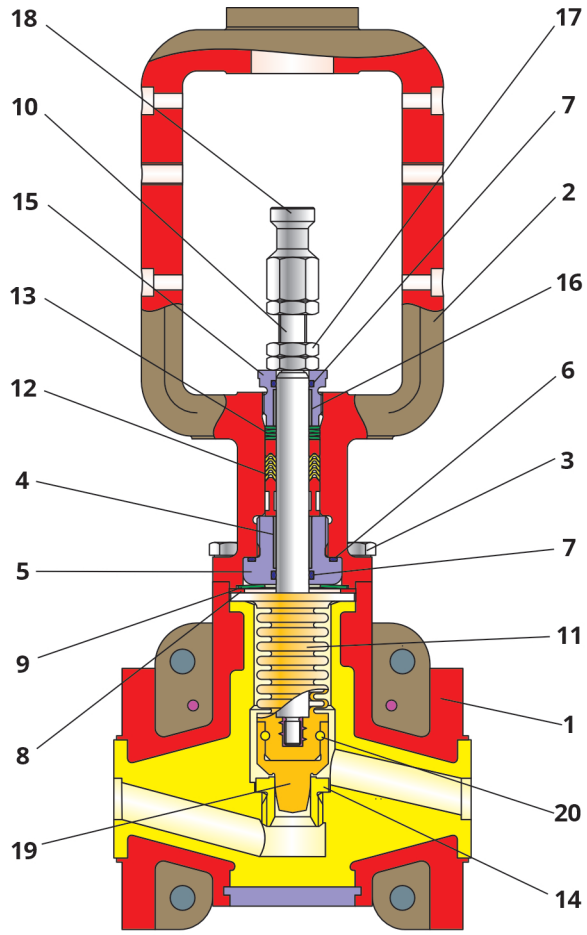
⇨ Check the plug (19) and bellows (11) for damage and replace if necessary.

The seat can now be reached easily

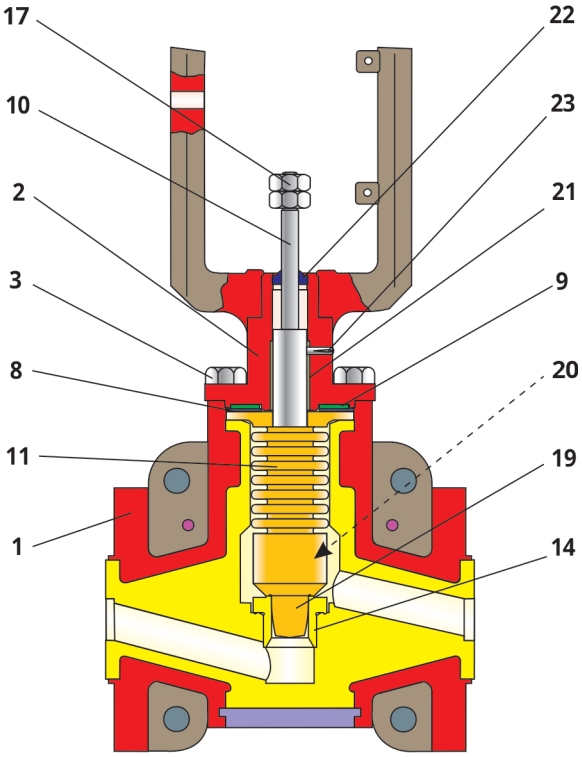
⇨ Release and unscrew the seat (14) with a special tool.

⇨ Check the seat as well as all plastic parts for damage and if in doubt replace them.

⇨ Assemble the valve as described in Chapter 3.5.1 or Chapter 3.5.2.




*from year of construction 2015*




*until year of construction 2015*

**Fig. 12-1:** *Sectional view of a valve BR 06a*

**Table 12-1:** *Parts list*

| Item | Description | Material |
|---|---|---|
| 1 | Main body with Liner | EN-JS 1049 / PTFE |
| 2 | Bonnet with yoke | 1.0037 |
| 3 | Screw | A4-70 |
| 4 | Bearing bush | PTFE with carbon |
| 5 | Guide bush | 1.4305 |
| 6 | O-ring | Viton |
| 7 | O-ring | Viton |
| 8 | Thrust washer | 1.4305 |
| 9 | Disc spring | 1.8159 |
| 10 | Stem | 1.4571 |
| 11 | Bellows | PTFE |
| 12 | V-ring packing | PTFE / 1.4305 |

| Item | Description | Material |
|---|---|---|
| 13 | Disc spring set | 1.8159 / Delta Tone |
| 14 | Seat | PTFE |
| 15 | Stuffing box | 1.4305 |
| 16 | Bearing bush | PTFE with carbon |
| 17 | Nut | A4-70 |
| 18 | Coupling | A4-70 |
| 19 | Plug | PTFE |
| 20 | Cord | PTFE |
| 21 | Bush | Glycodur |
| 22 | Wiper ring | Buna |
| 23 | Grooved pin | 1.4301 |

## 12.4 Additional repairs

⇨ In the case of additional major damage, it is recommended to have repairs performed by PFEIFFER.

## 12.5 Sending devices to PFEIFFER

Defective valves can be sent to PFEIFFER for repair.

Proceed as follows to send devices:

**⚠ WARNING**

***Danger due to a contaminated valve!***

⇨ *When returning a used valve to the manufacturer for service, decontaminate the* valve properly in advance.

⇨ *When returning a used valve, include the safety data sheet for the medium as well as confirmation of decontamination of the valve. Otherwise the valve will not be accepted.*

***Tip***

*– PFEIFFER recommends documenting the following contamination data in the form ▶ FM 8.7-6 "Declaration regarding the contamination of PFEIFFER valves and components".*

*– This form is available at ▶ https://pfeiffer.samsongroup.com.*

⇨ Include the following information for returns:

- Manufacturer number
- Valve type
- Article number
- Nominal size and version of the control valve
- Manual valve / automated valve
- Medium (designation and consistency)
- Medium pressure and temperature
- Flow rate in m³/h
- Bench range of the actuator (e.g. 0.2 to 1 bar)
- Number of actuations (year, month, week or day)
- Installation drawing if available
- Completed declaration regarding contamination. This form is available at ▶ https://pfeiffer.samsongroup.com.

# 13 Disposal

⇨ For disposal, observe the local, national and international regulations.

⇨ Do not dispose of old components, lubricant and hazardous materials with domestic waste.

# 14 Certificates

The declaration of conformity is available on the following pages:

- Declaration of conformity according to Pressure Equipment Directive 2014/68/EU for automated valves, see page 14-2.
- Declaration of conformity according to Pressure Equipment Directive 2014/68/EU for manually operated valves, see page 14-3.
- Declaration of conformity for completed machinery according to Machinery Directive 2006/42/EC for valve BR 06a, see page 14-4.
- Declaration of conformity for partly completed machinery according to Machinery Directive 2006/42/EC for valve BR 06a, see page 14-5.

The printed certificates correspond to the status at the time of printing. Further optional certificates are available upon request.

# DECLARATION OF CONFORMITY

As per Pressure Equipment Directive 2014/68/EU
TRANSLATION

| | |
|---|---|
| The manufacturer | **PFEIFFER Chemie-Armaturenbau GmbH**, D47906 Kempen, Germany |
| declares that: | **Type 06a PTFE Micro-flow Valves (BR 06a)**<br>**with PTFE bellows seal**<br>• **with pneumatic/ electric/ hydraulic actuator**<br>• **with free shaft end for subsequent mounting of an actuator** |

1. The valves are pressure accessories within the meaning of the **Pressure Equipment Directive 2014/68/EU** and conform with the requirements of this Directive.
2. They may only be operated observing the Installation and operating instructions ▶ EB 06a delivered together with the valve.

The commissioning of these valves is only permitted after the valve has been installed from both sides in the pipeline and a risk of injury can be ruled out.

*(See ▶ EB 06a, Chapter 1 for control valves intended for dead-end service)*

*Applied standards:*

| | |
|---|---|
| **AD 2000 Regulations** | Regulations for pressurized valve body parts |

*Type designation and technical features:*

PFEIFFER Data sheet ▶ TB 06a

*NOTE: This Manufacturer's Declaration applies to all valve types listed in this catalogue.*

*Applied conformity assessment procedure:*

**Conforming to Annex III of the Pressure Equipment Directive 2014/68/EU, Module H**

| *Name of notified body:* | *Identification number of the notified body:* |
|---|---|
| **TÜV Rheinland Service GmbH**<br>Am Grauen Stein<br>51101 Köln<br>Germany | 0035 |

These Declarations become invalid when modifications are made to the control valves and/or assemblies that affect the technical data of the control valve or the <Intended use> described in ▶ EB 06a, Chapter 1 of the Installation and operating instructions, and considerably change the valve or an assembly delivered with it.

Kempen, 1. September 2022

i.V. Czayka

Stefan Czayka
Head of Quality Management/IMS Representative

SMART IN FLOW CONTROL HE 2014-68-EU_BR06a-01_EN

# DECLARATION OF CONFORMITY

As per Pressure Equipment Directive 2014/68/EU
TRANSLATION

| | |
|---|---|
| The manufacturer | **PFEIFFER Chemie-Armaturenbau GmbH**, D47906 Kempen, Germany |
| declares that: | **Type 06a PTFE Micro-flow Valves (BR 06a)**<br>**with PTFE bellows seal**<br>• **with hand wheel** |

1. The valves are pressure accessories within the meaning of the **Pressure Equipment Directive 2014/68/EU** and conform with the requirements of this Directive.
2. They may only be operated observing the Installation and operating instructions ▶ EB 06a delivered together with the valve.

*(See ▶ EB 06a, Chapter 1 for control valves intended for dead-end service)*

*Applied standards:*

| | |
|---|---|
| **AD 2000 Regulations** | Regulations for pressurized valve body parts |

*Type designation and technical features:*

PFEIFFER Data sheet ▶ TB 06a
*NOTE: This Manufacturer's Declaration applies to all valve types listed in this catalogue.*

*Applied conformity assessment procedure:*

**Conforming to Annex III of the Pressure Equipment Directive 2014/68/EU, Module H**

| *Name of notified body:* | *Identification number of the notified body:* |
|---|---|
| **TÜV Rheinland Service GmbH**<br>Am Grauen Stein<br>51101 Köln<br>Germany | 0035 |

These Declarations become invalid when modifications are made to the control valves and/or assemblies that affect the technical data of the control valve or the <Intended use> described in ▶ EB 06a, Chapter 1 of the Installation and operating instructions, and considerably change the valve or an assembly delivered with it.

Kempen, 1. September 2022

i.V.

Stefan Czayka
Head of Quality Management/IMS Representative

SMART IN FLOW CONTROL HE 2014-68-EU_BR06a-02_EN

# EU DECLARATION OF CONFORMITY
TRANSLATION

| | |
|---|---|
| The manufacturer | **PFEIFFER Chemie-Armaturenbau GmbH**, 47906 Kempen, Germany |
| declares for the listed products that: | **Type 06a PTFE-lined Micro-flow Valve (BR06a)**<br>• **with a Type 3271 Pneumatic Actuator**<br>• **with a Type 3277 Pneumatic Actuator**<br>• **with an actuator of a different make**<br>Prerequisite: the unit was sized and assembled by PFEIFFER Chemie-Armaturenbau GmbH. The serial number on the valve refers to the entire unit. |

1. It complies with all applicable requirements stipulated in Machinery Directive 2006/42/EC.
2. In the delivered state, the valve with actuator is considered to be final machinery as defined in the above mentioned directive.

The start-up of these units is only permitted after the valve has been installed from both sides in the pipeline and a risk of injury can be ruled out as a result.

*Referenced standards:*

a) VCI, VDMA, VGB: "Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018" [German only]

b) VCI, VDMA, VGB: "Zusatzdokument zum Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018" [German only], based on DIN EN ISO 12100:2011-03

*Product description and technical features:*

Tight-closing valve for aggressive media, particularly for strict requirements in chemical applications, fitted with an actuator.

For product descriptions refer to:
PFEIFFER data sheet for Type 06a Valve ▶ TB 06a
SAMSON data sheet for Types 3271 and 3277 Actuators ▶ T 8310-X
PFEIFFER mounting and operating instructions for Type 06a Valve ▶ EB 06a
SAMSON mounting and operating instructions for Types 3271 and 3277 Actuators ▶ EB 8310-X
SAMSON safety manual for Types 3271 and 3277 Actuators ▶ SH 8310

Valve accessories (e.g. positioners, limit switches, solenoid valves, lock-up valves, supply pressure regulators, volume boosters and quick exhaust valves) are classified as machinery components and do not fall within the scope of the Machinery Directive as specified in § 35 and § 46 of the Guide to Application of the Machinery Directive 2006/42/EC issued by the European Commission.

This declaration becomes invalid when modifications are made to the micro-flow valves and/or assemblies that affect the technical data of the control valve or the intended use (▶ EB 06a, section 1) and considerably change the valve or an assembly delivered with it.

Persons authorized to compile the technical file:

Kempen, 28 May 2021

i.V. Czayka

Stefan Czayka
Head of Quality Management/IMS Representative

SMART IN FLOW CONTROL. 1 of 1 HE 2006-42-EC_BR06a-01_EN

# EU DECLARATION OF CONFORMITY
TRANSLATION

| | |
|---|---|
| The manufacturer | **PFEIFFER Chemie-Armaturenbau GmbH**, 47906 Kempen, Germany |
| declares for the listed products that: | **Type 06a PTFE-lined Micro-flow Valve (BR06a)**<br>• **with a Type 3271 Pneumatic Actuator**<br>• **with a Type 3277 Pneumatic Actuator**<br>• **with an actuator of a different make**<br>Prerequisite: the unit was sized and assembled by PFEIFFER Chemie-Armaturenbau GmbH. The serial number on the valve refers to the entire unit. |

1. It complies with all applicable requirements stipulated in Machinery Directive 2006/42/EC.
2. In the delivered state, the valve with actuator is considered to be final machinery as defined in the above mentioned directive.

The start-up of these units is only permitted after the valve has been installed from both sides in the pipeline and a risk of injury can be ruled out as a result.

*Referenced standards:*

a) VCI, VDMA, VGB: "Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen, Mai 2018" [German only]

b) VCI, VDMA, VGB: "Zusatzdokument zum Leitfaden Maschinenrichtlinie (2006/42/EG) – Bedeutung für Armaturen vom Mai 2018" [German only], based on DIN EN ISO 12100:2011-03

*Product description and technical features:*

Tight-closing valve for aggressive media, particularly for strict requirements in chemical applications, fitted with an actuator.

For product descriptions refer to:
PFEIFFER data sheet for Type 06a Valve ▶ TB 06a
SAMSON data sheet for Types 3271 and 3277 Actuators ▶ T 8310-X
PFEIFFER mounting and operating instructions for Type 06a Valve ▶ EB 06a
SAMSON mounting and operating instructions for Types 3271 and 3277 Actuators ▶ EB 8310-X
SAMSON safety manual for Types 3271 and 3277 Actuators ▶ SH 8310

Valve accessories (e.g. positioners, limit switches, solenoid valves, lock-up valves, supply pressure regulators, volume boosters and quick exhaust valves) are classified as machinery components and do not fall within the scope of the Machinery Directive as specified in § 35 and § 46 of the Guide to Application of the Machinery Directive 2006/42/EC issued by the European Commission.

This declaration becomes invalid when modifications are made to the micro-flow valves and/or assemblies that affect the technical data of the control valve or the intended use (▶ EB 06a, section 1) and considerably change the valve or an assembly delivered with it.

Persons authorized to compile the technical file:

Kempen, 28 May 2021

i.V. Czayka

Stefan Czayka
Head of Quality Management/IMS Representative

SMART IN FLOW CONTROL. 1 of 1 HE 2006-42-EC_BR06a-01_EN

# 15 Annex

## 15.1 Tightening torques, lubricant and tools

### 15.1.1 Tightening torques

*Info*

*– All tightening torques are indicated in Nm.*
*– Tightening torque tolerance: ±10%.*
*– After long operating times or use at temperatures above 80 °C, the breakaway torque can be considerably higher.*
*– All screw connections are tightened in a criss-cross pattern with the tightening torques indicated below.*

#### 15.1.1.1 Bonnet

**Table 15-1:** *Tightening values for screw connections of the bonnet*

| DN [mm] | 6 | 8 | 10 | 15 |
|---|---|---|---|---|
| MA [Nm] | 35 | 35 | 35 | 35 |

#### 15.1.1.2 Seat

The PTFE seat (14) is screwed into the thread of the body (1) using a suitable special tool with the following torques.

**Table 15-2:** *Tightening values of the PTFE seat*

| DN [mm] | 6 | 8 | 10 | 15 |
|---|---|---|---|---|
| MA [Nm] | 2 | 2 | 2 | 2 |

#### 15.1.1.3 Flange connections

**Table 15-3:** *Tightening values for the flange connections*

| DN [mm] | 6 | 8 | 10 | 15 | 100 | 150 | 200 |
|---|---|---|---|---|---|---|---|
| MA [Nm] | 20 | 20 | 20 | 20 | 75 | 140 | *) |

### 15.1.2 Lubricants

Various lubricants for standard and special applications can be requested from PFEIFFER.

It is important to consider the specific requirements of the application. This is because the choice of lubricant depends on factors such as temperature, pressure and material pairing.

Ask PFEIFFER for further information on suitable lubricants for special requirements.

Here are a few **examples** of typical applications:

– **Standard applications**

  These lubricants should cover a temperature range of -20 °C to 200 °C and, depending on their composition, they can have a coefficient of sliding friction of around 0.1 to 0.2. They are suitable for many general applications.

– **Low-temperature applications**

  These lubricants are suitable for temperatures down to -50 °C or lower and often have a coefficient of sliding friction of 0.05 to 0.1.

  Lubricants for extremely low temperatures can provide very low levels of friction.

– **High-temperature applications**

  These can withstand temperatures of up to 200 °C or more. They can also have coefficients of friction similar to standard lubricants, but with better stability.

  Lubricants for temperatures of up to 300 °C and above can offer a coefficient of sliding friction of around 0.1 to 0.15.

– **Oxygen applications**

  These lubricants are specially designed for safe use in environments with a high oxygen content. They can often have a coefficient of sliding friction of 0.1 to 0.2.

– **Other applications**
  – Requirements specified by the customer.

### 15.1.3 Tools

Suitable tools are required to work on the valve. Unsuitable tools can damage the valve.

## 15.2 Spare parts

PFEIFFER recommends spare part sets for “Commissioning” and for “2-year operation”, see Chapter:

– “15.2.1 Spare parts for valves manufactured after 2015”
– “15.2.2 Spare parts for valves manufactured before 2015”.

## 15.2.1 Spare parts for valves manufactured after 2015

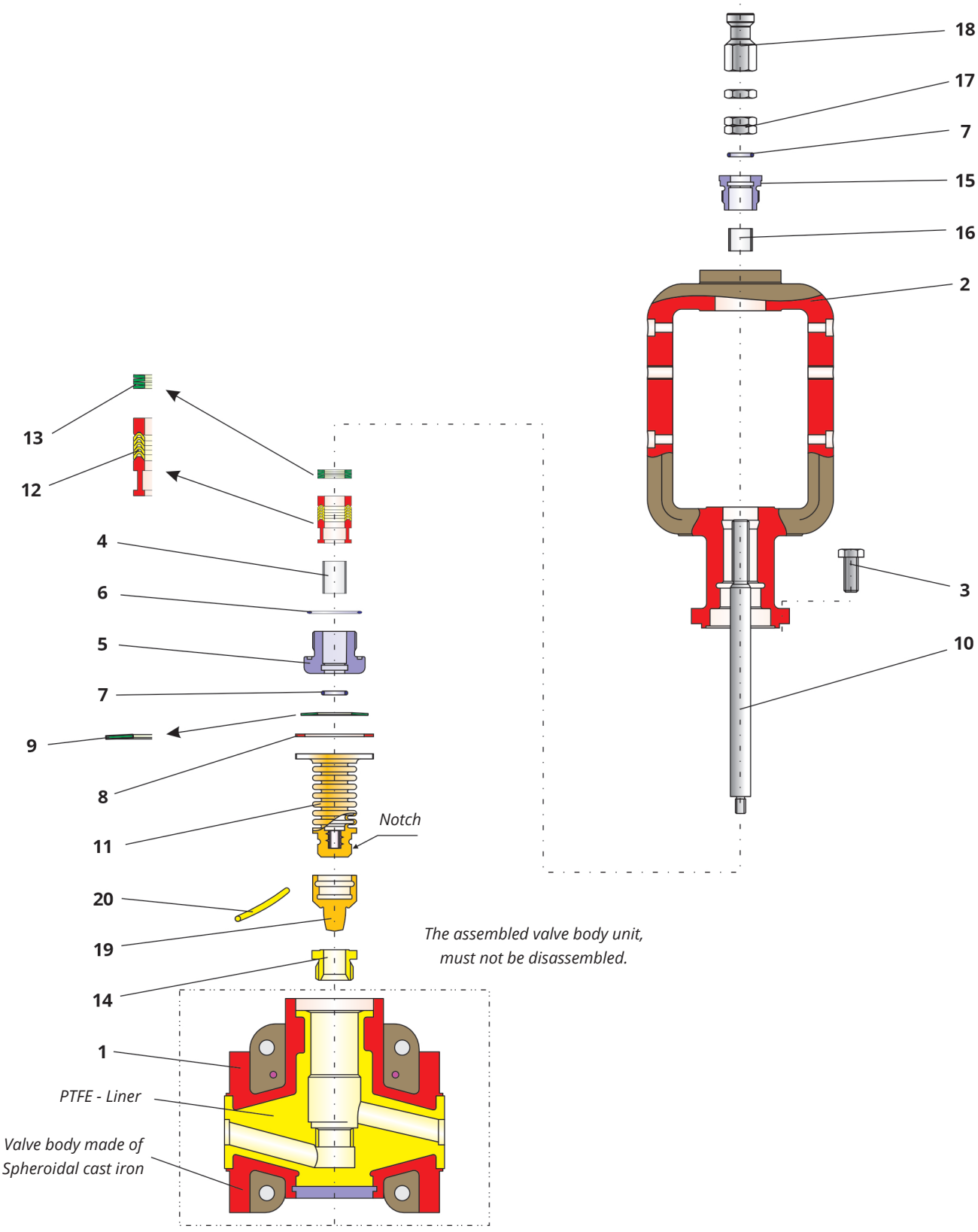



**Fig. 15-1:** *Exploded drawing of a valve manufactured after 2015*

**Table 15-4:** *Recommended spare parts for a valve manufactured after 2015*

| Item | Description | Material | In the spare parts set for commissioning | Included in the set of seals | In the spare parts set for 2 year operation |
|---|---|---|---|---|---|
| **1** | Main body with Liner | EN-JS 1049 / PTFE | | | |
| **2** | Bonnet with yoke | EN-JS 1049 | | | |
| **3** | Screw | A4-70 | | | |
| **4** | Bearing bush | PTFE with carbon | • | | • |
| **5** | Guide bush | 1.4305 | | | |
| **6** | O-ring | Viton | • | | • |
| **7** | O-ring | Viton | • | | • |
| **8** | Thrust washer | 1.4305 | | | |
| **9** | Disc spring | 1.8159 / Delta Tone | • | | • |
| **10** | Stem | 1.4571 | | | |
| **11** | Bellows | PTFE | | | • |
| **12** | V-ring packing | PTFE / 1.4305 | • | | • |
| **13** | Disc spring set | 1.8159 / Delta Tone | • | | • |
| **14** | Seat | PTFE | | • | • |
| **15** | Stuffing box | 1.4305 | | | |
| **16** | Bearing bush | PTFE with carbon | • | | • |
| **17** | Nut | A4-70 | | | |
| **18** | Coupling | A4-70 | | | |
| **19** | Plug | PTFE | | • | • |
| **20** | Cord | PTFE | • | | • |

## 15.2.2 Spare parts for valves manufactured before 2015

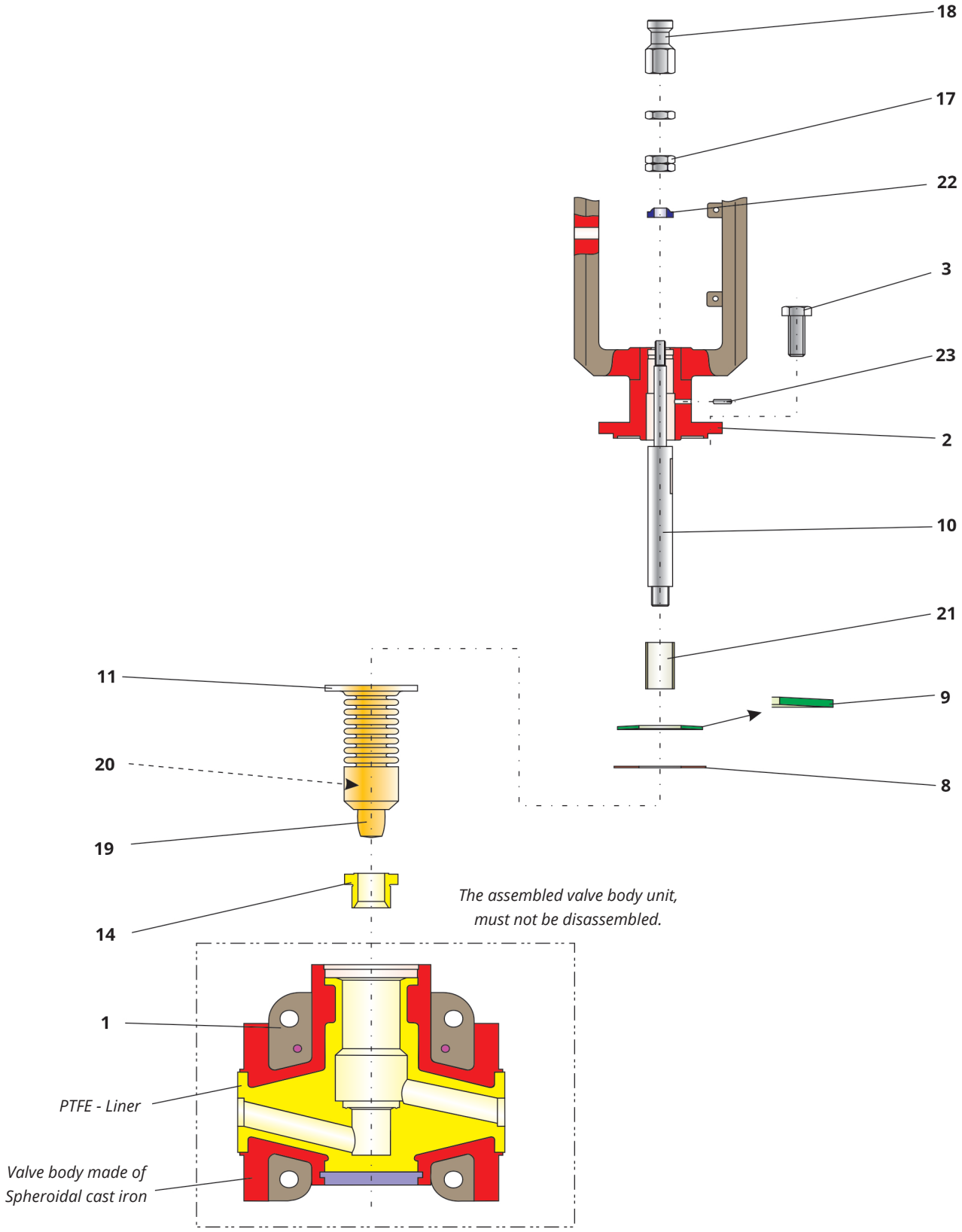



**Fig. 15-2:** *Exploded drawing of a valve manufactured before 2015*

**Table 15-5:** *Recommended spare parts for a valve manufactured before 2015*

| Item | Description | Material | In the spare parts set for commissioning | Included in the set of seals | In the spare parts set for 2 year operation |
|---|---|---|---|---|---|
| 1 | Main body with Liner | EN-JS 1049 / PTFE | | | |
| 2 | Bonnet with yoke | 1.0037 | | | |
| 3 | Screw | A4-70 | | | |
| 8 | Thrust washer | 1.4305 | • | | • |
| 9 | Disc spring | 1.8159 | • | | • |
| 10 | Stem | 1.4571 | | | |
| 11 | Bellows | PTFE | | | • |
| 14 | Seat | PTFE | | • | |
| 17 | Nut | A4-70 | | | |
| 18 | Coupling | A4-70 | | | |
| 19 | Plug | PTFE | | • | |
| 20 | Cord | PTFE | • | | • |
| 21 | Bush | Glycodur | • | | • |
| 22 | Wiper ring | Buna | • | | • |
| 23 | Grooved pin | 1.4301 | • | | • |

## 15.3 Service

For maintenance and repair work as well as malfunctions or defects, contact the After Sales Service at PFEIFFER for support.

### E-mail

The After Sales Service can be reached at the e-mail address “sales-pfeiffer-de@samsongroup.com”.

### Necessary data

Provide the following information in the case of questions and for troubleshooting:

- Manufacturer number
- Valve type
- Article number
- Nominal size and version of the valve
- Manual valve/automated valve
- Medium (designation and consistency)
- Medium pressure and temperature
- Flow rate in m³/h
- Bench range of the actuator (e.g. 0.2 to 1 bar)
- Number of actuations (year, month, week or day)
- Installation drawing if available
- Completed declaration regarding contamination. This form is available at
  ▶ https://pfeiffer.samsongroup.com.

## Further information

The indicated data sheets and further information are available, also in English, at the following address:

**PFEIFFER Chemie-Armaturenbau GmbH**
Hooghe Weg 41 • 47906 Kempen • Germany
Phone: +49 2152 2005-0
E-Mail: sales-pfeiffer-de@samsongroup.com
Internet: https://pfeiffer.samsongroup.com

**EB 06a_EN**
April 2025 edition
Subject to technical changes

**EB 06a_EN**
April 2025 edition
Subject to technical changes

AND EVERYTHING FLOWS

**PFEIFFER Chemie-Armaturenbau GmbH**
Hooghe Weg 41 · 47906 Kempen · Germany
Phone: +49 2152 2005-0
E-Mail: sales-pfeiffer-de@samsongroup.com · Internet: https://pfeiffer.samsongroup.com

**EB 06a_EN**
April 2025 edition
Subject to technical changes