

# Type 2030/2031 CLASSIC

2/2-way diaphragm valve with pneumatic plastic actuator



## Operating Instructions

valvesgo.com

We reserve the right to make technical changes without notice.

© Bürkert Werke GmbH & Co. KG 2003-2026

Technical documentation 2607/01\_GBen\_\_1359392907\_45035997633121291 / Original DE

# Table of contents

|          |                                                                         |           |
|----------|-------------------------------------------------------------------------|-----------|
| <b>1</b> | <b>About this document</b>                                              | <b>5</b>  |
| 1.1      | Symbols                                                                 | 5         |
| 1.2      | Terms and abbreviations                                                 | 6         |
| 1.3      | Manufacturer                                                            | 6         |
| <b>2</b> | <b>Safety</b>                                                           | <b>7</b>  |
| 2.1      | Intended use                                                            | 7         |
| 2.2      | Safety instructions                                                     | 7         |
| <b>3</b> | <b>Product description</b>                                              | <b>11</b> |
| 3.1      | Product overview                                                        | 11        |
| 3.2      | Product identification                                                  | 12        |
| 3.2.1    | Type label                                                              | 12        |
| 3.2.2    | Labelling on forged steel valve body                                    | 13        |
| 3.2.3    | Labelling on tube valve body                                            | 14        |
| 3.2.4    | Labelling on the cast valve body                                        | 15        |
| 3.2.5    | Determination of actuator size                                          | 16        |
| 3.3      | Functionality                                                           | 17        |
| <b>4</b> | <b>Technical data</b>                                                   | <b>18</b> |
| 4.1      | Standards and directives                                                | 18        |
| 4.2      | Operating conditions                                                    | 18        |
| 4.2.1    | Permissible temperatures                                                | 18        |
| 4.2.2    | Operating pressure                                                      | 20        |
| 4.2.3    | Pilot pressure                                                          | 23        |
| 4.3      | General technical data                                                  | 31        |
| <b>5</b> | <b>Installation</b>                                                     | <b>32</b> |
| 5.1      | Notes on installation                                                   | 32        |
| 5.2      | Installation position                                                   | 32        |
| 5.3      | Ensuring self-draining                                                  | 32        |
| 5.4      | Welding or bonding the valve body into the pipeline                     | 34        |
| 5.5      | Removing the actuator from the valve body                               | 35        |
| 5.6      | Installing the actuator on the valve body                               | 36        |
| 5.6.1    | Control function A: Installing the actuator on the valve body           | 36        |
| 5.6.2    | Control functions B and I: Installing the actuator on the valve body    | 38        |
| 5.7      | Compressor                                                              | 40        |
| 5.8      | Alignment of actuator to valve body diaphragm size 6                    | 40        |
| <b>6</b> | <b>Additional information for devices with 3-A approval (code PE05)</b> | <b>41</b> |
| 6.1      | Safety instructions for installation and maintenance                    | 41        |
| 6.1.1    | Removing the compressor for diaphragm sizes 65 and 80                   | 42        |
| <b>7</b> | <b>Pneumatic connection</b>                                             | <b>43</b> |
| 7.1      | Connecting the device pneumatically                                     | 43        |
| <b>8</b> | <b>Commissioning</b>                                                    | <b>44</b> |
| 8.1      | Commission the device                                                   | 44        |
| <b>9</b> | <b>Maintenance</b>                                                      | <b>45</b> |
| 9.1      | Actuator                                                                | 45        |

|           |                                                     |           |
|-----------|-----------------------------------------------------|-----------|
| 9.2       | Wearing parts                                       | 45        |
| 9.3       | Inspection intervals                                | 45        |
| 9.4       | Service life of the diaphragm                       | 46        |
| 9.5       | Cleaning                                            | 46        |
| <b>10</b> | <b>Repair</b>                                       | <b>47</b> |
| 10.1      | Replacing the diaphragm                             | 47        |
| 10.1.1    | Control function A: Replacing the diaphragm         | 48        |
| 10.1.2    | Control functions B and I: Replacing the diaphragm  | 50        |
| 10.1.3    | Switching between PTFE diaphragm and EPDM diaphragm | 52        |
| 10.2      | Changing the seal set                               | 54        |
| 10.2.1    | Required spare parts and tools                      | 54        |
| 10.2.2    | Control function A: Changing the seal set           | 56        |
| 10.2.3    | Control functions B and I: Changing the seal set    | 60        |
| 10.3      | Converting the control function                     | 64        |
| 10.3.1    | Required spare parts and tools                      | 64        |
| 10.3.2    | Converting control function A to control function B | 65        |
| 10.3.3    | Converting control function A to control function I | 68        |
| <b>11</b> | <b>Troubleshooting</b>                              | <b>71</b> |
| 11.1      | Actuator does not switch                            | 71        |
| 11.2      | Valve is not tight                                  | 71        |
| 11.3      | Flow rate reduced                                   | 71        |
| <b>12</b> | <b>Disassembly</b>                                  | <b>72</b> |
| <b>13</b> | <b>Spare parts</b>                                  | <b>73</b> |
| 13.1      | Seal set                                            | 73        |
| 13.2      | Diaphragm                                           | 74        |
| <b>14</b> | <b>Conversion kit</b>                               | <b>76</b> |
| <b>15</b> | <b>Accessories</b>                                  | <b>77</b> |
| 15.1      | Installation wrench for actuator cover              | 77        |
| 15.2      | Additional Information                              | 78        |
| <b>16</b> | <b>Logistics</b>                                    | <b>79</b> |
| 16.1      | Transport and storage                               | 79        |
| 16.2      | Return                                              | 79        |
| 16.3      | Disposal                                            | 79        |
| <b>17</b> | <b>Appendix</b>                                     | <b>80</b> |
| 17.1      | Storage of elastomer parts                          | 80        |
| 17.2      | Self-draining angle ( $\alpha$ )                    | 81        |
| 17.2.1    | Forged steel valve body Type KB04 (VS/VH/VI)        | 82        |
| 17.2.2    | Cast valve body (VG)                                | 87        |
| 17.2.3    | Tube valve body (VP)                                | 91        |

# 1 About this document

The document is an important part of the product and guides the user to safe installation and operation. The information and instructions in this document are binding for the use of the product.

- ▶ Before using the product for the first time, read and observe the whole safety chapter.
- ▶ Before starting any work on the product, read and observe the respective sections of the document.
- ▶ Keep the document available for reference and give it to the next user.
- ▶ Contact the Bürkert sales office for any questions.



Further information concerning the product at [Products](#).

- ▶ Enter the article number from the type label in the search bar.

The illustrations in these instructions may vary depending on the product variant.

## 1.1 Symbols



### DANGER!

Warns of a danger that leads to death or serious injuries.



### WARNING!

Warns of a danger that can lead to death or serious injuries.



### CAUTION!

Warns of a danger that can lead to minor injuries.

### NOTICE!

Warns of property damage on the product or the installation.



Indicates important additional information, tips and recommendations.



Refers to information in this document or in other documents.

- ▶ Indicates a step to be carried out.

✓ Indicates a result.

**Menu** Indicates a software user-interface text.

## 1.2 Terms and abbreviations

The terms and abbreviations are used in this document to refer to following definitions.

|                    |                                                                                                                        |
|--------------------|------------------------------------------------------------------------------------------------------------------------|
| Device             | Diaphragm valve Type 2030/2031                                                                                         |
| DS                 | Diaphragm size                                                                                                         |
| Operating pressure | Pressure at which the operating medium is present in the pipeline during system operation and flows through the valve. |
| Pilot pressure     | Pressure used for the control or pilot control of a valve to change its switching position.                            |
| bar, bar (g)       | Unit for relative pressure                                                                                             |
| Ex area            | Potentially explosive atmosphere                                                                                       |
| Ex approval        | Approval for potentially explosive atmosphere                                                                          |

## 1.3 Manufacturer

Bürkert Fluid Control Systems

Christian-Bürkert-Str. 13-17

74653 Ingelfingen

GERMANY

The contact addresses are available at [Contact](#).



Need more information or additional products?

► Explore the full range of products on our [eShop](#).



Service and support

Direct contact with [Bürkert service](#).

## 2 Safety

### 2.1 Intended use

The device is designed to control the flow of media. The permissible media are listed in chapter [Technical data](#) [► 18]

Prerequisites for safe and trouble-free operation are proper transport, storage, installation, commissioning, operation and maintenance.

The instructions are part of the device. The device is intended exclusively for use within the scope of these instructions. Uses of the device that are not described in these instructions, the contractual documents or the type label can lead to severe personal injury or death, damage to the device or property and dangers for the surrounding area or the environment.

- ▶ Only use the device for media that do not attack the body and seal materials. Information on the chemical resistance of materials in contact with media is available in the [Bürkert resistApp](#).
- ▶ Protect the device against electromagnetic interference, UV rays and, when installed outdoors, the effects of climatic conditions.
- ▶ Only trained and qualified personnel may install, operate and maintain the device. See qualification of persons in [Safety instructions](#) [► 7]
- ▶ Use the device only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- ▶ Use the device only when it is in perfect condition.
- ▶ Observe the Operating conditions temperature ranges listed.

### 2.2 Safety instructions

#### Qualification of personnel working with the device

Improper use of the device can lead to serious personal injury or death. To avoid accidents when working with the device, the following minimum requirements must be met:

- ▶ Understand the instructions and implement the information contained therein accordingly.
- ▶ Detect and avoid dangers when working on the device.
- ▶ Safely carry out work on the device within the scope of these instructions.

#### Responsibility of the operator

The operator is responsible for observing the location-specific safety regulations, also in relation to personnel.

- ▶ Observe the general rules of technology.
- ▶ Install the device according to the regulations applicable in the respective country.
- ▶ The operator must make hazards arising from the location of the device avoidable by providing appropriate operating instructions.

#### Technical limit values and media

Non-compliance with technical limit values or unsuitable media can damage the device and lead to leaks. This can cause accidents and seriously injure or kill people.

- ▶ Comply with limit values. See **Technical data** [▶ 18] and information on the type label.
- ▶ Only feed media into the media ports that are listed in the chapter **Technical data** [▶ 18].
- ▶ Observe the safety data sheet for the media used.

### Working on the device

Working on the device that has not been powered down, unauthorised switching on or uncontrolled start-up of the system can cause accidents. This can lead to serious personal injury or death.

- ▶ Only work on the device when it is not in use.
- ▶ Ensure that the device or system cannot be switched on unintentionally.
- ▶ Only start the process in a controlled manner following disruptions. Observe sequence:
  1. Apply supply voltage or pneumatic supply.
  2. Charge the device with medium.

### Changes and other modifications, spare parts and accessories

Changes to the device, incorrect installation or use of non-approved devices or components create hazards that can lead to accidents and injuries.

- ▶ Do not make any changes to the device.
- ▶ Do not mechanically load the device.
- ▶ Observe the operating instructions of the device or component used.
- ▶ Only use the devices in conjunction with devices and components recommended or approved by Bürkert.

Spare parts and accessories that do not meet Bürkert's requirements may impair the operational safety of the device and cause accidents.

- ▶ To ensure operational safety, only use original parts from Bürkert.

### Operation only after proper transport, storage, installation, commissioning, or maintenance

Improper transport, storage, installation, commissioning, or maintenance jeopardises the operational safety of the device and can cause accidents. This can lead to serious personal injury or death.

- ▶ Observe all values and limits specified in these instructions to ensure the device's safety and functionality.
- ▶ Only carry out work described in these instructions.
- ▶ Only carry out work using suitable tools.
- ▶ All other work must be carried out by Bürkert only.

### Medium under pressure

Medium under pressure can seriously injure people. In the event of overpressure or pressure surges, the device or lines can burst. Pneumatic lines that are defective or not securely fastened can come loose and swing around.

- ▶ Before working on the device or system, switch off the pressure. Vent or empty the lines.
- ▶ Adhere to the permitted pressure ranges of the medium.
- ▶ Comply with the permitted temperature ranges of the medium.



## Electric shock due to electrical components

Touching live parts can result in severe electric shock. This can lead to serious personal injury or death.

- ▶ Before working on the device or system, switch off the power supply. Secure it against reactivation.
- ▶ Observe any applicable accident prevention and safety regulations for electrical devices.

## Contaminated pilot air

The control exhaust air of the device can be contaminated with lubricants and damage the health of people and the environment.

- ▶ Dissipate control exhaust air appropriately.
- ▶ Wear appropriate personal protective equipment when working near the device.

If exhaust air from other processes is used to generate compressed air for the device, seals may be destroyed by the media contained in the exhaust air and cause medium to escape.

- ▶ Only use fresh air for generating compressed air for the device.

## Only use authorised devices in potentially explosive atmospheres

Devices that may be used in potentially explosive atmospheres are labelled with an Ex marking. Additional instructions with Ex labelling are included with these devices.

- ▶ Only use devices that are approved for use in a potentially explosive atmosphere.
- ▶ For use in potentially explosive atmospheres, observe the information on the device.
- ▶ For use in potentially explosive atmospheres, observe the additional instructions with Ex labelling.
- ▶ Do not use devices that do not have this Ex labelling and additional instructions in potentially explosive atmospheres under any circumstances.

## Danger due to escaping medium

If the diaphragm is worn, medium can escape and seriously injure people.

- ▶ The relief bore must be regularly inspected for any medium leakages.
- ▶ If medium is leaking from the relief bore, replace the diaphragm.
- ▶ If the media is hazardous, protect the area surrounding the discharge point against dangers.

## Hearing damage due to high noise level

Depending on the operating conditions, the device may generate loud noises.

- ▶ If the noise level exceeds 75 dB(A), wear hearing protection when near the device.

## Hot surfaces and fire hazard

The surface of the device can become hot with fast-switching actuators or with hot media.

- ▶ Wear suitable protective gloves.
- ▶ Keep highly flammable substances and media away from the device.

## Heavy device

During transportation or installation works, heavy devices may fall and cause injuries.

- ▶ Secure heavy device to keep it from tipping or falling over.

- ▶ If necessary, only transport, install and uninstall heavy device with the help of a second person.
- ▶ Use suitable tools.

### Mechanical moving parts

- ▶ Do not reach into openings.

Actuators with control function A (CF A) or control function B (CF B) contain a preloaded spring. Opening the actuator may cause injury due to the spring snapping out.

- ▶ Do not open the actuator. Unless an instruction explicitly describes how to open it.

### Information on the Pressure Equipment Directive

Bürkert devices are categorised according to the maximum permissible medium pressure indicated on the type label, the nominal diameter DN of the port connection or the included volume, and usually for compressible fluid group 1. Exceptions are documented separately.

On the type label for Bürkert devices, the permissible medium pressure is marked with Pmed, which corresponds to the PS value in the Pressure Equipment Directive. This value can be distinguished from PN or pilot pressure, for example.

In the case of devices marked with PN, the maximum permissible medium pressure can also be restricted through pressure derating based on material or temperature.

Pressure equipment that is not in any category is designed and manufactured in accordance with good engineering practice. These devices do not receive a CE marking or EU Declaration of Conformity under the Pressure Equipment Directive.

- ▶ Ensure that the media used are compatible with the device materials and do not significantly reduce the strength of pressurised components or make the device materials brittle.
- ▶ Assign the system to a pressure equipment category according to specific operating data.

### 3 Product description

The diaphragm valve is an externally controlled valve with a pneumatic piston actuator and diaphragm seal.

It uses neutral gases or air to control the flow of media.

The valve is self-draining when in the appropriate installation position.

#### 3.1 Product overview



Fig. 1: Product overview of 2/2-way valve Type 2031

|                                          |                                          |
|------------------------------------------|------------------------------------------|
| 1 Transparent cap with position          | 2 Actuator cover                         |
| 3 Upper pilot air port for CF A and CF I | 4 Lower pilot air port for CF A and CF I |
| 5 Diaphragm bonnet                       | 6 Diaphragm                              |
| 7 Body screw                             | 8 Port connection                        |
| 9 Valve body                             |                                          |

### 3.2 Product identification

#### 3.2.1 Type label

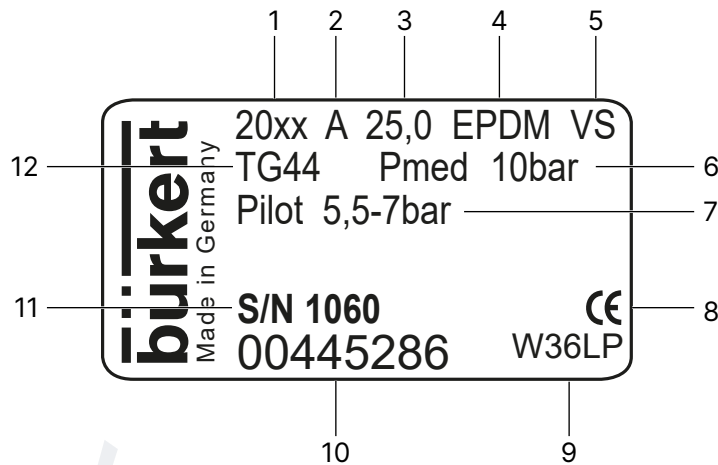


Fig. 2: Description of the type label (example)

|                       |                      |
|-----------------------|----------------------|
| 1 Type                | 2 Control function   |
| 3 Diaphragm size      | 4 Diaphragm material |
| 5 Valve body material | 6 Operating pressure |
| 7 Pilot pressure      | 8 CE marking         |
| 9 Manufacture code    | 10 Article number    |
| 11 Serial number      | 12 Port connection   |

3.2.2 Labelling on forged steel valve body

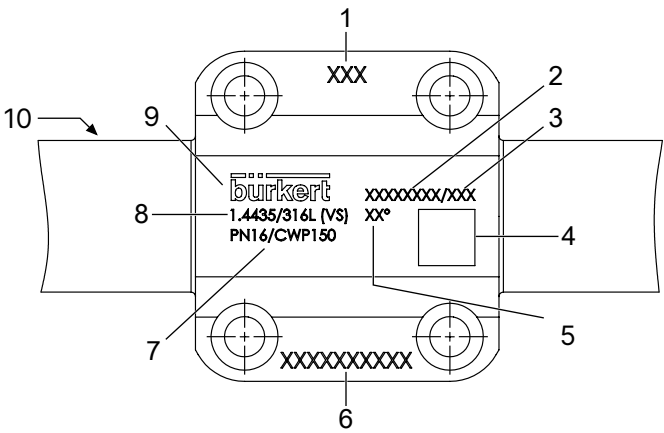


Fig. 3: Labelling on forged steel valve body

|                       |                                                     |
|-----------------------|-----------------------------------------------------|
| 1 Batch number        | 2 Production number                                 |
| 3 Serial number       | 4 Data matrix code                                  |
| 5 Self-draining angle | 6 Nominal diameter and pipe dimensions              |
| 7 Pressure level      | 8 Material                                          |
| 9 Manufacturer        | 10 Marking for self-draining angle (on top of pipe) |

3.2.3 Labelling on tube valve body

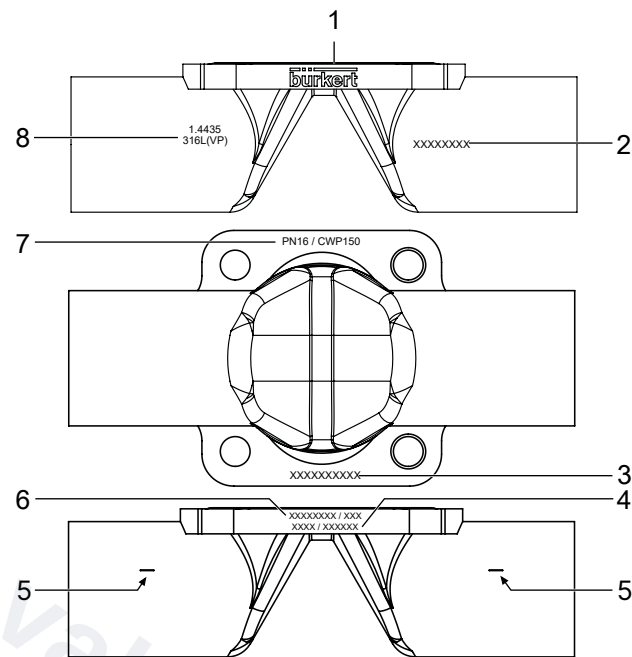


Fig. 4: Labelling on tube valve body

|                                        |                                       |
|----------------------------------------|---------------------------------------|
| 1 Manufacturer                         | 2 Heat number                         |
| 3 Nominal diameter and pipe dimensions | 4 Self-draining angle                 |
| 5 Marking for self-draining angle      | 6 Production number and serial number |
| 7 Pressure level                       | 8 Material                            |

3.2.4 Labelling on the cast valve body

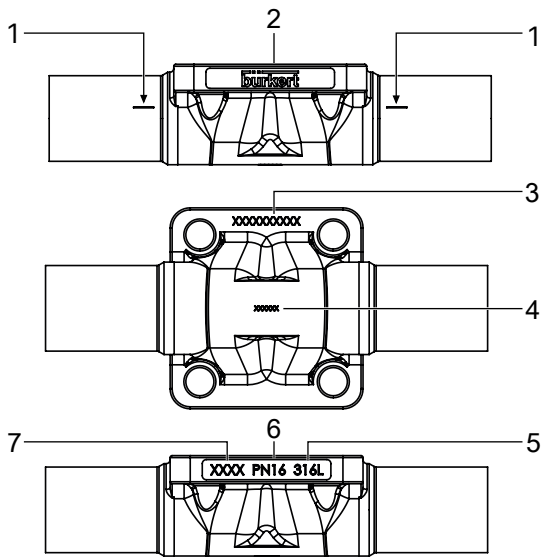


Fig. 5: Labelling on the cast valve body

|                                        |                    |
|----------------------------------------|--------------------|
| 1 Marking for self-draining angle      | 2 Manufacturer     |
| 3 Nominal diameter and pipe dimensions | 4 Batch number     |
| 5 Material                             | 6 Nominal pressure |
| 7 Diaphragm size (nominal diameter DN) |                    |

3.2.5      Determination of actuator size

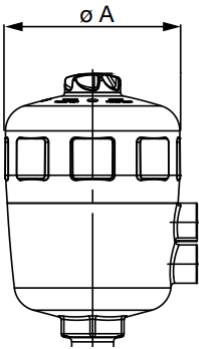


Fig. 6: Determination of actuator size based on the outer diameter A of the actuator cover

| $\varnothing A$ [mm] | Corresponds to actuator size |
|----------------------|------------------------------|
| 53                   | 40 (C)                       |
| 64                   | 50 (D)                       |
| 80                   | 63 (E)                       |
| 101                  | 80 (F)                       |
| 127                  | 100 (G)                      |
| 157                  | 125 (H)                      |
| 211                  | 175 (K)                      |
| 261                  | 225 (L)                      |

Tab. 1: Determination of actuator size



### 3.3 Functionality

Depending on the control function, spring force (CF A) or pneumatic pilot pressure (CF B, CF I) generates the closing force.

A spindle connected to the actuator piston transfers the force to the compressor, which presses the diaphragm against the weir in the valve body.

| Symbol | Description                                                                                                                                                             |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <b>Control function A (CF A)</b><br>Pneumatically operated 2/2-way on/off valve<br>Bidirectional<br>Closed by spring force in rest position                             |
|        | <b>Control function B (CF B)</b><br>Pneumatically operated 2/2-way on/off valve<br>Bidirectional<br>Opened by spring force in rest position                             |
|        | <b>Control function I (CF I)</b><br>Pneumatically operated 2/2-way on/off valve on both sides<br>Bidirectional<br>Switching position dependent on external control unit |

Tab. 2: Control function

## 4 Technical data

### 4.1 Standards and directives

This product complies with the legal requirements applicable at the time of placing on the market and has been developed and tested in accordance with the relevant European directives/regulations and harmonized standards. The conformity is documented and, if necessary, supported by evidence. The EU Declaration of Conformity can be found behind the respective type on the home page [country.burkert.com](https://country.burkert.com)

### 4.2 Operating conditions

|                         |                                                                                                                                                                                                                   |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Medium                  | Neutral gases and liquids, ultrapure, sterile, aggressive or abrasive media<br>(Information on the chemical resistance of materials in contact with media is available in the <a href="#">Bürkert resistApp</a> ) |
| Control medium          | Neutral gases, air                                                                                                                                                                                                |
| Application environment | Indoors and outdoors.<br>Protect the device against electromagnetic interference, UV rays and, when installed outdoors, the effects of climatic conditions.                                                       |
| Altitude                | Up to 2000 m above sea level                                                                                                                                                                                      |
| Storage temperature     | See <a href="#">Storage of elastomer parts</a> [► 80]                                                                                                                                                             |

#### 4.2.1 Permissible temperatures

##### Ambient temperature

| Actuator housing material | Actuator size    | Permissible ambient temperature [°C] |
|---------------------------|------------------|--------------------------------------|
| PPS                       | ≤80 (F)          | +5...+140                            |
| PPS                       | 100 (G), 125 (H) | +5...+90 (short-term up to +140)     |
| PA                        | ≤125 (H)         | −10...+60                            |
| PA                        | ≥175 (K)         | −10...+50                            |

Tab. 3: Permissible ambient temperature

## Medium temperature

| Valve body material | Permissible medium temperature [°C]                                   |
|---------------------|-----------------------------------------------------------------------|
| Stainless steel     | –10...+140 (short-term up to 150)                                     |
| PP                  | +10...+90 (see <a href="#">Pressure-temperature diagram [► 20]</a> )  |
| PVC-C               | +10...+80 (see <a href="#">Pressure-temperature diagram [► 20]</a> )  |
| PVC-U               | +10...+60 (see <a href="#">Pressure-temperature diagram [► 20]</a> )  |
| PVDF                | –20...+120 (see <a href="#">Pressure-temperature diagram [► 20]</a> ) |

Tab. 4: Permitted medium temperature

## Medium temperature for diaphragms

The specified medium temperatures only apply to media that do not attack the diaphragm materials or cause it to swell up. The behaviour of the medium with respect to the diaphragm may be changed by the medium temperature. The functional properties and, in particular, the service life of the diaphragm can deteriorate as the medium temperature rises.

Do not use the diaphragms as a steam shut-off element.

| Diaphragm material | Medium temperature [°C] | Comments                                                 |
|--------------------|-------------------------|----------------------------------------------------------|
| EPDM (AD)          | –10...+143              | Steam sterilisation <sup>1)</sup> max. +150°C for 60 min |
| FKM (FF)           | 0...+130                | No steam, dry heat max +150°C for 60 min                 |
| PTFE (EA)          | –10...+130              | Steam sterilisation <sup>1)</sup> max. +140°C for 60 min |
| Advanced PTFE (EU) | –5...+143               | Steam sterilisation <sup>1)</sup> max. +150°C for 60 min |
| GYLON® (ER)        | –5...+130               | Steam sterilisation <sup>1)</sup> max. +140°C for 60 min |

Tab. 5: Medium temperatures for diaphragms

<sup>1)</sup> Extending the sterilisation period is permitted but may affect the service life and maintenance intervals.

## 4.2.2 Operating pressure

Permissible operating pressure depending on medium temperature in plastic valve body:

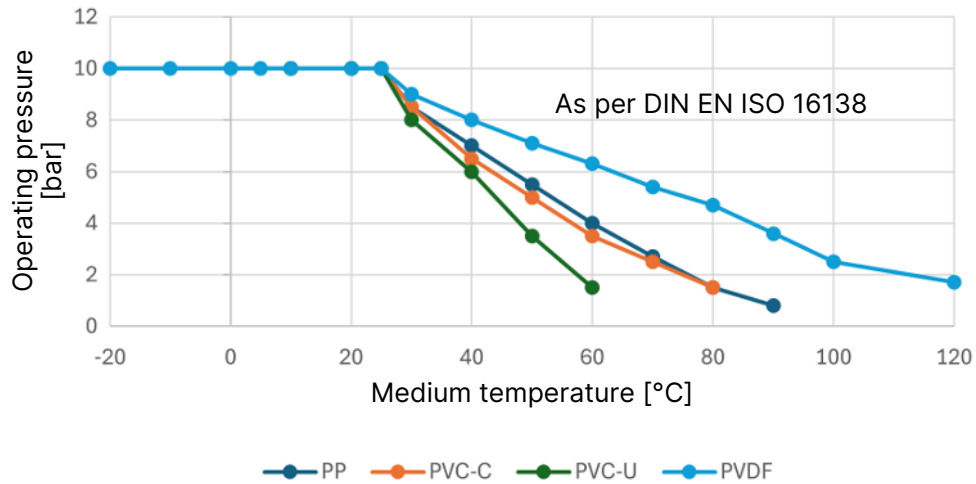


Fig. 7: Pressure-temperature diagram



The information in the pressure-temperature diagram is important for material selection. Observe the permissible operating pressure, depending on the medium temperature!

## Maximum permissible operating pressure for control function A

The values are valid for valve bodies made from:

- Plastic
- Stainless steel

| Diaphragm size | Actuator size | Pilot pressure [bar] | Maximum operating pressure for seal material <sup>2)</sup> |              |                             |                 |
|----------------|---------------|----------------------|------------------------------------------------------------|--------------|-----------------------------|-----------------|
|                |               |                      | EPDM, FKM                                                  |              | PTFE, advanced PTFE, GYLON® |                 |
|                |               |                      | Dynamic [bar]                                              | Static [bar] | Dynamic [bar]               | Static [bar]    |
| 6              | 40 (C)        | 5.0–7                | 10                                                         | 10           | 10                          | 10              |
| 8              | 40 (C)        | 5.0–7                | 10                                                         | 10           | 10                          | 10              |
| 15             | 50 (D)        | 5.0–7                | 8.5                                                        | 10           | –                           | –               |
| 15             | 63 (E)        | 5.0–7                | 10                                                         | 10           | 10                          | 10              |
| 20             | 63 (E)        | 5.5–7                | 10                                                         | 10           | 5                           | 10              |
| 20             | 80 (F)        | 5.0–7                | 10                                                         | 10           | 10                          | 10              |
| 25             | 80 (F)        | 5.5–7                | 10                                                         | 10           | 7.5                         | 10              |
| 32             | 100 (G)       | 5.5–7                | 10                                                         | 10           | 8                           | 10              |
| 40             | 100 (G)       | 5.5–7                | 6.5                                                        | 10           | 6 <sup>3)</sup>             | 9 <sup>4)</sup> |
| 40             | 125 (H)       | 5.5–7                | 10                                                         | 10           | 10                          | 10              |
| 50             | 100 (G)       | 5.5–7                | 4.5                                                        | 7.5          | 2.5                         | 5               |
| 50             | 125 (H)       | 5.5–7                | 8                                                          | 10           | 7                           | 10              |
| 65             | 125 (H)       | 5.5–7                | 7                                                          | 7.5          | 4                           | 5               |
| 65             | 175 (K)       | 5.0–6                | 8                                                          | 10           | 5                           | 6               |
| 80             | 175 (K)       | 5.0–6                | 5                                                          | 7            | 3 <sup>5)</sup>             | 4 <sup>5)</sup> |
| 80             | 225 (L)       | 5.0–6                | 10                                                         | 10           | 7 <sup>6)</sup>             | 10              |
| 100            | 225 (L)       | 5.0–6                | 8                                                          | 10           | 4                           | 7               |

Tab. 6: Maximum permissible operating pressure control function A

<sup>2)</sup> In the event of deviations, the pressure values indicated on the type label must be observed.

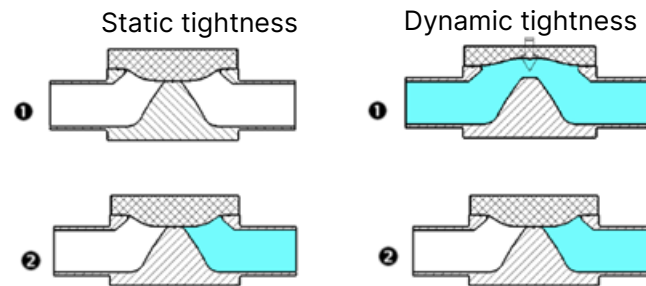
<sup>3)</sup> Max. operating pressure for laminated GYLON®/EPDM diaphragms: 4 bar

<sup>4)</sup> Max. operating pressure for laminated GYLON®/EPDM diaphragms: 6 bar

<sup>5)</sup> Tightness value only applies to laminated GYLON®/EPDM (ER diaphragms), otherwise 0 bar for PTFE/EPDM and advanced PTFE/EPDM (EA and EU diaphragms).

<sup>6)</sup> Max. operating pressure for laminated GYLON®/EPDM diaphragms: 8.5 bar

#### 4.2.2.1 Static/dynamic tightness



##### Static tightness

The diaphragm valve is in the closed state and the diaphragm is resting against the valve seat. Pressure is applied to one side of the body seat. At the specified pressure, there is no leak across the body seat.

##### Dynamic tightness

The medium flows through the open valve, with the outlet side restricted by downstream components. Pressure is applied to both sides of the body seat. The diaphragm valve is closed and seals tightly against the body seat at the specified pressure.

### 4.2.3 Pilot pressure



#### **WARNING!**

**Risk of bursting due to overpressure**

If the device bursts, escaping media may cause injuries, burns or scalds.

- ▶ Do not exceed the maximum permissible pilot pressure or maximum permissible operating pressure. Observe specifications on the type label.
- ▶ Observe the permissible ambient temperature and medium temperature.

#### **NOTICE!**

**Malfunction due to incorrect pilot pressure**

Valves with reduced spring force require reduced pilot pressure. The required values can be found on the type label.

- ▶ Observe the values indicated on the type label.
- ▶ Please contact the Bürkert sales department with any questions.

#### **Pilot air port**

The following pilot air ports can be used:

| Actuator size    | Pilot air port size |
|------------------|---------------------|
| 40 (C), 50 (D)   | G 1/8               |
| 63 (E)...225 (L) | G 1/4               |

#### **Permissible pilot pressure<sup>7)</sup>**

| Actuator material | Actuator size    | Minimum pilot pressure [bar] | Maximum pilot pressure [bar] |
|-------------------|------------------|------------------------------|------------------------------|
| PPS               | 40 (C)...125 (H) | 2                            | 7                            |
| PA                | 40 (C)...100 (G) | 2                            | 10                           |
| PA                | 125 (H)          | 2                            | 7                            |
| PA                | 175 (K), 225 (L) | 2                            | 6                            |

Tab. 7: Permissible pilot pressure

<sup>7)</sup> In the event of deviations, the pressure values indicated on the type label must be observed.

#### 4.2.3.1 Minimum pilot pressure for control function A

The values are valid for valve bodies made from:

- Plastic
- Stainless steel

| Diaphragm size | Actuator size | Minimum pilot pressure [bar] <sup>8)</sup> at |                            |
|----------------|---------------|-----------------------------------------------|----------------------------|
|                |               | 0 bar operating pressure                      | maximum operating pressure |
| 6              | 40 (C)        | 5                                             | 4                          |
| 8              | 40 (C)        | 5                                             | 4                          |
| 15             | 50 (D)        | 5                                             | 3.5                        |
| 15             | 63 (E)        | 5                                             | 4                          |
| 20             | 63 (E)        | 5.5                                           | 4                          |
| 20             | 80 (F)        | 5                                             | 4                          |
| 25             | 63 (E)        | 5                                             | 4.5                        |
| 25             | 80 (F)        | 5.5                                           | 4.5                        |
| 32             | 100 (G)       | 5.5                                           | 4                          |
| 40             | 100 (G)       | 5.5                                           | 4                          |
| 40             | 125 (H)       | 5.5                                           | 4                          |
| 50             | 100 (G)       | 5.5                                           | 3.5                        |
| 50             | 125 (H)       | 5.5                                           | 3                          |
| 65             | 125 (H)       | 5.5                                           | 4.5                        |
| 65             | 175 (K)       | 6                                             | 4.5                        |
| 80             | 175 (K)       | 6                                             | 5                          |
| 80             | 225 (L)       | 6                                             | 5                          |
| 100            | 225 (L)       | 6                                             | 5                          |

Tab. 8: Minimum pilot pressure for control function A

<sup>8)</sup> In the event of deviations, the pressure values indicated on the type label must be observed.



#### 4.2.3.2 Minimum pilot pressure for control function B

The values are valid for valve bodies made from:

- Plastic
- Stainless steel

#### NOTICE!

Important for the service life of the diaphragm:

- Do not select a pilot pressure that is higher than required.

CF B  
Diaphragm material EPDM  
Actuator size 40  
Diaphragm size 6

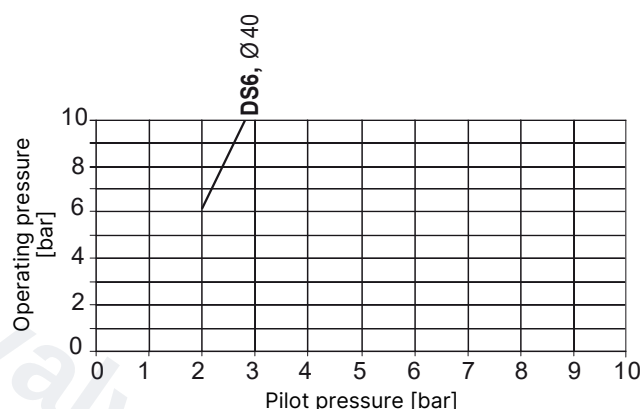


Fig. 8: Control function B, diaphragm material EPDM, actuator size 40 (C)

CF B  
Diaphragm material  
EPDM, FKM  
Actuator sizes 40...80  
Diaphragm sizes 8...25

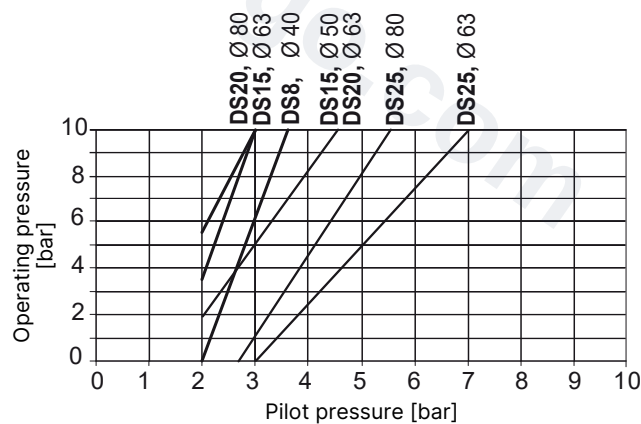


Fig. 9: Control function B, diaphragm material EPDM, FKM, actuator size 40 (C)...80 (F)

CF B  
 Diaphragm material  
 EPDM, FKM  
 Actuator sizes 100, 125  
 Diaphragm sizes 32...65

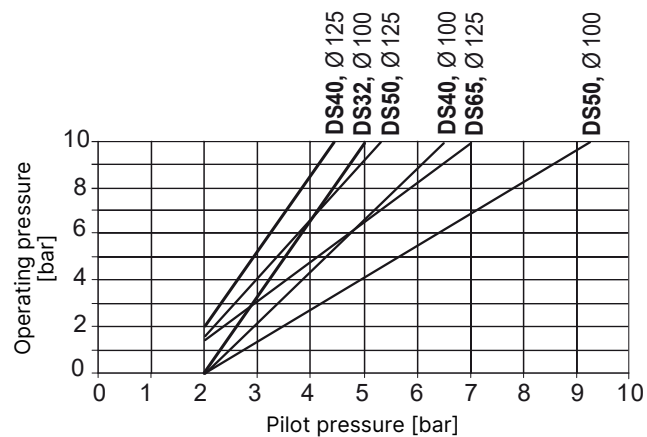


Fig. 10: Control function B, diaphragm material EPDM, FKM, actuator size 100 (G), 125 (H)

CF B  
 Diaphragm material  
 EPDM, FKM  
 Actuator sizes 125+175  
 Diaphragm sizes 65...100

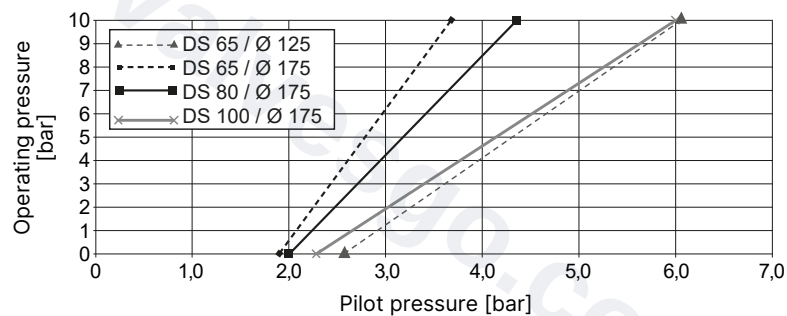


Fig. 11: Control function B, diaphragm material EPDM, FKM, actuator size 125 (H) and 175 (K)

CF B  
 Diaphragm material GYLON®  
 Actuator size 40  
 Diaphragm size 6

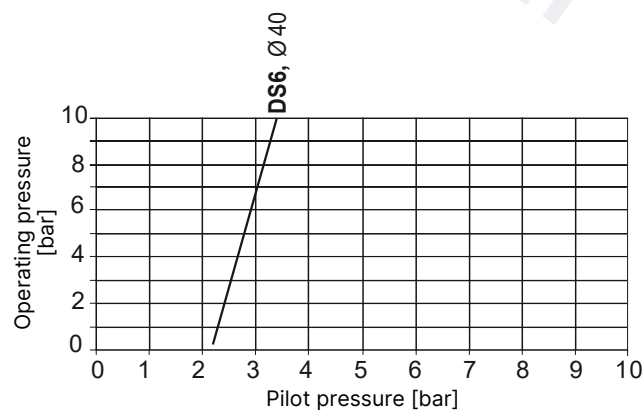


Fig. 12: Control function B, diaphragm material GYLON®, actuator size 40 (C)

CF B

Diaphragm material

PTFE, advanced PTFE, GYLON®

Actuator sizes 40...80

Diaphragm sizes 8...25

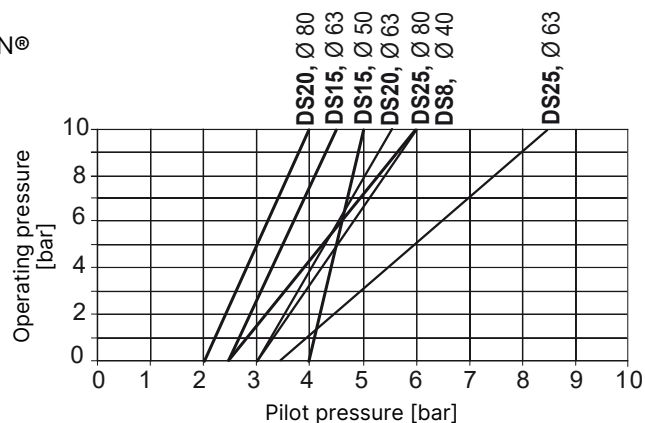


Fig. 13: Control function B, diaphragm material PTFE, advanced PTFE, GYLON®, actuator size 40 (C)...80 (F)

CF B

Diaphragm material

PTFE, advanced PTFE, GYLON®

Actuator sizes 100, 125

Diaphragm sizes 32...65

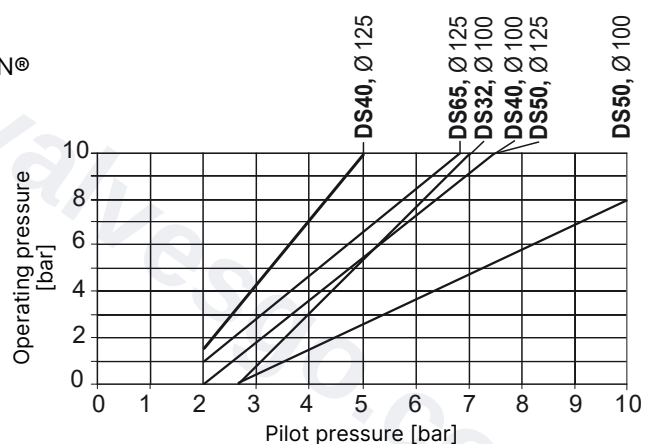


Fig. 14: Control function B, diaphragm material PTFE, advanced PTFE, GYLON®, actuator size 100 (G), 125 (H)

CF B

Diaphragm material

PTFE, advanced PTFE, GYLON®

Actuator sizes 125+175

Diaphragm sizes 65...100

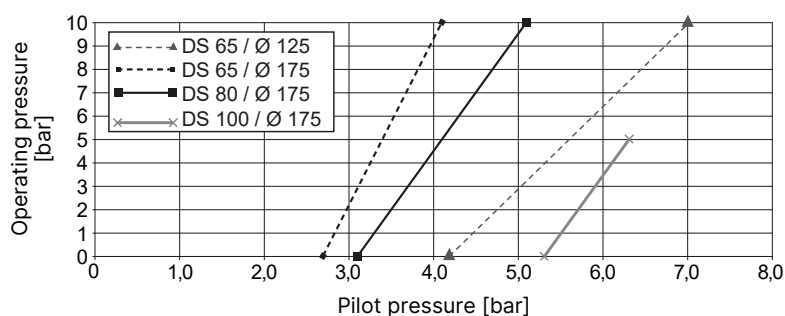


Fig. 15: Control function B, diaphragm material PTFE, advanced PTFE, GYLON®, actuator size 125 (H) and 175 (K)

#### 4.2.3.3 Minimum pilot pressure for control function I

The values are valid for valve bodies made from:

- Plastic
- Stainless steel

#### NOTICE!

Important for the service life of the diaphragm:

- Do not select a pilot pressure that is higher than required.

CF I  
Diaphragm material EPDM  
Actuator size 40  
Diaphragm size 6

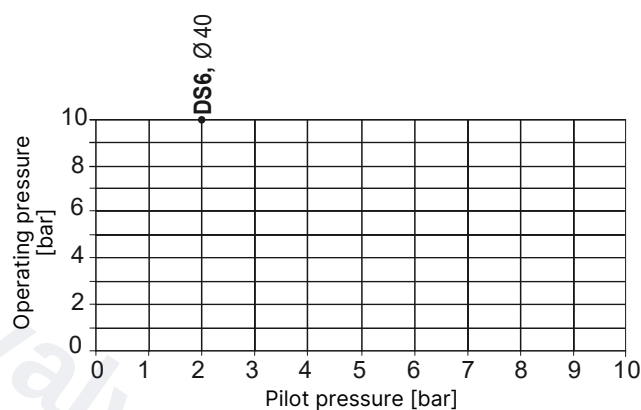


Fig. 16: Control function I, diaphragm material EPDM, actuator size 40 (C)

CF I  
Diaphragm material  
EPDM, FKM  
Actuator sizes 40...80  
Diaphragm sizes 8...25

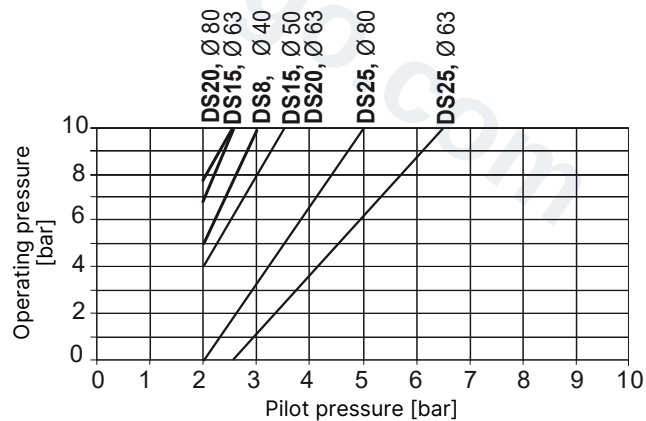


Fig. 17: Control function I, diaphragm material EPDM, FKM, actuator size 40 (C)...80 (F)

CF I  
 Diaphragm material  
 EPDM, FKM  
 Actuator sizes 100, 125  
 Diaphragm sizes 32...65

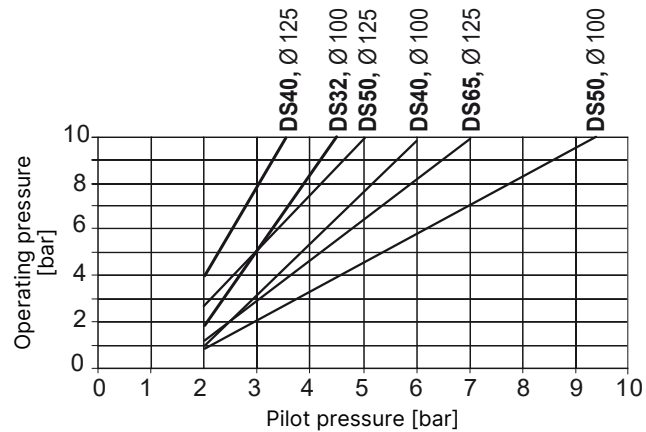


Fig. 18: Control function I, diaphragm material EPDM, FKM, actuator size 100 (G), 125 (H)

CF I  
 Diaphragm material  
 EPDM, FKM  
 Actuator sizes 125+175  
 Diaphragm sizes 65...100

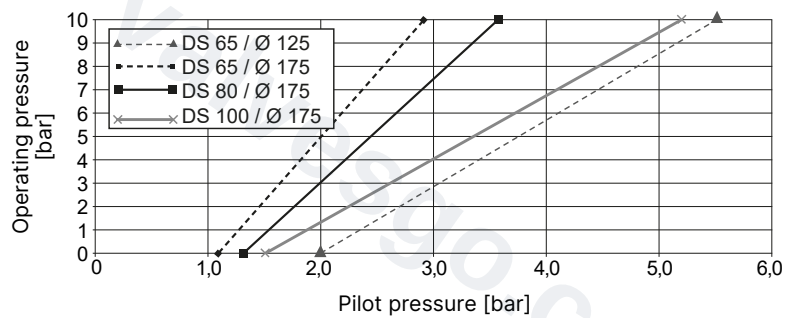


Fig. 19: Control function I, diaphragm material EPDM, FKM, actuator size 125 (H) and 175 (K)

CF I  
 Diaphragm material GYLON®  
 Actuator size 40  
 Diaphragm size 6

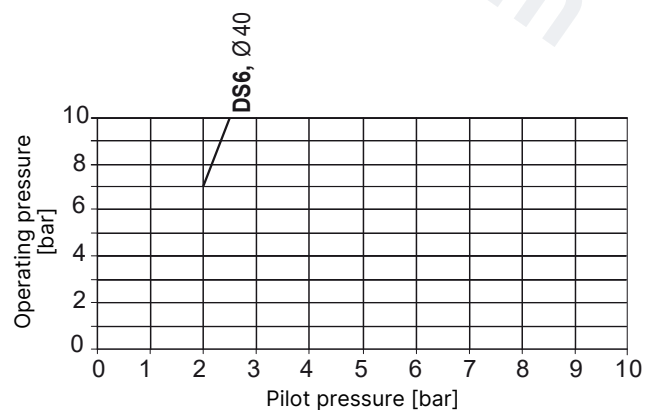


Fig. 20: Control function I, diaphragm material GYLON®, actuator size 40 (C)

CF I

Diaphragm material

PTFE, advanced PTFE, GYLON®

Actuator sizes 40...80

Diaphragm sizes 8...25

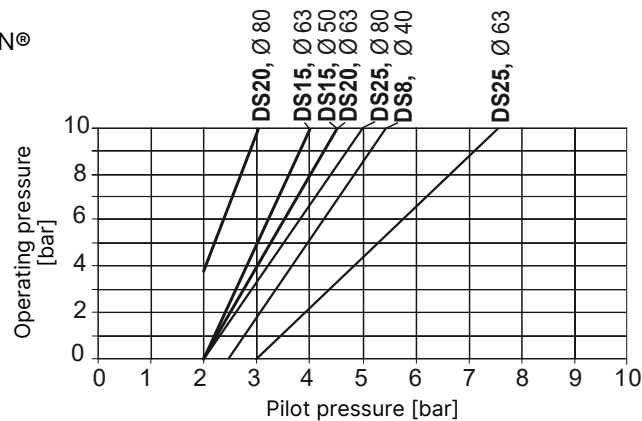


Fig. 21: Control function I, diaphragm material PTFE, advanced PTFE, GYLON®, actuator size 40 (C)...80 (F)

CF I

Diaphragm material

PTFE, advanced PTFE, GYLON®

Actuator sizes 100, 125

Diaphragm sizes 32...65

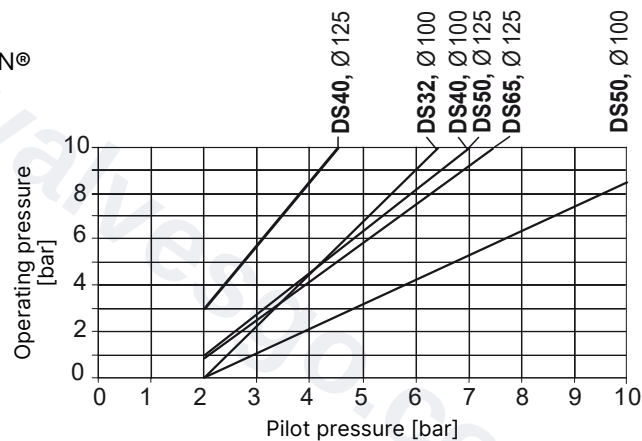


Fig. 22: Control function I, diaphragm material PTFE, advanced PTFE, GYLON®, actuator size 100 (G), 125 (H)

CF I

Diaphragm material

PTFE, advanced PTFE, GYLON®

Actuator sizes 125+175

Diaphragm sizes 65...100

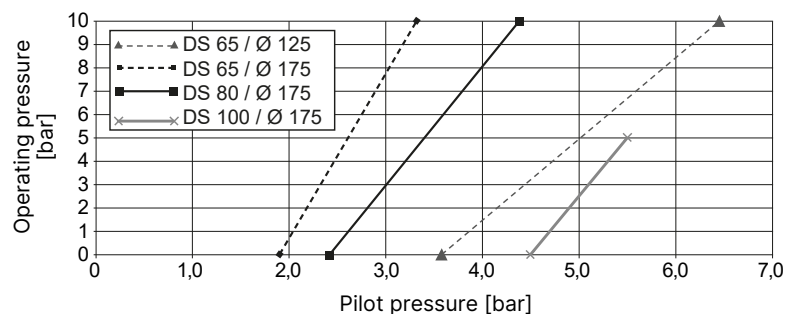


Fig. 23: Control function I, diaphragm material PTFE, advanced PTFE, GYLON®, actuator size 125 (H) and 175 (K)

## 4.3 General technical data

The following technical data is listed on the diaphragm valve type label:

- Control function
- Diaphragm size
- Diaphragm material
- Valve body material
- Operating pressure
- Pilot pressure

Further technical characteristics: enter the article number in the search bar at [country.burkert.com](https://country.burkert.com) and select the product.

## 5 Installation



Risk of injury or material damage when working on the device or system.

- Read and observe the chapter **Safety** [► 7] before working on the device or system.



### Service and support

- For further information, technical advice and support, contact [Bürkert service](#) .

### 5.1 Notes on installation

#### NOTICE!

Protect the device against electromagnetic interference, UV rays and, when installed outdoors, the effects of climatic conditions.

- Installation site must be easily accessible and provide sufficient space for installation, disassembly and maintenance.
- Use suitable lifting gear to lift heavy equipment.
- Only lift heavy equipment by the valve body and pneumatic actuator, not by the control unit (if present).
- For pipelines, the inclination angles specified in the valid ASME BPE standard are recommended.
- Support and align pipelines.
- Ensure pipelines are aligned before connection.
- Ensure that pipelines are free of impurities (seal material, metal chips).
- The device and relief bore must be accessible for inspection and maintenance.

### 5.2 Installation position

Any installation position, preferably with the actuator facing up.

#### Installation for leakage detection



One of the relief bores in the diaphragm bonnet for monitoring leakages must be at the lowest position.

### 5.3 Ensuring self-draining



The installer and the operator are responsible for ensuring self-draining.

The following points must be observed for optimum self-draining:



## 1. Inclination angle of the pipeline

- The inclination angle is determined by the installer or operator.
- It should correspond to the inclination angle of the pipeline.
- For pipelines, the inclination angles specified in the valid ASME BPE standard are recommended.

## 2. Self-draining angle for valve body

- The self-draining angle ( $\alpha$ ) depends on:
  - The size of the valve body (diaphragm size)
  - The inner diameter of the port connection (nominal diameter)
- On forged steel valve bodies (VS), tube valve bodies (VP) as well as – for diaphragm size 6 only – stainless steel round material (VI), the angle is specified as a value.
- The marking for self-draining angles on the port connection serves as a guide and must point upwards.
- The actual angle must be set with a suitable measuring tool.

The specified angles are to be understood as a guide value and may be subject to certain fluctuations due to permissible manufacturing tolerances.

The values are in the appendix for valve bodies without angle information.

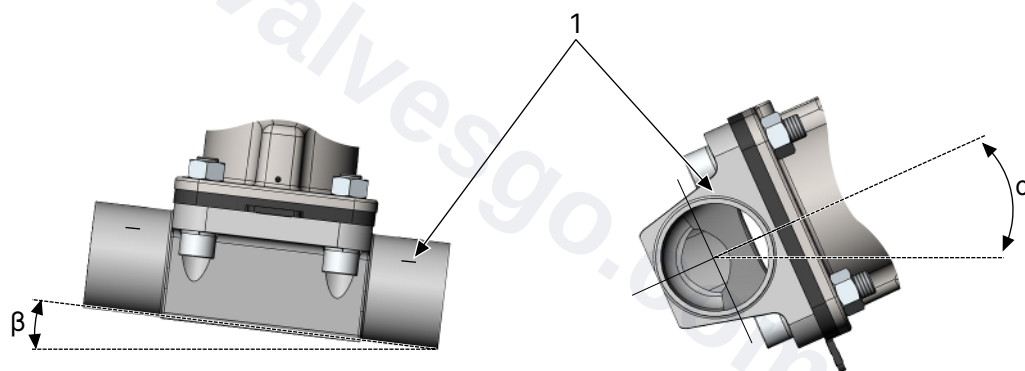


Fig. 24: Installation position for self-draining

$\beta$  Inclination angle of the pipeline

1 Marking for self-draining

$\alpha$  Self-draining angle

Self-draining does not mean that the valve will drain completely and without residue when installed correctly.

Draining is influenced by various factors, including:

- Inner diameter of the pipeline
- Surface quality
- Inclination angle to the line axis
- Medium (viscosity and adhesion)

## 5.4 Welding or bonding the valve body into the pipeline

### NOTICE!

#### Damage to the diaphragm or the actuator

The diaphragm and actuator can be damaged when welding or bonding the valve body into the pipeline.

- ▶ In the case of devices with a welded connection or bonded connection, remove the actuator and diaphragm from the valve body before installation.

The installation is divided into the following steps:

1. **Removing the actuator from the valve body** [▶ 35]
2. Weld or bond the valve body into the pipeline.
  - ▶ After welding or bonding the surface of the valve body, smooth by sanding if necessary.
  - ▶ Clean the valve body carefully.
3. **Installing the actuator on the valve body** [▶ 36].

## 5.5 Removing the actuator from the valve body



|                                     |                        |
|-------------------------------------|------------------------|
| 1 Pilot air port above              | 2 Pilot air port below |
| 3 Diaphragm with identification tab | 4 Valve body           |
| 5 Body screws                       |                        |

- ▶ Clamp the valve body in a holding device (only for devices which have not yet been installed).
- ▶ **NOTICE! For valves with control function A:** Pressurise the lower pilot air port with compressed air (value as indicated on the type label). This is required to detach the diaphragm without damage from the body.  
This step is not necessary for valves with control functions B and I.
- ▶ Loosen the body screws crosswise and remove the actuator and diaphragm from the valve body.

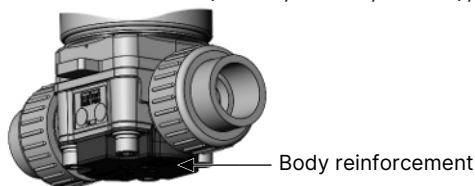
## 5.6 Installing the actuator on the valve body

### 5.6.1 Control function A: Installing the actuator on the valve body



|                                     |                        |
|-------------------------------------|------------------------|
| 1 Pilot air port above              | 2 Pilot air port below |
| 3 Diaphragm with identification tab | 4 Valve body           |
| 5 Body screws                       |                        |

- ▶ Ensure the correct position of the compressor (see [Compressor](#) [► 40]).  
Note: Not necessary for diaphragm size 8.
- ▶ Pressurise the lower pilot air port with compressed air (value as indicated on the type label): valve opens.
- ▶ Place the actuator together with the diaphragm on the valve body.
- ▶ For PP variants (DN15, DN20, DN25), the specified body reinforcement is essential.



- ▶ For diaphragm size 6, ensure that the compressor ridge and the body weir lie on top of each other (see [Alignment of actuator to valve body diaphragm size 6](#) [► 40]).
- ▶ Slightly tighten the body screws crosswise until the diaphragm rests between the valve body and the actuator. **Do not fully tighten the screws yet.**
- ▶ Actuate the valve twice to position the diaphragm correctly.
- ▶ Switch off the pilot pressure.
- ▶ Without applying pressure, tighten the body screws in three stages (approx. 1/3, then 2/3 and then full tightening torque, as specified in the following table), in each case crosswise. The diaphragm should be positioned and pressed evenly all around the actuator and valve body.

| Diaphragm size | Tightening torques [Nm] (tolerance: +10 %) |                             |                      |                             |
|----------------|--------------------------------------------|-----------------------------|----------------------|-----------------------------|
|                | all bodies except tube valve bodies (VP)   |                             | Tube valve body (VP) |                             |
|                | EPDM, FKM                                  | PTFE, advanced PTFE, GYLON® | EPDM, FKM            | PTFE, advanced PTFE, GYLON® |
| 6              | 1.1                                        | 1.1                         | –                    | –                           |
| 8              | 2                                          | 2.5                         | 2                    | 2.5                         |
| 15             | 3.5                                        | 4                           | 3.5                  | 4                           |
| 20             | 4                                          | 4.5                         | 4                    | 4.5                         |
| 25             | 5                                          | 6                           | 7                    | 8                           |
| 32             | 6                                          | 8                           | 8                    | 10                          |
| 40             | 8                                          | 10                          | 12                   | 15                          |
| 50             | 12                                         | 15                          | 15                   | 20                          |
| 65             | 20                                         | 30                          | 20                   | 30                          |
| 80             | 30                                         | 40                          | 30                   | 40                          |
| 100            | 40                                         | 50                          | –                    | –                           |

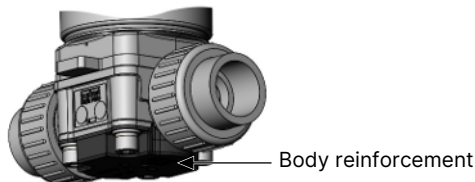
Tab. 9: Tightening torques for body connection

## 5.6.2 Control functions B and I: Installing the actuator on the valve body



|                                     |                        |
|-------------------------------------|------------------------|
| 1 Pilot air port above              | 2 Pilot air port below |
| 3 Diaphragm with identification tab | 4 Valve body           |
| 5 Body screws                       |                        |

- ▶ Ensure the correct position of the compressor (see [Compressor](#) [▶ 40]).  
Note: Not necessary for diaphragm size 8.
- ▶ Place the actuator together with the diaphragm on the valve body.
- ▶ For PP variants (DN15, DN20, DN25), the specified body reinforcement is essential.



- ▶ For diaphragm size 6, ensure that the compressor ridge and the body weir lie on top of each other (see [Alignment of actuator to valve body diaphragm size 6](#) [▶ 40]).
- ▶ Slightly tighten the body screws crosswise without applying pressure until the diaphragm rests between the valve body and actuator. **Do not fully tighten the screws yet.**
- ▶ Actuate the valve twice to position the diaphragm correctly.
- ▶ Pressurise the upper pilot air port with compressed air (value as indicated on the type label): valve closes.
- ▶ With pressure, tighten the body screws in three stages (approx. 1/3, then 2/3 and then full tightening torque, as specified in the following table), in each case crosswise. The diaphragm should be positioned and pressed evenly all around the actuator and valve body.

| Diaphragm size | Tightening torques [Nm] (tolerance: +10 %) |                             |                      |                             |
|----------------|--------------------------------------------|-----------------------------|----------------------|-----------------------------|
|                | all bodies except tube valve bodies (VP)   |                             | Tube valve body (VP) |                             |
|                | EPDM, FKM                                  | PTFE, advanced PTFE, GYLON® | EPDM, FKM            | PTFE, advanced PTFE, GYLON® |
| 6              | 1.1                                        | 1.1                         | –                    | –                           |
| 8              | 2                                          | 2.5                         | 2                    | 2.5                         |
| 15             | 3.5                                        | 4                           | 3.5                  | 4                           |
| 20             | 4                                          | 4.5                         | 4                    | 4.5                         |
| 25             | 5                                          | 6                           | 7                    | 8                           |
| 32             | 6                                          | 8                           | 8                    | 10                          |
| 40             | 8                                          | 10                          | 12                   | 15                          |
| 50             | 12                                         | 15                          | 15                   | 20                          |
| 65             | 20                                         | 30                          | 20                   | 30                          |
| 80             | 30                                         | 40                          | 30                   | 40                          |
| 100            | 40                                         | 50                          | –                    | –                           |

Tab. 10: Tightening torques for body connection

## 5.7 Compressor

### **! WARNING!**

#### Risk of crushing

If the compressor is not positioned correctly and the actuator is actuated, this may result in injuries and damage to the device.

- Before actuating the actuator, ensure that the compressor is in the correct position.



Fig. 25: Correct and incorrect position of the compressor

## 5.8 Alignment of actuator to valve body diaphragm size 6

For diaphragm size 6, the compressor ridge and the body weir must lie on top of each other. When correctly installed, the relief bore must be positioned at right angles to the line connections.

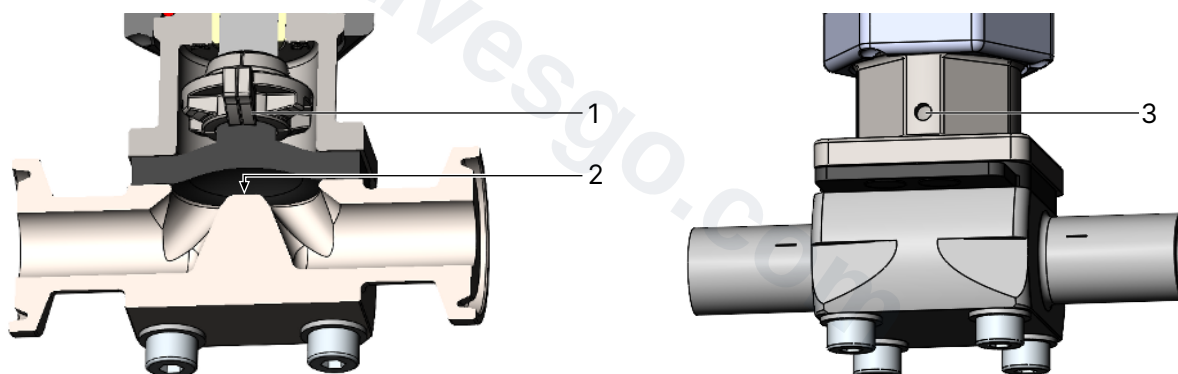


Fig. 26: Alignment of actuator to valve body

1 Compressor ridge

2 Body weir

3 Relief bore



## 6 Additional information for devices with 3-A approval (code PE05)



Risk of injury or material damage when working on the device or system.

► Read and observe the chapter **Safety** [► 7] before working on the device or system.

### Labelling for 3-A certified devices

Devices that have a 3-A approval are provided with additional adhesive labels. These labels are located on the actuator and are used to clearly identify the hygienic approval and the operating materials used.

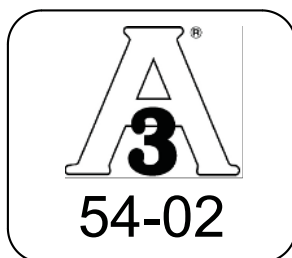


Fig. 27: 3-A approval adhesive label

### Lubricant information label (NSF-H1)

Information regarding the prescribed lubricant is also present on the device. Only sterile greases with NSF-H1 approval may be used. Compliance with this requirement is essential to ensure the 3-A conformity of the device and operational safety.

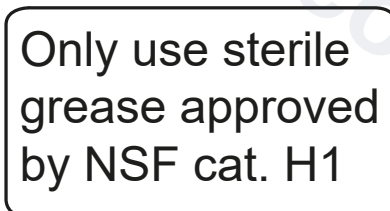


Fig. 28: Information regarding prescribed lubricant

### 6.1 Safety instructions for installation and maintenance

Devices with pneumatic actuators must be cleaned in accordance with the clean-in-place cycle. In compliance with the 3-A standard, devices with manual actuators must be disassembled before they are cleaned.

Remove the compressor after removing the actuator. Clean the area with a soft brush.

## 6.1.1 Removing the compressor for diaphragm sizes 65 and 80



- ▶ Move the compressor to the lower position. For control function B and I, pressurise the upper pilot air port with compressed air. For control function A, release the pilot pressure.
- ▶ Twist the compressor to remove it. The compressor guide is modified for this purpose.
- ▶ Clean the compressor and lubricate the spindle with suitable grease.
- ▶ Insert the compressor. Ensure it is positioned correctly.
- ▶ For control function B, release the pilot pressure.

## 7 Pneumatic connection



Risk of injury or material damage when working on the device or system.

- Read and observe the chapter [Safety \[▶ 7\]](#) before working on the device or system.



### Service and support

- For further information, technical advice and support, contact [Bürkert service](#).

### 7.1 Connecting the device pneumatically



#### **WARNING!**

Risk of injury from connection of unsuitable hoses

Inappropriate hoses can come loose and swing around.

- Use only hoses which are authorised for the indicated pressure and medium temperature range.
- Observe the data sheet specifications from the hose manufacturers.



#### **WARNING!**

For control function I: Risk of injury in the event of pilot pressure failure

The valve stays in an undefined position in the event of a pilot pressure failure.

- Switch off the pressure before working on the device or system. Vent or drain the lines.
- To ensure a controlled restart, first pressurise the device with pilot pressure, then switch on the medium.

#### Control function A:

- Connect the control medium to bottom of the pilot air port of the actuator.

#### Control function B:

- Connect the control medium to top of the pilot air port of the actuator.

#### Control function I:

- Connect the control medium to upper and lower pilot air port of the actuator.  
Pressure at upper pilot air port: valve closes.  
Pressure at lower pilot air port: valve opens.

#### Pilot air port

The following pilot air ports can be used:

| Actuator size    | Pilot air port size |
|------------------|---------------------|
| 40 (C), 50 (D)   | G 1/8               |
| 63 (E)...225 (L) | G 1/4               |

## 8 Commissioning



Risk of injury or material damage when working on the device or system.

- Read and observe the chapter **Safety** [► 7] before working on the device or system.



### Service and support

- For further information, technical advice and support, contact [Bürkert service](#) .

### 8.1 Commission the device



#### **WARNING!**

For control function I: Risk of injury in the event of pilot pressure failure

The valve stays in an undefined position in the event of a pilot pressure failure.

- Switch off the pressure before working on the device or system. Vent or drain the lines.
- To ensure a controlled restart, first pressurise the device with pilot pressure, then switch on the medium.



#### **WARNING!**

Risk of injury from high pressure or hot medium

Excessively high pressure or temperatures may damage the device and cause leaks.

- Observe values for pressure and medium temperature indicated on the type label.



In the case of devices with control unit, observe start-up in the operating instructions for the corresponding control unit.

- Adjust the pilot pressure in accordance with the information on the type label and in technical data.
- Commission the device.

## 9 Maintenance



Risk of injury or material damage when working on the device or system.

- Read and observe the chapter **Safety** [► 7] before working on the device or system.



### Service and support

- For further information, technical advice and support, contact [Bürkert service](#) .

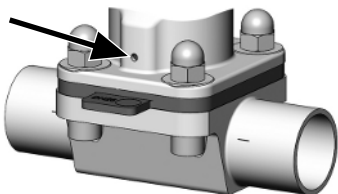
### 9.1 Actuator

The device actuator is maintenance-free if the instructions in these operating instructions are followed.

### 9.2 Wearing parts

Components which are subject to natural wear are:

- Seals
- Diaphragm
- If leaks occur, replace the affected wearing parts with suitable spare parts.
- The relief bore must be inspected at regular intervals for any medium leakages.



A bulging diaphragm may reduce the flow rate.

### 9.3 Inspection intervals

The following inspection intervals apply to the diaphragm valve:

- After the first steam sterilisation and when required:  
Tighten the body screws crosswise.
- After 10<sup>5</sup> switching cycles at the latest:  
Check the diaphragm for wear.



Shortened inspection intervals are required for muddy and abrasive media.

## 9.4 Service life of the diaphragm

The service life of the diaphragm depends on the following factors:

- Diaphragm material
- Medium
- Medium pressure
- Medium temperature
- Actuator size
- Pilot pressure for CF B and CF I

To increase the diaphragm service life, observe the following instructions:

- ▶ For CF A: Match the actuator size (actuator force) to the medium pressure to be actuated. If required, use the actuator with reduced spring force EC04.
- ▶ For CF B and CF I: Select a pilot pressure that is not higher than is required to actuate the medium pressure.

## 9.5 Cleaning

### NOTICE!

Avoid causing damage with cleaning agents.

- ▶ Before cleaning, check that the cleaning agents are compatible with device materials and seals.
- ▶ Only use commercially available cleaning agents for external cleaning.

## 10 Repair



Risk of injury or material damage when working on the device or system.

- Read and observe the chapter **Safety** [► 7] before working on the device or system.



### Service and support

- For further information, technical advice and support, contact [Bürkert service](#).

### 10.1 Replacing the diaphragm



#### **DANGER!**

Risk of injury from sudden discharge of pressure and escaping medium

Disassembling a pressurised device can cause medium to escape unexpectedly or a sudden discharge of pressure. This can cause serious injuries.

- Before disassembly, shut off the pressure and vent all lines.
- Completely drain the lines.
- During reinstallation, check the tightening torque of the body screws.

| Diaphragm size | Diaphragm material                      |                                               |
|----------------|-----------------------------------------|-----------------------------------------------|
|                | PTFE and advanced PTFE                  | EPDM, FKM and GYLON®                          |
| ≤8             | Diaphragm fastening using buttons       |                                               |
| 15, 20         | Diaphragm fastening using bayonet catch |                                               |
| ≥25            | Diaphragm fastening using bayonet catch | Diaphragm fastening using threaded connection |

Tab. 11: Types of diaphragm fastening

## 10.1.1 Control function A: Replacing the diaphragm



|                                     |                        |
|-------------------------------------|------------------------|
| 1 Pilot air port above              | 2 Pilot air port below |
| 3 Diaphragm with identification tab | 4 Valve body           |
| 5 Body screws                       |                        |

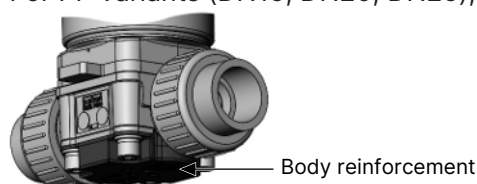
- ▶ Clamp the valve body in a holding device (only for devices which have not yet been installed).
  - ▶ Pressurise the lower pilot air port with compressed air (value as indicated on the type label): valve opens.
  - ▶ Loosen the body screws crosswise and remove the actuator and diaphragm from the valve body.
  - ▶ Unbutton or unscrew the old diaphragm. When fastening with a bayonet catch, loosen the diaphragm by rotating it 90°. For diaphragm size  $\geq 25$ , observe additional chapter [Switching between PTFE diaphragm and EPDM diaphragm \[ 52 \]](#).
  - ▶ Ensure the correct position of the compressor (see [Compressor \[ 40 \]](#)).
- Note: Not necessary for diaphragm size 8.

### NOTICE!

#### Damage to diaphragms with threaded connection

If the pin is live, the diaphragm may be damaged.

- ▶ First screw on the diaphragm hand-tight, then loosen it by one-half turn anticlockwise.
- ▶ Attach the new diaphragm to the compressor according to the fastening type. When fastening the diaphragm by buttoning it in, a slight twisting motion is helpful. The identification tab must be perpendicular to the flow direction.
- ▶ Place the actuator together with the diaphragm on the valve body.
- ▶ For PP variants (DN15, DN20, DN25), the specified body reinforcement is essential.





- For diaphragm size 6, ensure that the compressor ridge and the body weir lie on top of each other (see [Alignment of actuator to valve body diaphragm size 6](#) ▶ 40]).
- Slightly tighten the body screws crosswise until the diaphragm rests between the valve body and the actuator. **Do not fully tighten the screws yet.**
- Actuate the valve twice to position the diaphragm correctly.
- Switch off the pilot pressure.
- Without applying pressure, tighten the body screws in three stages (approx. 1/3, then 2/3 and then full tightening torque, as specified in the following table), in each case crosswise. The diaphragm should be positioned and pressed evenly all around the actuator and valve body.

| Diaphragm size | Tightening torques [Nm] (tolerance: +10 %) |                             |                      |                             |
|----------------|--------------------------------------------|-----------------------------|----------------------|-----------------------------|
|                | all bodies except tube valve bodies (VP)   |                             | Tube valve body (VP) |                             |
|                | EPDM, FKM                                  | PTFE, advanced PTFE, GYLON® | EPDM, FKM            | PTFE, advanced PTFE, GYLON® |
| 6              | 1.1                                        | 1.1                         | –                    | –                           |
| 8              | 2                                          | 2.5                         | 2                    | 2.5                         |
| 15             | 3.5                                        | 4                           | 3.5                  | 4                           |
| 20             | 4                                          | 4.5                         | 4                    | 4.5                         |
| 25             | 5                                          | 6                           | 7                    | 8                           |
| 32             | 6                                          | 8                           | 8                    | 10                          |
| 40             | 8                                          | 10                          | 12                   | 15                          |
| 50             | 12                                         | 15                          | 15                   | 20                          |
| 65             | 20                                         | 30                          | 20                   | 30                          |
| 80             | 30                                         | 40                          | 30                   | 40                          |
| 100            | 40                                         | 50                          | –                    | –                           |

Tab. 12: Tightening torques for body connection

## 10.1.2 Control functions B and I: Replacing the diaphragm



|                                     |                        |
|-------------------------------------|------------------------|
| 1 Pilot air port above              | 2 Pilot air port below |
| 3 Diaphragm with identification tab | 4 Valve body           |
| 5 Body screws                       |                        |

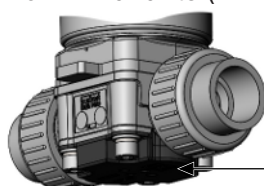
- ▶ Clamp the valve body in a holding device (only for devices which have not yet been installed).
- ▶ Loosen the body screws crosswise and remove the actuator and diaphragm from the valve body.
- ▶ Unbutton or unscrew the old diaphragm. When fastening with a bayonet catch, loosen the diaphragm by rotating it 90°. For diaphragm size  $\geq 25$ , observe additional chapter [Switching between PTFE diaphragm and EPDM diaphragm \[▶ 52\]](#).
- ▶ Ensure the correct position of the compressor (see [Compressor \[▶ 40\]](#)).  
Note: Not necessary for diaphragm size 8.

### NOTICE!

#### Damage to diaphragms with threaded connection

If the pin is live, the diaphragm may be damaged.

- ▶ First screw on the diaphragm hand-tight, then loosen it by one-half turn anticlockwise.
- ▶ Attach the new diaphragm to the compressor according to the fastening type. When fastening the diaphragm by buttoning it in, a slight twisting motion is helpful. The identification tab must be perpendicular to the flow direction.
- ▶ Place the actuator together with the diaphragm on the valve body.
- ▶ For PP variants (DN15, DN20, DN25), the specified body reinforcement is essential.



Body reinforcement

- ▶ For diaphragm size 6, ensure that the compressor ridge and the body weir lie on top of each other (see [Alignment of actuator to valve body diaphragm size 6 \[▶ 40\]](#)).

- ▶ Slightly tighten the body screws crosswise without applying pressure until the diaphragm rests between the valve body and actuator. **Do not fully tighten the screws yet.**
- ▶ Actuate the valve twice to position the diaphragm correctly.
- ▶ Pressurise the upper pilot air port with compressed air (value as indicated on the type label): valve closes.
- ▶ With pressure, tighten the body screws in three stages (approx. 1/3, then 2/3 and then full tightening torque, as specified in the following table), in each case crosswise. The diaphragm should be positioned and pressed evenly all around the actuator and valve body.

| Diaphragm size | Tightening torques [Nm] (tolerance: +10 %) |                             |                      |                             |
|----------------|--------------------------------------------|-----------------------------|----------------------|-----------------------------|
|                | all bodies except tube valve bodies (VP)   |                             | Tube valve body (VP) |                             |
|                | EPDM, FKM                                  | PTFE, advanced PTFE, GYLON® | EPDM, FKM            | PTFE, advanced PTFE, GYLON® |
| 6              | 1.1                                        | 1.1                         | –                    | –                           |
| 8              | 2                                          | 2.5                         | 2                    | 2.5                         |
| 15             | 3.5                                        | 4                           | 3.5                  | 4                           |
| 20             | 4                                          | 4.5                         | 4                    | 4.5                         |
| 25             | 5                                          | 6                           | 7                    | 8                           |
| 32             | 6                                          | 8                           | 8                    | 10                          |
| 40             | 8                                          | 10                          | 12                   | 15                          |
| 50             | 12                                         | 15                          | 15                   | 20                          |
| 65             | 20                                         | 30                          | 20                   | 30                          |
| 80             | 30                                         | 40                          | 30                   | 40                          |
| 100            | 40                                         | 50                          | –                    | –                           |

Tab. 13: Tightening torques for body connection

### 10.1.3 Switching between PTFE diaphragm and EPDM diaphragm

| Diaphragm size | Diaphragm material                      |                                               |
|----------------|-----------------------------------------|-----------------------------------------------|
|                | PTFE and advanced PTFE                  | EPDM, FKM and GYLON®                          |
| ≤8             | Diaphragm fastening using buttons       |                                               |
| 15, 20         | Diaphragm fastening using bayonet catch |                                               |
| ≥25            | Diaphragm fastening using bayonet catch | Diaphragm fastening using threaded connection |

Tab. 14: Types of diaphragm fastening

#### 10.1.3.1 Replacement for diaphragm size ≤8

- Unbutton the diaphragm and button on the new diaphragm by turning it slightly.

#### 10.1.3.2 Replacement for diaphragm sizes 15 and 20

- Loosen the bayonet diaphragm by turning it 90°, insert the new diaphragm and turn it 90° to secure it.

#### 10.1.3.3 Replacement for diaphragm sizes ≥25

##### Switching from PTFE diaphragm to EPDM diaphragm



1 Insert

2 Compressor

3 Compressor with installed insert

- Loosen the PTFE diaphragm by turning it 90°.
- Place the insert into the compressor.
- Screw in the EPDM diaphragm.

#### NOTICE!

##### Damage to diaphragms with threaded connection

If the pin is live, the diaphragm may be damaged.

- First screw on the diaphragm hand-tight, then loosen it by one-half turn anticlockwise.

## Switching from EPDM diaphragm to PTFE diaphragm

### NOTICE!

#### Damage to diaphragm with bayonet connection

If the insert is not removed from the compressor on diaphragms with a bayonet connection, the diaphragm and valve body may be severely damaged.

- ▶ Unscrew the EPDM diaphragm.
- ▶ Remove the insert from the compressor.
- ▶ Insert the PTFE diaphragm and turn it 90° to secure it.

## 10.2 Changing the seal set



### DANGER!

Risk of injury from sudden discharge of pressure and escaping medium

Disassembling a pressurised device can cause medium to escape unexpectedly or a sudden discharge of pressure. This can cause serious injuries.

- ▶ Before disassembly, shut off the pressure and vent all lines.
- ▶ Completely drain the lines.
- ▶ During reinstallation, check the tightening torque of the body screws.



### WARNING!

Risk of injury when unscrewing the transparent cap

If the transparent cap is pressurised when it is unscrewed, it can cause serious injuries due to high force and speed and an uncontrolled trajectory.

- ▶ Before unscrewing the transparent cap, ensure that the upper piston chamber is depressurised.



### CAUTION!

Risk of injury from parts being ejected.

When opening the actuator, parts may jump out due to the tensioned spring.

- ▶ Open the actuator carefully.

The valve must be completely disassembled to replace all seals.

### 10.2.1 Required spare parts and tools

- Seal set [▶ 73]
- Installation wrench for actuator cover [▶ 77]
- Allen key or slotted screwdriver, open-end wrench
- Grease: Silicone grease OKS 1110-1
- Screw lock LOCTITE 274

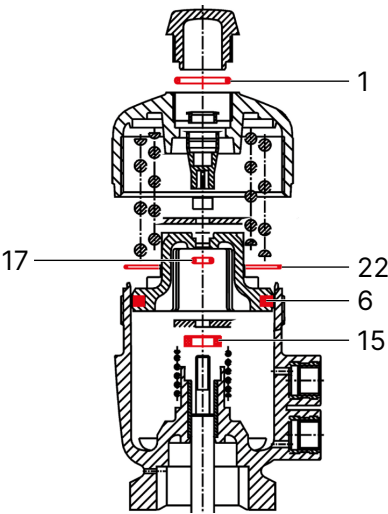
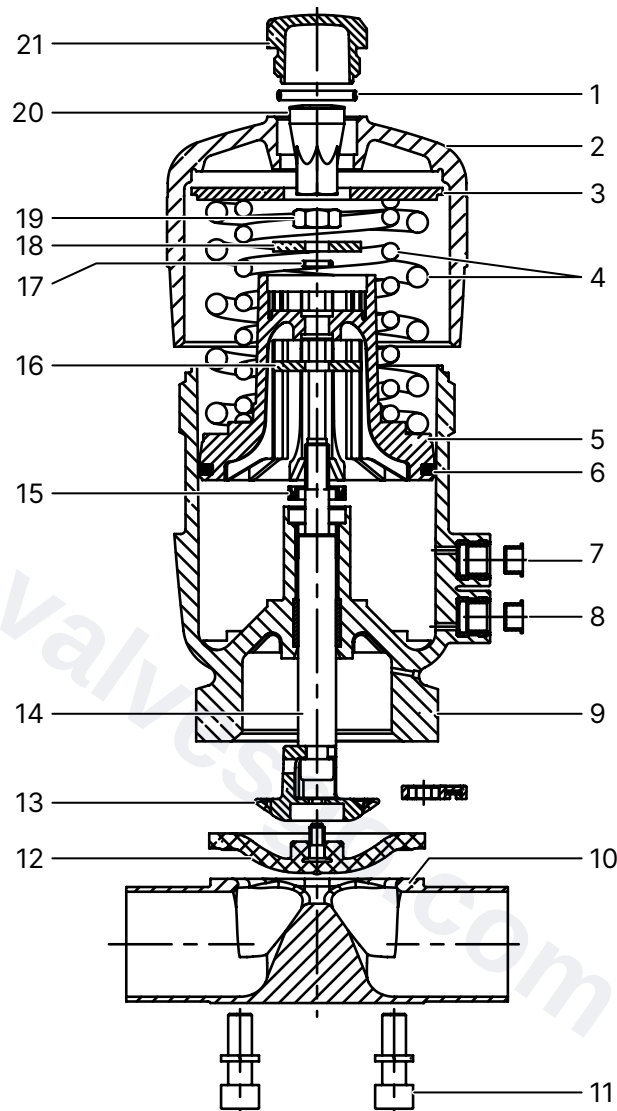


Fig. 29: Seal set components

|               |             |
|---------------|-------------|
| 1 O-Ring      | 22 O-Ring   |
| 6 Piston seal | 15 Lip seal |
| 17 O-Ring     |             |

## 10.2.2 Control function A: Changing the seal set



|                           |                        |
|---------------------------|------------------------|
| 1 O-Ring                  | 2 Actuator cover       |
| 3 Washer                  | 4 Compression springs  |
| 5 Piston                  | 6 Piston seal          |
| 7 Pilot air port above    | 8 Pilot air port below |
| 9 Actuator housing square | 10 Valve body          |
| 11 Body screw             | 12 Diaphragm           |
| 13 Compressor             | 14 Spindle             |
| 15 Lip seal               | 16 Intermediate washer |
| 17 O-Ring                 | 18 Supporting washer   |
| 19 Nut                    | 20 Position indicator  |
| 21 Transparent cap        |                        |

- Clamp the valve body (10) in a holding device (only for valves which have not been installed).



- ▶ Pressurise the lower pilot air port (8) with compressed air (value as indicated on the type label): valve opens.
- ▶ Loosen the body screws (11) crosswise and remove the actuator and diaphragm from the valve body.
- ▶ Switch off the pilot pressure.
- ▶ Unbutton or unscrew the diaphragm (12). When fastening with a bayonet catch, loosen the diaphragm by rotating it 90°.
- ▶ Clamp the actuator at the square of the actuator housing (9).
- ▶ Unscrew the transparent cap (21) along with the O-ring (1) from the actuator cover (2).
- ▶ Unscrew the actuator cover (2) using an installation wrench.
- ▶ **Only for actuator sizes 100 (G) and 125 (H):** Remove the washer (3).
- ▶ Remove the compression springs (4).
- ▶ Uninstall the position indicator (20) using an Allen key.
- ▶ Remove the nut (19), holding it against the lower end of the spindle (14) with an Allen key or slotted screwdriver.
- ▶ Push the spindle (14) and compressor (13) down and out.
- ▶ Carefully push out the piston (5) and supporting washer (18) upwards from below.
- ▶ Remove the intermediate washer (16) and O-ring (17) from the piston (5).
- ▶ Remove the piston seal (6) from the piston (5) and clean the piston.
- ▶ **For actuator size 125 (H):** Carefully push the lock washer out over the lip seal (15).
- ▶ Carefully remove the lip seal (15) from the actuator housing.
- ▶ **CAUTION! Do not damage the sealing surface on the actuator housing.**
- ▶ Clean grease and dirt off all internal parts.
- ▶ Lightly coat the actuator housing with OKS 1110-1 silicone grease.
- ▶ Lightly coat the valve seat for the lip seal and spindle guide in the actuator housing with OKS 1110-1 silicone grease.
- ▶ Insert the new lip seal (15) into the actuator housing.
- ▶ **For actuator size 125 (H):** Press in the lock washer.
- ▶ Lightly coat the spindle with OKS 1110-1 silicone grease.
- ▶ Insert the spindle (14) and compressor (13) into the actuator housing from below as far as they will go.
- ▶ **CAUTION! Keep the diaphragm and diaphragm contact point free of grease.**
- ▶ Clamp the actuator at the square of the actuator housing (9).
- ▶ Slide the intermediate washer (16) onto the spindle (14) as far as it will go.
- ▶ Lightly coat the groove base on the piston (5) with OKS 1110-1 silicone grease.
- ▶ Insert the new piston seal (6) and O-ring (17) into the piston (5).
- ▶ Install the piston (5) in the actuator housing.
- ▶ Slide the supporting washer (18) over the spindle (14).
- ▶ Apply LOCTITE 274 screw lock to the spindle thread.

- ▶ Tighten the nut (19), holding it against the lower end of the spindle (14) with an Allen key or slotted screwdriver. Observe the tightening torques for the nut specified in the table below.

| Actuator size    | Tightening torque [Nm] |
|------------------|------------------------|
| 40 (C)           | 3.5                    |
| 50 (D), 63 (E)   | 5.0                    |
| 80 (F)           | 10.0                   |
| 100 (G), 125 (H) | 20.0                   |

Tab. 15: Tightening torques for the nut

- ▶ Install the position indicator (20) using an Allen key. Tightening torque approx. 1.5 Nm.
- ▶ Insert the compression springs (4).
- ▶ For actuator sizes 100 (G) and 125 (H): Place the washer (3).
- ▶ Insert the new O-ring (1) into the actuator cover.
- ▶ Lightly coat the threads of the actuator cover with OKS 1110-1 silicone grease.
- ▶ Screw the actuator cover onto the actuator housing using an installation wrench. Observe the tightening torques for the actuator cover specified in the table.

| Actuator size | Tightening torque [Nm] |
|---------------|------------------------|
| 40 (C)        | 25                     |
| 50 (D)        | 35                     |
| 63 (E)        | 40                     |
| 80 (F)        | 60                     |
| 100 (G)       | 80                     |
| 125 (H)       | 110                    |

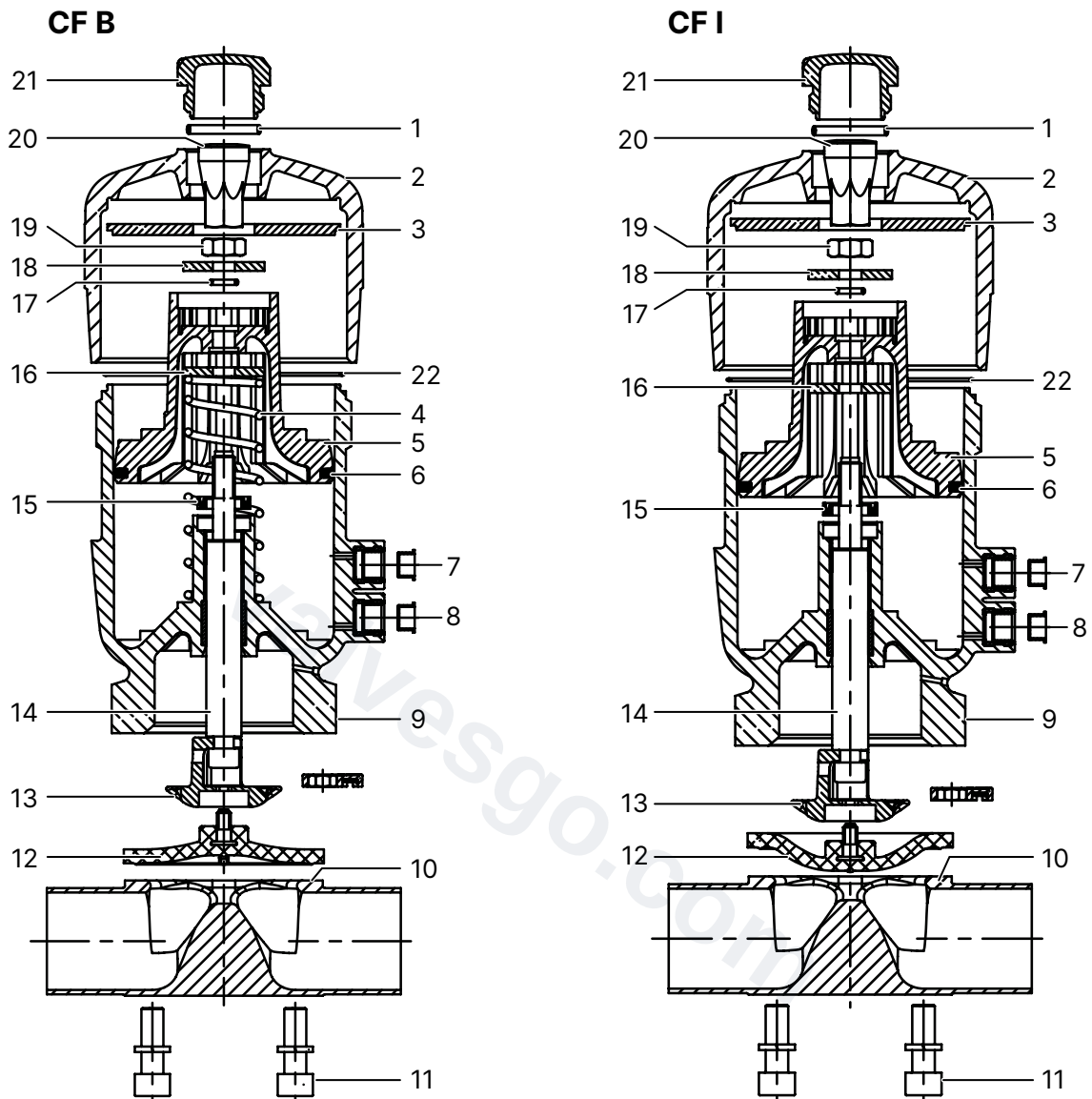
Tab. 16: Tightening torques for the actuator cover

- ▶ Screw in the transparent cap (19). Tightening torque approx. 1.5 Nm.
- ▶ Install the diaphragm (12) according to the fastening type. The identification tab must be perpendicular to the flow direction.
- ▶ Clamp the valve body (10) in a holding device (only for valves which have not been installed).
- ▶ Pressurise the lower pilot air port (8) with compressed air (value as indicated on the type label): valve opens.
- ▶ Place the actuator together with the diaphragm on the valve body.
- ▶ Slightly tighten the body screws (11) crosswise until the diaphragm rests between the valve body and the actuator. **Do not fully tighten the screws yet.**
- ▶ Actuate the valve twice to position the diaphragm correctly.
- ▶ Switch off the pilot pressure.
- ▶ Without applying pressure, tighten the body screws in three stages (approx. 1/3, then 2/3 and then full tightening torque, as specified in the following table), in each case crosswise. The diaphragm should be positioned and pressed evenly all around the actuator and valve body.

| Diaphragm size | Tightening torques [Nm] (tolerance: +10 %) |                             |                      |                             |
|----------------|--------------------------------------------|-----------------------------|----------------------|-----------------------------|
|                | all bodies except tube valve bodies (VP)   |                             | Tube valve body (VP) |                             |
|                | EPDM, FKM                                  | PTFE, advanced PTFE, GYLON® | EPDM, FKM            | PTFE, advanced PTFE, GYLON® |
| 6              | 1.1                                        | 1.1                         | –                    | –                           |
| 8              | 2                                          | 2.5                         | 2                    | 2.5                         |
| 15             | 3.5                                        | 4                           | 3.5                  | 4                           |
| 20             | 4                                          | 4.5                         | 4                    | 4.5                         |
| 25             | 5                                          | 6                           | 7                    | 8                           |
| 32             | 6                                          | 8                           | 8                    | 10                          |
| 40             | 8                                          | 10                          | 12                   | 15                          |
| 50             | 12                                         | 15                          | 15                   | 20                          |
| 65             | 20                                         | 30                          | 20                   | 30                          |
| 80             | 30                                         | 40                          | 30                   | 40                          |
| 100            | 40                                         | 50                          | –                    | –                           |

Tab. 17: Tightening torques for body connection

### 10.2.3 Control functions B and I: Changing the seal set



|                           |                        |
|---------------------------|------------------------|
| 1 O-Ring                  | 2 Actuator cover       |
| 3 Washer                  | 4 Compression spring   |
| 5 Piston                  | 6 Piston seal          |
| 7 Pilot air port above    | 8 Pilot air port below |
| 9 Actuator housing square | 10 Valve body          |
| 11 Body screw             | 12 Diaphragm           |
| 13 Compressor             | 14 Spindle             |
| 15 Lip seal               | 16 Intermediate washer |
| 17 O-Ring                 | 18 Supporting washer   |
| 19 Nut                    | 20 Position indicator  |
| 21 Transparent cap        | 22 O-Ring              |

► Clamp the valve body (10) in a holding device (only for valves which have not been installed).

- ▶ Loosen the body screws (11) crosswise and remove the actuator and diaphragm from the valve body.
- ▶ Unbutton or unscrew the diaphragm (12). When fastening with a bayonet catch, loosen the diaphragm by rotating it 90°.
- ▶ Clamp the actuator at the square of the actuator housing (9).
- ▶ Unscrew the transparent cap (21) along with the O-ring (1) from the actuator cover (2).
- ▶ Unscrew the actuator cover (2) using an installation wrench.
- ▶ Only for actuator sizes 100 (G) and 125 (H): Remove the washer (3).
- ▶ Uninstall the position indicator (20) using an Allen key.



### WARNING!

#### Control function B: Risk of injury when opening the actuator housing

There is a tensioned spring in the actuator. When opening the actuator housing, the spring may spring out and cause injuries.

- ▶ Carefully open the actuator housing and hold it in such a way that any parts that come out cannot injure people or cause damage.
- ▶ Remove the nut (19), holding it against the lower end of the spindle (14) with an Allen key or slotted screwdriver.
- ▶ Carefully remove the piston (5) and supporting washer (18).
- ▶ Remove the intermediate washer (16) and O-ring (17).
- ▶ For control function B: Remove the compression spring (4).
- ▶ Push the spindle (14) and compressor (13) down and out.
- ▶ For actuator size 125 (H): Carefully push the lock washer out over the lip seal (15).
- ▶ Carefully remove the lip seal (15) from the actuator housing.
- ▶ **CAUTION! Do not damage the sealing surface on the actuator housing.**
- ▶ Clean grease and dirt off all internal parts.
- ▶ Lightly coat the actuator housing with OKS 1110-1 silicone grease.
- ▶ Lightly coat the valve seat for the lip seal and spindle guide in the actuator housing with OKS 1110-1 silicone grease.
- ▶ Insert the new lip seal (15) into the actuator housing.
- ▶ For actuator size 125 (H): Press in the lock washer.
- ▶ Lightly coat the spindle with OKS 1110-1 silicone grease.
- ▶ Insert the spindle (14) and compressor (13) into the actuator housing from below as far as they will go.
- ▶ **CAUTION! Keep the diaphragm and diaphragm contact point free of grease.**
- ▶ Clamp the actuator at the square of the actuator housing (9).
- ▶ For control function B: Insert the compression spring (4).
- ▶ For control function I: Do not insert a compression spring.
- ▶ Slide the intermediate washer (16) onto the spindle (14) as far as it will go.
- ▶ Remove the piston seal (6) from the piston (5) and clean the piston.
- ▶ Lightly coat the groove base on the piston (5) with OKS 1110-1 silicone grease.

- ▶ Insert the new piston seal (6) and O-ring (17) into the piston (5).
- ▶ For control function B: Install the piston (5) in the actuator housing with the spring preloaded. To do this, press in the compression spring (4) and piston by hand until the spindle thread protrudes through the hole. Hold this position.
- ▶ Slide the supporting washer (18) over the spindle (14) as far as it will go.
- ▶ Apply LOCTITE 274 screw lock to the spindle thread.
- ▶ Tighten the nut (19), holding it against the lower end of the spindle (14) with an Allen key or slotted screwdriver. Observe the tightening torques for the nut specified in the table below.

| Actuator size    | Tightening torque [Nm] |
|------------------|------------------------|
| 40 (C)           | 3.5                    |
| 50 (D), 63 (E)   | 5.0                    |
| 80 (F)           | 10.0                   |
| 100 (G), 125 (H) | 20.0                   |

Tab. 18: Tightening torques for the nut

- ▶ For actuator sizes 100 (G) and 125 (H): Place the washer (3).
- ▶ Insert the new O-ring (22).
- ▶ Insert the new O-ring (1) into the actuator cover (2).
- ▶ Lightly coat the threads of the actuator cover with OKS 1110-1 silicone grease.
- ▶ Screw the actuator cover onto the actuator housing using an installation wrench. Observe the tightening torques for the actuator cover specified in the table.

| Actuator size | Tightening torque [Nm] |
|---------------|------------------------|
| 40 (C)        | 25                     |
| 50 (D)        | 35                     |
| 63 (E)        | 40                     |
| 80 (F)        | 60                     |
| 100 (G)       | 80                     |
| 125 (H)       | 110                    |

Tab. 19: Tightening torques for the actuator cover

- ▶ Install the position indicator (20) using an Allen key. Tightening torque approx. 1.5 Nm.
- ▶ Screw in the transparent cap (19). Tightening torque approx. 1.5 Nm.
- ▶ Install the diaphragm (12) according to the fastening type. The identification tab must be perpendicular to the flow direction.
- ▶ Clamp the valve body (10) in a holding device (only for valves which have not been installed).
- ▶ Place the actuator together with the diaphragm on the valve body.
- ▶ Slightly tighten the body screws (11) crosswise without applying pressure until the diaphragm rests between the valve body and actuator. **Do not fully tighten the screws yet.**
- ▶ Actuate the valve twice to position the diaphragm correctly.

- ▶ Pressurise the upper pilot air port (7) with compressed air (value as indicated on the type label): valve closes.
- ▶ Applying pressure, tighten the body screws (11) in three stages (approx. 1/3, then 2/3 and then full tightening torque, as specified in the following table), in each case crosswise. The diaphragm should be positioned and pressed evenly all around the actuator and valve body.
- ▶ Switch off the pilot pressure.

| Diaphragm size | Tightening torques [Nm] (tolerance: +10 %) |                             |                      |                             |
|----------------|--------------------------------------------|-----------------------------|----------------------|-----------------------------|
|                | all bodies except tube valve bodies (VP)   |                             | Tube valve body (VP) |                             |
|                | EPDM, FKM                                  | PTFE, advanced PTFE, GYLON® | EPDM, FKM            | PTFE, advanced PTFE, GYLON® |
| 6              | 1.1                                        | 1.1                         | –                    | –                           |
| 8              | 2                                          | 2.5                         | 2                    | 2.5                         |
| 15             | 3.5                                        | 4                           | 3.5                  | 4                           |
| 20             | 4                                          | 4.5                         | 4                    | 4.5                         |
| 25             | 5                                          | 6                           | 7                    | 8                           |
| 32             | 6                                          | 8                           | 8                    | 10                          |
| 40             | 8                                          | 10                          | 12                   | 15                          |
| 50             | 12                                         | 15                          | 15                   | 20                          |
| 65             | 20                                         | 30                          | 20                   | 30                          |
| 80             | 30                                         | 40                          | 30                   | 40                          |
| 100            | 40                                         | 50                          | –                    | –                           |

Tab. 20: Tightening torques for body connection

## 10.3 Converting the control function

### **! DANGER!**

Risk of injury from sudden discharge of pressure and escaping medium

Disassembling a pressurised device can cause medium to escape unexpectedly or a sudden discharge of pressure. This can cause serious injuries.

- ▶ Before disassembly, shut off the pressure and vent all lines.
- ▶ Completely drain the lines.
- ▶ During reinstallation, check the tightening torque of the body screws.

### **! WARNING!**

Risk of injury when unscrewing the transparent cap

If the transparent cap is pressurised when it is unscrewed, it can cause serious injuries due to high force and speed and an uncontrolled trajectory.

- ▶ Before unscrewing the transparent cap, ensure that the upper piston chamber is depressurised.

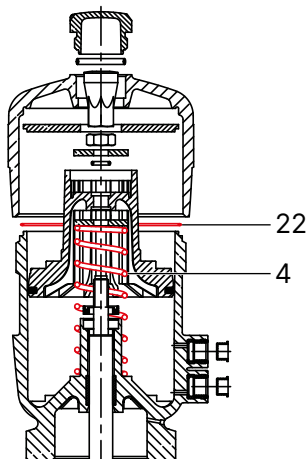
This chapter describes how to convert the control function from A to B and from A to I for the following actuator sizes: 40 (C), 50 (D), 63 (E), 80 (F), 100 (G) and 125 (H).

### 10.3.1 Required spare parts and tools

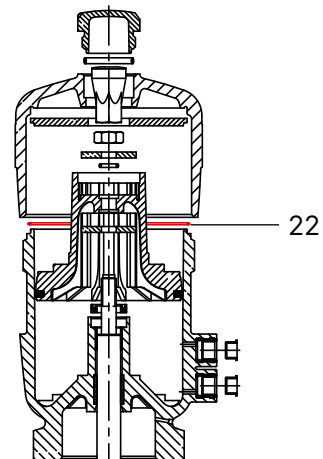
- **Conversion kit** [▶ 76]
- **Installation wrench for actuator cover** [▶ 77]
- Allen key or slotted screwdriver, open-end wrench
- Grease: Silicone grease OKS 1110-1
- Screw lock LOCTITE 274

Conversion kit components:

Conversion from CF A to CF B



Conversion from CF A to CF I

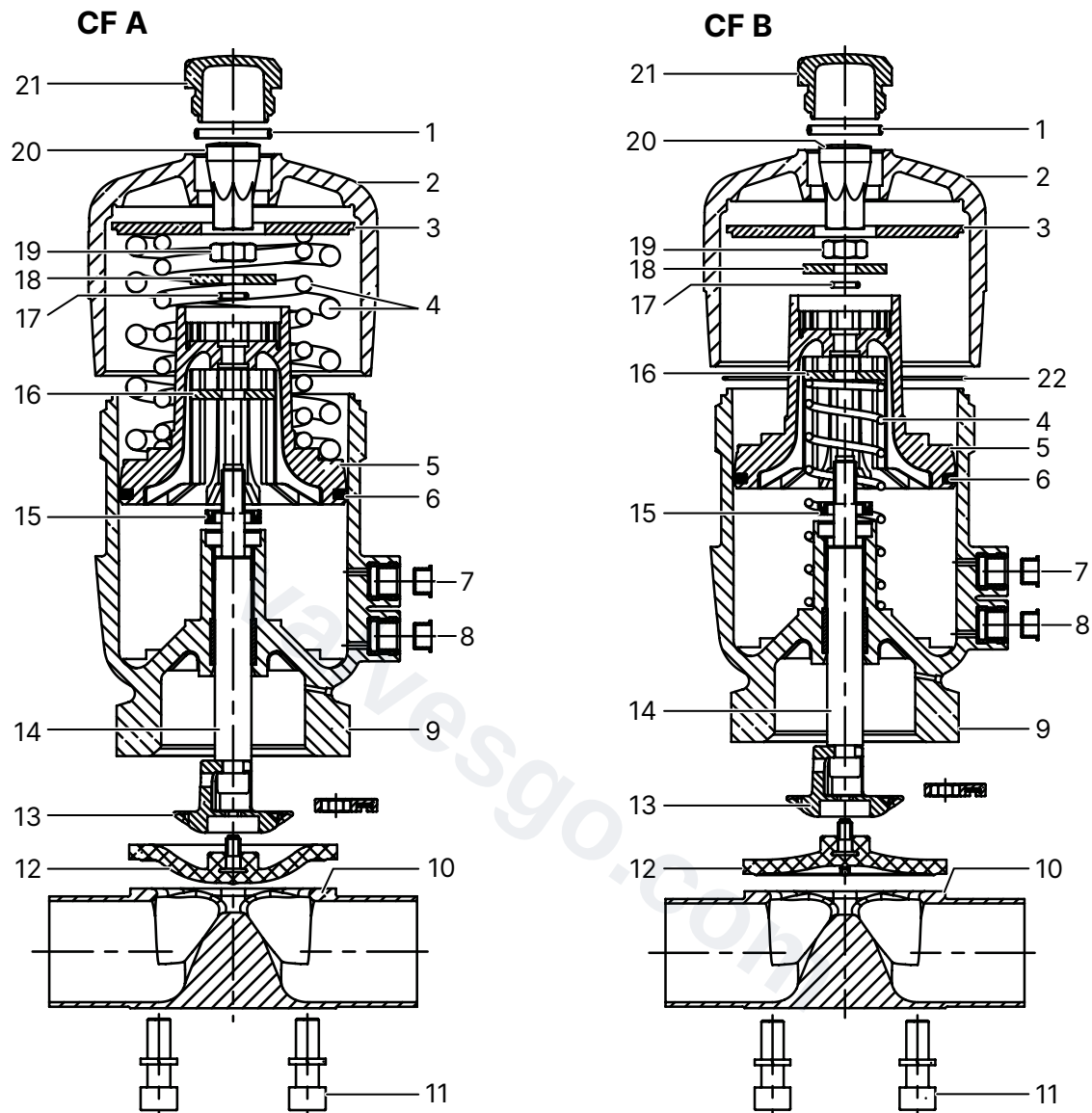


22 O-Ring

4 Compression spring



### 10.3.2 Converting control function A to control function B



|                           |                        |
|---------------------------|------------------------|
| 1 O-Ring                  | 2 Actuator cover       |
| 3 Washer                  | 4 Compression springs  |
| 5 Piston                  | 6 Piston seal          |
| 7 Pilot air port above    | 8 Pilot air port below |
| 9 Actuator housing square | 10 Valve body          |
| 11 Body screw             | 12 Diaphragm           |
| 13 Compressor             | 14 Spindle             |
| 15 Lip seal               | 16 Intermediate washer |
| 17 O-Ring                 | 18 Supporting washer   |
| 19 Nut                    | 20 Position indicator  |
| 21 Transparent cap        | 22 O-ring              |

- Clamp the valve body (10) in a holding device (only for valves which have not been installed).

- ▶ Pressurise the lower pilot air port (8) with compressed air (value as indicated on the type label): valve opens.
- ▶ Loosen the body screws (11) crosswise and remove the actuator and diaphragm from the valve body.
- ▶ Switch off the pilot pressure.
- ▶ Unbutton or unscrew the diaphragm (12). When fastening with a bayonet catch, loosen the diaphragm by rotating it 90°.
- ▶ Clamp the actuator at the square of the actuator housing (9).
- ▶ Unscrew the actuator cover (2) using an installation wrench.
- ▶ **Only for actuator sizes 100 (G) and 125 (H):** Remove the washer (3).
- ▶ Remove the compression springs (4).
- ▶ Uninstall the position indicator (20) using an Allen key.
- ▶ Remove the nut (19), holding it against the lower end of the spindle (14) with an Allen key or slotted screwdriver.
- ▶ Carefully push out the piston (5) and supporting washer (18) upwards from below.  
**CAUTION! Do not damage the sealing surface on the actuator housing.**
- ▶ Remove the intermediate washer (16) and O-ring (17) from the piston (5).
- ▶ Lightly coat the actuator housing with OKS 1110-1 silicone grease.
- ▶ Insert the compression spring (4).
- ▶ Slide the intermediate washer (16) and O-ring (17) onto the spindle (14) as far as it will go.
- ▶ Install the piston (5) in the actuator housing with the spring preloaded. To do this, press in the compression spring (4) and piston by hand until the spindle thread protrudes through the hole. Hold this position (use the removed compression spring to push in the piston if necessary).
- ▶ Slide the supporting washer (18) over the spindle (14) as far as it will go.
- ▶ Apply LOCTITE 274 screw lock to the spindle thread.
- ▶ Install the nut (19) and relax the compression spring against the nut.
- ▶ Tighten the nut (19), holding it against the lower end of the spindle (14) with an Allen key or slotted screwdriver. Observe the tightening torques for the nut specified in the table below.

| Actuator size    | Tightening torque [Nm] |
|------------------|------------------------|
| 40 (C)           | 3.5                    |
| 50 (D), 63 (E)   | 5.0                    |
| 80 (F)           | 10.0                   |
| 100 (G), 125 (H) | 20.0                   |

Tab. 21: Tightening torques for the nut

- ▶ Install the position indicator (20) using an Allen key. Tightening torque approx. 1.5 Nm.
- ▶ **For actuator sizes 100 (G) and 125 (H):** Place the washer (3).
- ▶ Insert the O-ring (22) into the groove of the actuator housing.
- ▶ Lightly coat the threads of the actuator cover with OKS 1110-1 silicone grease.
- ▶ Screw the actuator cover onto the actuator housing using an installation wrench. Observe the tightening torques for the actuator cover specified in the table.

| Actuator size | Tightening torque [Nm] |
|---------------|------------------------|
| 40 (C)        | 25                     |
| 50 (D)        | 35                     |
| 63 (E)        | 40                     |
| 80 (F)        | 60                     |
| 100 (G)       | 80                     |
| 125 (H)       | 110                    |

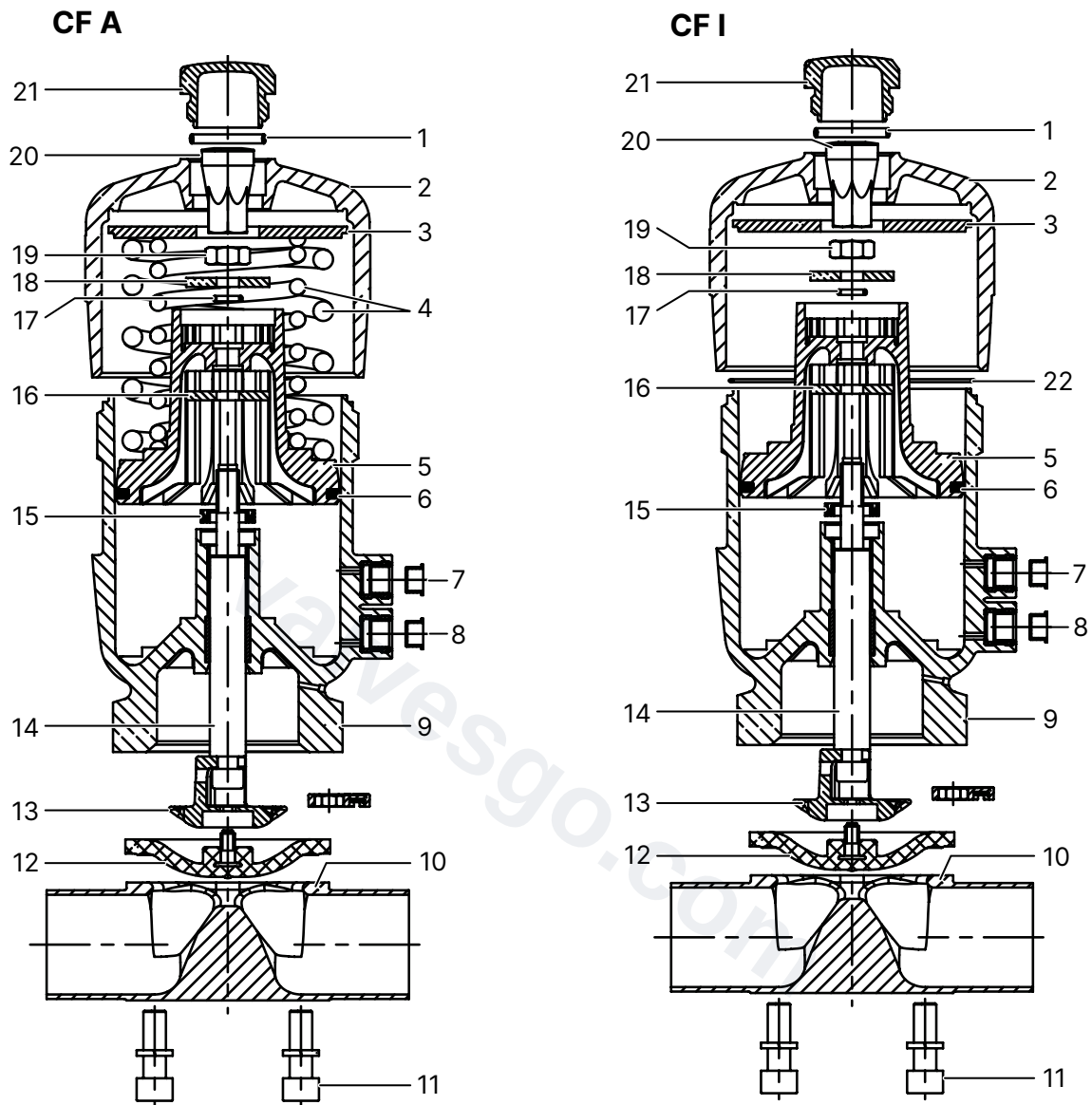
Tab. 22: Tightening torques for the actuator cover

- ▶ Install the diaphragm (12) according to the fastening type. The identification tab must be perpendicular to the flow direction.
- ▶ Clamp the valve body (10) in a holding device (only for valves which have not been installed).
- ▶ Place the actuator together with the diaphragm on the valve body.
- ▶ Slightly tighten the body screws (11) crosswise without applying pressure until the diaphragm rests between the valve body and actuator. **Do not fully tighten the screws yet.**
- ▶ Actuate the valve twice to position the diaphragm correctly.
- ▶ Pressurise the upper pilot air port (7) with compressed air (value as indicated on the type label): valve closes.
- ▶ Applying pressure, tighten the body screws (11) in three stages (approx. 1/3, then 2/3 and then full tightening torque, as specified in the following table), in each case crosswise. The diaphragm should be positioned and pressed evenly all around the actuator and valve body.
- ▶ Switch off the pilot pressure.

| Diaphragm size | Tightening torques [Nm] (tolerance: +10 %) |                             |                      |                             |
|----------------|--------------------------------------------|-----------------------------|----------------------|-----------------------------|
|                | all bodies except tube valve bodies (VP)   |                             | Tube valve body (VP) |                             |
|                | EPDM, FKM                                  | PTFE, advanced PTFE, GYLON® | EPDM, FKM            | PTFE, advanced PTFE, GYLON® |
| 6              | 1.1                                        | 1.1                         | –                    | –                           |
| 8              | 2                                          | 2.5                         | 2                    | 2.5                         |
| 15             | 3.5                                        | 4                           | 3.5                  | 4                           |
| 20             | 4                                          | 4.5                         | 4                    | 4.5                         |
| 25             | 5                                          | 6                           | 7                    | 8                           |
| 32             | 6                                          | 8                           | 8                    | 10                          |
| 40             | 8                                          | 10                          | 12                   | 15                          |
| 50             | 12                                         | 15                          | 15                   | 20                          |
| 65             | 20                                         | 30                          | 20                   | 30                          |
| 80             | 30                                         | 40                          | 30                   | 40                          |
| 100            | 40                                         | 50                          | –                    | –                           |

Tab. 23: Tightening torques for body connection

### 10.3.3 Converting control function A to control function I



|                           |                        |
|---------------------------|------------------------|
| 1 O-Ring                  | 2 Actuator cover       |
| 3 Washer                  | 4 Compression springs  |
| 5 Piston                  | 6 Piston seal          |
| 7 Pilot air port above    | 8 Pilot air port below |
| 9 Actuator housing square | 10 Valve body          |
| 11 Body screw             | 12 Diaphragm           |
| 13 Compressor             | 14 Spindle             |
| 15 Lip seal               | 16 Intermediate washer |
| 17 O-Ring                 | 18 Supporting washer   |
| 19 Nut                    | 20 Position indicator  |
| 21 Transparent cap        | 22 O-ring              |

► Clamp the valve body (10) in a holding device (only for valves which have not been installed).

- ▶ Pressurise the lower pilot air port (8) with compressed air (value as indicated on the type label): valve opens.
- ▶ Loosen the body screws (11) crosswise and remove the actuator and diaphragm from the valve body.
- ▶ Switch off the pilot pressure.
- ▶ Unbutton or unscrew the diaphragm (12). When fastening with a bayonet catch, loosen the diaphragm by rotating it 90°.
- ▶ Clamp the actuator at the square of the actuator housing (9).
- ▶ Unscrew the actuator cover (2) using an installation wrench.
- ▶ **Only for actuator sizes 100 (G) and 125 (H):** Remove the washer (3).
- ▶ Remove the compression springs (4).
- ▶ Uninstall the position indicator (20) using an Allen key.
- ▶ Remove the nut (19), holding it against the lower end of the spindle (14) with an Allen key or slotted screwdriver.
- ▶ Carefully push out the piston (5) and supporting washer (18) upwards from below.  
**CAUTION! Do not damage the sealing surface on the actuator housing.**
- ▶ Remove the intermediate washer (16) and O-ring (17) from the piston (5).
- ▶ Lightly coat the actuator housing with OKS 1110-1 silicone grease.
- ▶ Slide the intermediate washer (16) and O-ring (17) onto the spindle (14) as far as it will go.
- ▶ Insert the piston (5) into the actuator housing and slide it over the spindle thread.
- ▶ Slide the supporting washer (18) over the spindle (14) as far as it will go.
- ▶ Apply LOCTITE 274 screw lock to the spindle thread.
- ▶ Tighten the nut (19), holding it against the lower end of the spindle (14) with an Allen key or slotted screwdriver. Observe the tightening torques for the nut specified in the table below.

| Actuator size    | Tightening torque [Nm] |
|------------------|------------------------|
| 40 (C)           | 3.5                    |
| 50 (D), 63 (E)   | 5.0                    |
| 80 (F)           | 10.0                   |
| 100 (G), 125 (H) | 20.0                   |

Tab. 24: Tightening torques for the nut

- ▶ Install the position indicator (20) using an Allen key. Tightening torque approx. 1.5 Nm.
- ▶ **For actuator sizes 100 (G) and 125 (H):** Place the washer (3).
- ▶ Insert the O-ring (22) into the groove of the actuator housing.
- ▶ Lightly coat the threads of the actuator cover with OKS 1110-1 silicone grease.
- ▶ Screw the actuator cover onto the actuator housing using an installation wrench. Observe the tightening torques for the actuator cover specified in the table.

| Actuator size | Tightening torque [Nm] |
|---------------|------------------------|
| 40 (C)        | 25                     |
| 50 (D)        | 35                     |
| 63 (E)        | 40                     |
| 80 (F)        | 60                     |
| 100 (G)       | 80                     |
| 125 (H)       | 110                    |

Tab. 25: Tightening torques for the actuator cover

- ▶ Install the diaphragm (12) according to the fastening type. The identification tab must be perpendicular to the flow direction.
- ▶ Clamp the valve body (10) in a holding device (only for valves which have not been installed).
- ▶ Place the actuator together with the diaphragm on the valve body.
- ▶ Slightly tighten the body screws (11) crosswise without applying pressure until the diaphragm rests between the valve body and actuator. **Do not fully tighten the screws yet.**
- ▶ Actuate the valve twice to position the diaphragm correctly.
- ▶ Pressurise the upper pilot air port (7) with compressed air (value as indicated on the type label): valve closes.
- ▶ Applying pressure, tighten the body screws (11) in three stages (approx. 1/3, then 2/3 and then full tightening torque, as specified in the following table), in each case crosswise. The diaphragm should be positioned and pressed evenly all around the actuator and valve body.
- ▶ Switch off the pilot pressure.

| Diaphragm size | Tightening torques [Nm] (tolerance: +10 %) |                             |                      |                             |
|----------------|--------------------------------------------|-----------------------------|----------------------|-----------------------------|
|                | all bodies except tube valve bodies (VP)   |                             | Tube valve body (VP) |                             |
|                | EPDM, FKM                                  | PTFE, advanced PTFE, GYLON® | EPDM, FKM            | PTFE, advanced PTFE, GYLON® |
| 6              | 1.1                                        | 1.1                         | –                    | –                           |
| 8              | 2                                          | 2.5                         | 2                    | 2.5                         |
| 15             | 3.5                                        | 4                           | 3.5                  | 4                           |
| 20             | 4                                          | 4.5                         | 4                    | 4.5                         |
| 25             | 5                                          | 6                           | 7                    | 8                           |
| 32             | 6                                          | 8                           | 8                    | 10                          |
| 40             | 8                                          | 10                          | 12                   | 15                          |
| 50             | 12                                         | 15                          | 15                   | 20                          |
| 65             | 20                                         | 30                          | 20                   | 30                          |
| 80             | 30                                         | 40                          | 30                   | 40                          |
| 100            | 40                                         | 50                          | –                    | –                           |

Tab. 26: Tightening torques for body connection

# 11 Troubleshooting



## Service and support

- For further information, technical advice and support, contact [Bürkert service](#).

## 11.1 Actuator does not switch

| Cause                        | Solution                                                                                                                                                                                                                       |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pilot air port interchanged. | <ul style="list-style-type: none"> <li>► Connect the pilot air correctly:<br/>CF A: Lower pilot air port<br/>CF B: Upper pilot air port<br/>CF I: Lower pilot air port opens, upper pilot air port closes the valve</li> </ul> |
| Pilot pressure too low.      | <ul style="list-style-type: none"> <li>► Observe pressure data on the type label.</li> </ul>                                                                                                                                   |
| Operating pressure too high. | <ul style="list-style-type: none"> <li>► Observe pressure data on the type label.</li> </ul>                                                                                                                                   |

## 11.2 Valve is not tight

| Cause                        | Solution                                                                                     |
|------------------------------|----------------------------------------------------------------------------------------------|
| Pilot pressure too low.      | <ul style="list-style-type: none"> <li>► Observe pressure data on the type label.</li> </ul> |
| Operating pressure too high. | <ul style="list-style-type: none"> <li>► Observe pressure data on the type label.</li> </ul> |

## 11.3 Flow rate reduced

| Cause                   | Solution                                                                   |
|-------------------------|----------------------------------------------------------------------------|
| Bulging PTFE diaphragm. | <ul style="list-style-type: none"> <li>► Replace the diaphragm.</li> </ul> |

## 12 Disassembly



Risk of injury or material damage when working on the device or system.

- ▶ Read and observe the chapter **Safety** [▶ 7] before working on the device or system.



### **DANGER!**

Risk of injury from sudden discharge of pressure and escaping medium

Disassembling a pressurised device can cause medium to escape unexpectedly or a sudden discharge of pressure. This can cause serious injuries.

- ▶ Before disassembly, shut off the pressure and vent all lines.
  - ▶ Completely drain the lines.
  - ▶ During reinstallation, check the tightening torque of the body screws.
- 
- ▶ Loosen the pneumatic connection.
  - ▶ Disassemble the device.



# 13 Spare parts



Risk of injury and/or damage due to incorrect parts.

► Only use original Bürkert parts.

## 13.1 Seal set

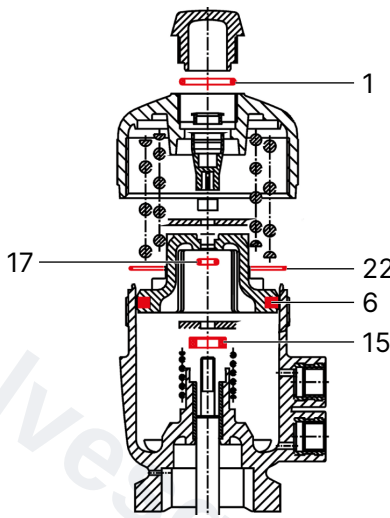


Fig. 30: Seal set components

|               |             |
|---------------|-------------|
| 1 O-Ring      | 22 O-Ring   |
| 6 Piston seal | 15 Lip seal |
| 17 O-Ring     |             |

| Actuator size | Diaphragm size | Article numbers for seal sets |             |
|---------------|----------------|-------------------------------|-------------|
|               |                | PPS actuator                  | PA actuator |
| 40 (C)        | 8              | 011465                        | –           |
| 50 (D)        | 15             | 011477                        | 011426      |
| 63 (E)        | 15, 20         | 011488                        | 011440      |
| 80 (F)        | 20, 25         | 011492                        | 011448      |
| 100 (G)       | 32, 40         | 012127                        | 012125      |
| 125 (H)       | 40, 50, 65     | 011494                        | 011464      |
| 175 (K)       | 65, 80, 100    | –                             | 181802      |
| 225 (L)       | 80, 100        | –                             | 186775      |

Tab. 27: Article numbers for seal sets

MAN 1000748812 EN Version: - Status: RL (released | freigegeben) printed: 29.07.2026

## 13.2 Diaphragm

Depending on the valve type, not all of the listed diaphragm sizes are available. The sizes specified for the respective diaphragm valve are decisive.

The diaphragms are labelled with a material code that specifies it. The material code is located on the identification tab or, in the case of two-part diaphragms, on the tab of the backing diaphragm and the diaphragm shield. The material code may differ for older materials.

| Diaphragm size       | EPDM (AD <sup>9)</sup> ) |               | FKM (FF <sup>9)</sup> ) |               |
|----------------------|--------------------------|---------------|-------------------------|---------------|
|                      | Order number             | Material code | Order number            | Material code |
| 6                    | 20130838                 | EPDM E04      | –                       | –             |
| 8                    | 688421                   | EPDM E04      | 677684                  | FKM F01       |
| 15                   | 688422                   | EPDM E04      | 677685                  | FKM F01       |
| 15 BC <sup>10)</sup> | 693163                   | EPDM E04      | 693164                  | FKM F01       |
| 20                   | 688423                   | EPDM E04      | 677686                  | FKM F01       |
| 20 BC <sup>10)</sup> | 693166                   | EPDM E04      | 693167                  | FKM F01       |
| 25                   | 688424                   | EPDM E04      | 677687                  | FKM F01       |
| 32                   | 688425                   | EPDM E04      | 677688                  | FKM F01       |
| 40                   | 688426                   | EPDM E04      | 677689                  | FKM F01       |
| 50                   | 688427                   | EPDM E04      | 677690                  | FKM F01       |
| 65                   | 688428                   | EPDM E04      | 677691                  | FKM F01       |
| 80                   | 688429                   | EPDM E04      | 677692                  | FKM F01       |
| 100                  | 688430                   | EPDM E04      | 677693                  | FKM F01       |

Tab. 28: Order numbers for EPDM and FKM diaphragms

<sup>9)</sup> SAP code

<sup>10)</sup> Marking on the diaphragm

| Diaphragm size | PTFE/EPDM (EA <sup>9)</sup> ) |                       | Advanced PTFE/EPDM (EU <sup>9)</sup> ) |                       |
|----------------|-------------------------------|-----------------------|----------------------------------------|-----------------------|
|                | Order number                  | Material code         | Order number                           | Material code         |
| 6              | –                             | –                     | –                                      | –                     |
| 8              | 20093068                      | PTFE L11              | 20093078                               | PTFE L12              |
| 15             | 20093069                      | EPDM E04/<br>PTFE P05 | 20093079                               | EPDM E04/<br>PTFE P06 |
| 20             | 20093070                      | EPDM E04/<br>PTFE P05 | 20093080                               | EPDM E04/<br>PTFE P06 |
| 25             | 20093071                      | EPDM E04/<br>PTFE P05 | 20093082                               | EPDM E04/<br>PTFE P06 |
| 32             | 20093072                      | EPDM E04/<br>PTFE P05 | 20093083                               | EPDM E04/<br>PTFE P06 |
| 40             | 20093073                      | EPDM E04/<br>PTFE P05 | 20093084                               | EPDM E04/<br>PTFE P06 |
| 50             | 20093074                      | EPDM E04/<br>PTFE P05 | 20093087                               | EPDM E04/<br>PTFE P06 |
| 65             | 20093075                      | EPDM E04/<br>PTFE P05 | 20093088                               | EPDM E04/<br>PTFE P06 |
| 80             | 20093076                      | EPDM E04/<br>PTFE P05 | 20093091                               | EPDM E04/<br>PTFE P06 |
| 100            | 20093077                      | EPDM E04/<br>PTFE P05 | 20093092                               | EPDM E04/<br>PTFE P06 |

Tab. 29: Order numbers for PTFE and advanced PTFE diaphragms

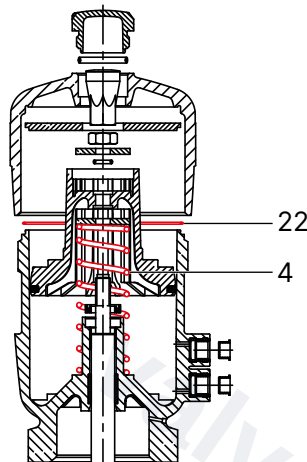
| Diaphragm size | Laminate made from Gylon® and EPDM (ER <sup>9)</sup> ) |               |
|----------------|--------------------------------------------------------|---------------|
|                | Order number                                           | Material code |
| 6              | 20130839                                               | PTFE L08      |
| 8              | 693175                                                 | PTFE L08      |
| 15             | 693176                                                 | PTFE L08      |
| 20             | 693177                                                 | PTFE L08      |
| 25             | 693178                                                 | PTFE L08      |
| 32             | 693179                                                 | PTFE L08      |
| 40             | 693180                                                 | PTFE L08      |
| 50             | 693181                                                 | PTFE L08      |
| 65             | 586616                                                 | PTFE L08      |
| 80             | 586617                                                 | PTFE L08      |
| 100            | –                                                      | –             |

Tab. 30: Article numbers for GYLON® diaphragms

# 14 Conversion kit

 Risk of injury and/or damage due to incorrect parts.  
► Only use original Bürkert parts.

Conversion from CF A to CF B



Conversion from CF A to CF I

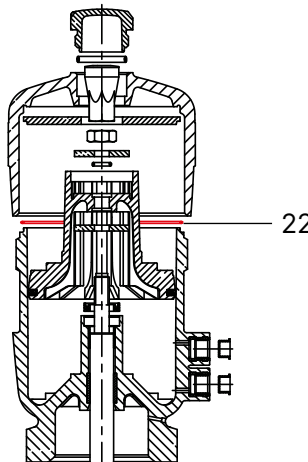


Fig. 31: Conversion kit components

| 22 O-Ring             |                | 4 Compression spring |  |
|-----------------------|----------------|----------------------|--|
| Actuator size         | Article number |                      |  |
|                       | CF A to CF B   | CF A to CF I         |  |
| 40 (C) <sup>11)</sup> | 011678         | 001948               |  |
| 50 (D)                | 011681         | 011744               |  |
| 63 (E)                | 011685         | 011766               |  |
| 80 (F)                | 011689         | 011767               |  |
| 100 (G)               | 011710         | 011795               |  |
| 125 (H)               | 011715         | 011813               |  |

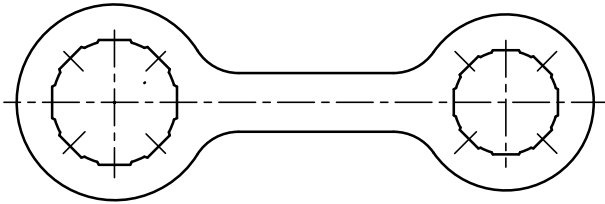
Tab. 31: Article numbers for conversion kits

<sup>11)</sup> Combined with diaphragm size 8

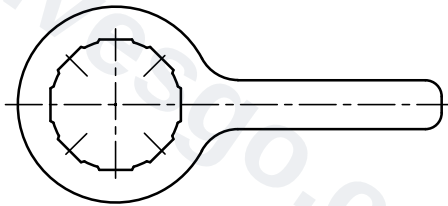
# 15 Accessories

 Risk of injury and/or damage due to incorrect parts.  
► Only use original Bürkert accessories.

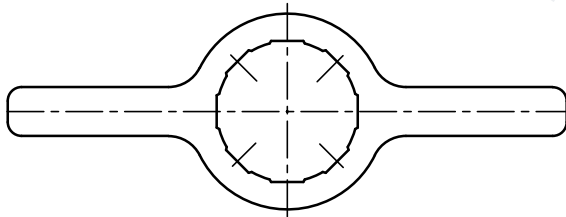
## 15.1 Installation wrench for actuator cover



| Actuator size | Ø [mm] | Article number |
|---------------|--------|----------------|
| 40 (C)        | 40     | 639175         |
| 50 (D)        | 50     | 639175         |



| Actuator size | Ø [mm] | Article number |
|---------------|--------|----------------|
| 63 (E)        | 63     | 639170         |



| Actuator size | Ø [mm] | Article number |
|---------------|--------|----------------|
| 80 (F)        | 80     | 639171         |
| 100 (G)       | 100    | 639172         |
| 125 (H)       | 125    | 639173         |

MAN 1000748812 EN Version: - Status: RL (released | freigegeben) printed: 29.07.2026

## 15.2 Additional Information

An overview of the available accessories for pneumatic actuators is included in the [data sheet Type 2XXX](#). Information on variants, possible applications and order data is listed there.

## 16 Logistics

### 16.1 Transport and storage

- ▶ Protect the device against moisture and dirt in the original packaging during transportation and storage.
- ▶ Avoid UV radiation and direct sunlight.
- ▶ Protect connections, if present, from damage with protective caps.
- ▶ Observe the permitted storage temperature.
- ▶ If the device is to be stored for a long time, loosen the body screws to avoid permanent deformation of the diaphragms due to a lack of medium pressure.
- ▶ Mark loosened screws clearly for safety reasons.



Observe the instructions in chapter [Storage of elastomer parts \[► 80\]](#).



#### **DANGER!**

##### **Risk of injury due to escaping medium**

Loosened body screws can cause medium (acid, alkali, hot media) to leak and lead to burns, including chemical burns.

- ▶ Before reinstallation, check the tightening torque of the body screws.

### 16.2 Return



No work or tests will be carried out on the device until a valid Contamination Declaration has been received.

- ▶ Before returning a used device, log in to a Bürkert account and create a return request via [My Services](#).  
Register an account before creating the request, if necessary. A return number is required for all used devices.
- ▶ Complete the Contamination Declaration and include it with the return shipment.
- ▶ Reinstall all original protective caps and plugs before shipping. This helps protect the device against contamination and transport damage.
- ▶ Pack the device securely and clearly indicate the return number on the shipment.

### 16.3 Disposal

#### **Environmentally friendly disposal**



- ▶ Follow national regulations regarding disposal and the environment.
- ▶ Collect electrical and electronic devices separately and dispose of them as special waste.

Further information at [country.burkert.com](https://country.burkert.com)

## 17 Appendix

### 17.1 Storage of elastomer parts

Elastomer parts could lose their eponymous features as storage time progresses. These changes happen based on various influencing factors such as light, heat, ozone, humidity, deformation, oxygen, oils and solvents. International standards such as DIN 7716 or ISO 2230 Basic illustrate basic instructions for correct storage.

The below mentioned information regarding storage time, under optimum conditions, are based on the above mentioned guidelines and on our experience. In principle, they should be considered when maintaining their physical and chemical properties. Correct storage is an important factor in the operating life of elastomers especially for highly stressed components (e.g. diaphragms).

- Optimal storage temperature is between + 5°C and + 25°C. The parts shouldn't be stored next to a heating element.
- Relative air humidity should be less than 65% with condensation avoided at all times.
- Parts should be stored away from all direct sunlight and artificial light with a high UV, as this will speed up the ageing process.
- All parts should be also stored in an airtight container to protect them from circulating air and other environmental influences such as Ozone for example.
- Ozone generating devices, such as electric motors, should also not be operated within storage areas.
- Elastomer parts are best stored in a relaxed and non deforming condition.
- Contact to solvents, oils, fats and other chemicals should be avoided at all times.
- No contact with rubber products of varying composition especially of varying colors.
- No contact with parts made of cooper, manganese or alloys of these metals.

Based on the above, the following is the expected life cycle for diaphragms.

| Raw Material          | Storage Period (max.) | Operating Time (max.)  |
|-----------------------|-----------------------|------------------------|
| EPDM                  | 7 years               | 3 years                |
| FKM                   | 7 years               | 4 years                |
| PTFE or advanced PTFE | 10 years              | 3 years <sup>12)</sup> |

<sup>12)</sup> Regarding PTFE diaphragm variants, the stated times of the elastomer material are crucial.



## 17.2 Self-draining angle ( $\alpha$ )

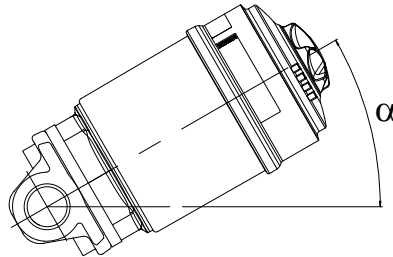


Fig. 32: Self-draining angle ( $\alpha$ )

Bürkert has determined self-draining angles for the optimum draining of diaphragm valve bodies.

- The self-draining angle ( $\alpha$ ) depends on:
  - The size of the valve body (diaphragm size)
  - The inner diameter of the port connection (nominal diameter)
- The angle is given as a value on forged steel valve bodies (VS) and tube valve bodies (VP).
- The marking for self-draining angles on the port connection serves as a guide and must point upwards.
- The actual angle must be set with a suitable measuring tool.

For optimum self-draining, the angles given in the following tables apply.



The self-draining angles of the valve bodies with a welded connection also apply to the valve bodies with a clamp connection.

The responsible Bürkert sales department must be contacted to determine self-draining angles for welded connections that are not listed in the tables.

The installer and the operator are responsible for ensuring self-draining.

## 17.2.1 Forged steel valve body Type KB04 (VS/VH/VI)



For diaphragm size 15, the self-draining angle has changed due to optimisations made to the body (October 2025). Therefore, please always observe the information in the table and the engraving on the underside of the valve body during installation.

The installer and the operator are responsible for ensuring self-draining.

**Forged steel valve body,  
with welded connection as per DIN EN ISO 1127 / ISO 4200 / DIN 11866 Series B**

| Port connection code | DN  | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|-----|----------------|-----------------|----------------------------------|
| SA40                 | 8   | 6              | 13.5 x 1.6      | 20                               |
| SA40                 | 8   | 8              | 13.5 x 1.6      | 24                               |
| SA40                 | 8   | 15             | 13.5 x 1.6      | 40                               |
| SA41                 | 10  | 8              | 17.2 x 1.6      | 13                               |
| SA41                 | 10  | 15             | 17.2 x 1.6      | 29 <sup>13)</sup>                |
| SA42                 | 15  | 15             | 21.3 x 1.6      | 22 <sup>14)</sup>                |
| SA42                 | 15  | 20             | 21.3 x 1.6      | 26                               |
| SA43                 | 20  | 20             | 26.9 x 1.6      | 17                               |
| SA43                 | 20  | 25             | 26.9 x 1.6      | 26                               |
| SA44                 | 25  | 25             | 33.7 x 2.0      | 19                               |
| SA44                 | 25  | 40             | 33.7 x 2.0      | 27                               |
| SA45                 | 32  | 40             | 42.4 x 2.0      | 20                               |
| SA46                 | 40  | 40             | 48.3 x 2.0      | 14                               |
| SA47                 | 50  | 50             | 60.3 x 2.0      | 14                               |
| SA48                 | 65  | 65             | 76.1 x 2.0      | 9                                |
| SA48                 | 65  | 80             | 76.1 x 2.0      | 20                               |
| SA49                 | 80  | 80             | 88.9 x 2.3      | 15                               |
| SA39                 | 100 | 100            | 114.3 x 2.3     | 14                               |

Tab. 32: Forged steel valve body with welded connection as per DIN EN ISO 1127 / ISO 4200 / DIN 11866 Series B

<sup>13)</sup> 25° before body optimisation

<sup>14)</sup> 18° before body optimisation

**Forged steel valve body,  
with welded connection as per DIN 11850 Series 0**

| Port connection code | DN | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|----|----------------|-----------------|----------------------------------|
| SC40                 | 4  | 8              | 6.0 x 1.0       | 49                               |
| SC41                 | 6  | 8              | 8.0 x 1.0       | 44                               |
| SC42                 | 8  | 8              | 10.0 x 1.0      | 39                               |
| SC43                 | 15 | 15             | 18.0 x 1.5      | 27 <sup>15)</sup>                |
| SC44                 | 20 | 20             | 22.0 x 1.5      | 25                               |
| SC45                 | 25 | 25             | 28.0 x 1.5      | 24                               |
| SC46                 | 32 | 40             | 34.0 x 1.5      | 27                               |
| SC47                 | 40 | 40             | 40.0 x 1.5      | 21                               |
| SC48                 | 50 | 50             | 52.0 x 1.5      | 19                               |

Tab. 33: Forged steel valve body with welded connection as per DIN 11850 Series 0

**Forged steel valve body,  
with welded connection as per DIN 11850 Series 1 / DIN EN 10357 Series B**

| Port connection code | DN | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|----|----------------|-----------------|----------------------------------|
| SF40                 | 10 | 8              | 12.0 x 1.0      | 24                               |
| SF41                 | 15 | 15             | 18.0 x 1.0      | 25 <sup>16)</sup>                |
| SF42                 | 20 | 20             | 22.0 x 1.0      | 22                               |
| SF43                 | 25 | 25             | 28.0 x 1.0      | 23                               |
| SF45                 | 40 | 40             | 40.0 x 1.0      | 20                               |
| SF46                 | 50 | 50             | 52.0 x 1.0      | 18                               |

Tab. 34: Forged steel valve body with welded connection as per DIN 11850 Series 1 / DIN EN 10357 Series B

<sup>15)</sup> 23° before body optimisation

<sup>16)</sup> 22° before body optimisation

**Forged steel valve body,  
with welded connection as per DIN 11850 Series 2 / DIN 11866 Series A / DIN EN 10357 Series A**

| Port connection code | DN  | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|-----|----------------|-----------------|----------------------------------|
| SD40                 | 10  | 6              | 13.0 x 1.5      | 21                               |
| SD40                 | 10  | 8              | 13.0 x 1.5      | 24                               |
| SD40                 | 10  | 15             | 13.0 x 1.5      | 44 <sup>17)</sup>                |
| SD42                 | 15  | 15             | 19.0 x 1.5      | 25 <sup>16)</sup>                |
| SD43                 | 20  | 20             | 23.0 x 1.5      | 22                               |
| SD44                 | 25  | 25             | 29.0 x 1.5      | 23                               |
| SD45                 | 32  | 40             | 35.0 x 1.5      | 26                               |
| SD46                 | 40  | 40             | 41.0 x 1.5      | 20                               |
| SD47                 | 50  | 50             | 53.0 x 1.5      | 18                               |
| SD48                 | 65  | 65             | 70.0 x 2.0      | 13                               |
| SD48                 | 65  | 80             | 70.0 x 2.0      | 23                               |
| SD49                 | 80  | 80             | 85.0 x 2.0      | 16                               |
| SD50                 | 100 | 100            | 104.0 x 2.0     | 18                               |

Tab. 35: Forged steel valve body with welded connection as per DIN 11850 Series 2 / DIN 11866 Series A / DIN EN 10357 Series A

**Forged steel valve body,  
with welded connection as per DIN 11850 Series 3**

| Port connection code | DN | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|----|----------------|-----------------|----------------------------------|
| SE40                 | 10 | 8              | 14.0 x 2.0      | 24                               |
| SE42                 | 15 | 15             | 20.0 x 2.0      | 25 <sup>16)</sup>                |
| SE43                 | 20 | 20             | 24.0 x 2.0      | 22                               |
| SE44                 | 25 | 25             | 30.0 x 2.0      | 23                               |
| SE46                 | 40 | 40             | 42.0 x 2.0      | 20                               |
| SE47                 | 50 | 50             | 54.0 x 2.0      | 18                               |

Tab. 36: Forged steel valve body with welded connection as per DIN 11850 Series 3

17) 40° before body optimisation

**Forged steel valve body,  
with welded connection as per ASME BPE / DIN 11866 Series C**

| Port connection code | DN     | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|--------|----------------|-----------------|----------------------------------|
| SA89                 | 1/8"   | 8              | 3.17 x 0.56     | 53                               |
| SA90                 | 1/4"   | 6              | 6.35 x 0.89     | 35                               |
| SA90                 | 1/4"   | 8              | 6.35 x 0.89     | 48                               |
| SA91                 | 3/8"   | 6              | 9.53 x 0.89     | 27                               |
| SA91                 | 3/8"   | 8              | 9.53 x 0.89     | 39                               |
| SA92                 | 1/2"   | 6              | 12.7 x 1.65     | 23                               |
| SA92                 | 1/2"   | 8              | 12.7 x 1.65     | 26                               |
| SA92                 | 1/2"   | 15             | 12.7 x 1.65     | 45 <sup>18)</sup>                |
| SA93                 | 3/4"   | 15             | 19.5 x 1.65     | 26 <sup>16)</sup>                |
| SA93                 | 3/4"   | 20             | 19.5 x 1.65     | 29                               |
| SODF                 | 1"     | 25             | 25.4 x 1.65     | 27                               |
| SODH                 | 1 1/2" | 40             | 38.1 x 1.65     | 24                               |
| SODI                 | 2"     | 50             | 50.8 x 1.65     | 20                               |
| SODJ                 | 2 1/2" | 50             | 63.5 x 1.65     | 11                               |
| SODJ                 | 2 1/2" | 65             | 63.5 x 1.65     | 16                               |
| SODJ                 | 2 1/2" | 80             | 63.5 x 1.65     | 25                               |
| SODK                 | 3"     | 80             | 76.2 x 1.65     | 19                               |
| SODL                 | 4"     | 100            | 101.6 x 2.11    | 19                               |

Tab. 37: Forged steel valve body with welded connection as per ASME BPE / DIN 11866 Series C

<sup>18)</sup> 41° before body optimisation

**Forged steel valve body,  
with welded connection as per BS 4825**

| Port connection code | DN   | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|------|----------------|-----------------|----------------------------------|
| SODB                 | 1/4" | 8              | 6.35 x 1.2      | 50                               |
| SODC                 | 3/8" | 8              | 9.53 x 1.2      | 42                               |
| SODD                 | 1/2" | 8              | 12.7 x 1.2      | 24                               |
| SODD                 | 1/2" | 15             | 12.7 x 1.2      | 43 <sup>17)</sup>                |
| SODE                 | 3/4" | 20             | 19.05 x 1.2     | 28                               |

Tab. 38: Forged steel valve body with welded connection as per BS 4825

**Forged steel valve body,  
with welded connection as per SMS 3008**

| Port connection code | DN  | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|-----|----------------|-----------------|----------------------------------|
| SA60                 | 25  | 25             | 25.0 x 1.2      | 27                               |
| SA62                 | 40  | 40             | 38.0 x 1.2      | 22                               |
| SA63                 | 50  | 50             | 51.0 x 1.2      | 19                               |
| SA64                 | 65  | 65             | 63.5 x 1.6      | 16                               |
| SA65                 | 80  | 80             | 76.1 x 1.6      | 19                               |
| SA66                 | 100 | 100            | 101.6 x 2.0     | 19                               |

Tab. 39: Forged steel valve body with welded connection as per SMS 3008

## 17.2.2 Cast valve body (VG)

**Cast valve body,  
with welded connection as per DIN EN ISO 1127 / ISO 4200 / DIN 11866 Series B**

| Port connection code | DN  | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|-----|----------------|-----------------|----------------------------------|
| SA40                 | 8   | 6              | 13.5 x 1.6      | 19                               |
| SA40                 | 8   | 8              | 13.5 x 1.6      | 23                               |
| SA41                 | 10  | 8              | 17.2 x 1.6      | 14                               |
| SA42                 | 15  | 15             | 21.3 x 1.6      | 15                               |
| SA42                 | 15  | 20             | 21.3 x 1.6      | 24                               |
| SA43                 | 20  | 20             | 26.9 x 1.6      | 17                               |
| SA44                 | 25  | 25             | 33.7 x 2.0      | 19                               |
| SA45                 | 32  | 40             | 42.4 x 2.0      | 21                               |
| SA46                 | 40  | 40             | 48.3 x 2.0      | 16                               |
| SA47                 | 50  | 50             | 60.3 x 2.0      | 15                               |
| SA48                 | 65  | 65             | 76.1 x 2.0      | 9                                |
| SA48                 | 65  | 80             | 76.1 x 2.0      | 20                               |
| SA49                 | 80  | 80             | 88.9 x 2.3      | 14                               |
| SA39                 | 100 | 100            | 114.3 x 2.3     | 13                               |

Tab. 40: Cast valve body with welded connection as per DIN EN ISO 1127 / ISO 4200 / DIN 11866 Series B

**Cast valve body with welded connection as per DIN 11850 Series 0**

| Port connection code | DN | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|----|----------------|-----------------|----------------------------------|
| SC40                 | 4  | 8              | 6.0 x 1.0       | 37                               |
| SC41                 | 6  | 6              | 8.0 x 1.0       | 31                               |
| SC41                 | 6  | 8              | 8.0 x 1.0       | 32                               |
| SC42                 | 8  | 8              | 10.0 x 1.0      | 28                               |
| SC43                 | 15 | 15             | 18.0 x 1.5      | 20                               |
| SC44                 | 20 | 20             | 22.0 x 1.5      | 23                               |
| SC45                 | 25 | 25             | 28.0 x 1.5      | 25                               |
| SC46                 | 32 | 25             | 34.0 x 1.5      | 18                               |
| SC47                 | 40 | 40             | 40.0 x 1.5      | 22                               |
| SC48                 | 50 | 50             | 52.0 x 1.5      | 20                               |

Tab. 41: Cast valve body with welded connection as per DIN 11850 Series 0

| Cast valve body with welded connection as per DIN 11850 Series 1 / DIN EN 10357 Series B |    |                |                 |                                  |
|------------------------------------------------------------------------------------------|----|----------------|-----------------|----------------------------------|
| Port connection code                                                                     | DN | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
| SF40                                                                                     | 10 | 8              | 12.0 x 1.0      | 24                               |
| SF41                                                                                     | 15 | 15             | 18.0 x 1.0      | 19                               |
| SF42                                                                                     | 20 | 20             | 22.0 x 1.0      | 22                               |
| SF43                                                                                     | 25 | 25             | 28.0 x 1.0      | 23                               |
| SF45                                                                                     | 40 | 40             | 40.0 x 1.0      | 21                               |
| SF46                                                                                     | 50 | 50             | 52.0 x 1.0      | 19                               |

Tab. 42: Cast valve body with welded connection as per DIN 11850 Series 1 / DIN EN 10357 Series B

| Cast valve body,<br>with welded connection as per DIN 11850 Series 2 / DIN 11866 Series A / DIN EN 10357 Series A |     |                |                 |                                  |
|-------------------------------------------------------------------------------------------------------------------|-----|----------------|-----------------|----------------------------------|
| Port connection code                                                                                              | DN  | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
| SD40                                                                                                              | 10  | 8              | 13.0 x 1.5      | 24                               |
| SD42                                                                                                              | 15  | 15             | 19.0 x 1.5      | 19                               |
| SD43                                                                                                              | 20  | 20             | 23.0 x 1.5      | 22                               |
| SD44                                                                                                              | 25  | 25             | 29.0 x 1.5      | 23                               |
| SD46                                                                                                              | 40  | 40             | 41.0 x 1.5      | 21                               |
| SD47                                                                                                              | 50  | 50             | 53.0 x 1.5      | 19                               |
| SD48                                                                                                              | 65  | 65             | 70.0 x 2.0      | 13                               |
| SD49                                                                                                              | 80  | 80             | 85.0 x 2.0      | 14                               |
| SD50                                                                                                              | 100 | 100            | 104.0 x 2.0     | 17                               |

Tab. 43: Cast valve body with welded connection as per DIN 11850 Series 2 / DIN 11866 Series A / DIN EN 10357 Series A



Cast valve body with welded connection as per DIN 11850 Series 3

| Port connection code | DN | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|----|----------------|-----------------|----------------------------------|
| SE40                 | 10 | 8              | 14.0 x 2.0      | 24                               |
| SE42                 | 15 | 15             | 20.0 x 2.0      | 19                               |
| SE43                 | 20 | 20             | 24.0 x 2.0      | 22                               |
| SE44                 | 25 | 25             | 30.0 x 2.0      | 23                               |
| SE46                 | 40 | 40             | 42.0 x 2.0      | 21                               |
| SE47                 | 50 | 50             | 54.0 x 2.0      | 19                               |

Tab. 44: Cast valve body with welded connection as per DIN 11850 Series 3

Cast valve body with welded connection as per ASME BPE / DIN 11866 Series C

| Port connection code | DN     | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
|----------------------|--------|----------------|-----------------|----------------------------------|
| SA90                 | 1/4"   | 6              | 6.35 x 0.89     | 35                               |
| SA90                 | 1/4"   | 8              | 6.35 x 0.89     | 36                               |
| SA91                 | 3/8"   | 6              | 9.53 x 0.89     | 27                               |
| SA91                 | 3/8"   | 8              | 9.53 x 0.89     | 29                               |
| SA92                 | 1/2"   | 6              | 12.7 x 1.65     | 23                               |
| SA92                 | 1/2"   | 8              | 12.7 x 1.65     | 25                               |
| SA93                 | 3/4"   | 15             | 19.5 x 1.65     | 19                               |
| SA93                 | 3/4"   | 20             | 19.5 x 1.65     | 27                               |
| SODF                 | 1"     | 25             | 25.4 x 1.65     | 27                               |
| SODH                 | 1 1/2" | 40             | 38.1 x 1.65     | 23                               |
| SODI                 | 2"     | 50             | 50.8 x 1.65     | 21                               |
| SODJ                 | 2 1/2" | 50             | 63.5 x 1.65     | 12                               |
| SODJ                 | 2 1/2" | 65             | 63.5 x 1.65     | 16                               |
| SODK                 | 3"     | 80             | 76.2 x 1.65     | 19                               |
| SODL                 | 4"     | 100            | 101.6 x 2.11    | 18                               |

Tab. 45: Cast valve body with welded connection as per ASME BPE / DIN 11866 Series C

| Cast valve body with welded connection as per BS 4825 |      |                |                 |                                  |
|-------------------------------------------------------|------|----------------|-----------------|----------------------------------|
| Port connection code                                  | DN   | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
| SODB                                                  | 1/4" | 8              | 6.35 x 1.2      | 37                               |
| SODC                                                  | 3/8" | 8              | 9.53 x 1.2      | 30                               |
| SODD                                                  | 1/2" | 8              | 12.7 x 1.2      | 23                               |
| SODE                                                  | 3/4" | 15             | 19.05 x 1.2     | 16                               |

Tab. 46: Cast valve body with welded connection as per BS 4825

| Cast valve body with welded connection as per SMS 3008 |     |                |                 |                                  |
|--------------------------------------------------------|-----|----------------|-----------------|----------------------------------|
| Port connection code                                   | DN  | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
| SA60                                                   | 25  | 25             | 25.0 x 1.2      | 27                               |
| SA62                                                   | 40  | 40             | 38.0 x 1.2      | 23                               |
| SA63                                                   | 50  | 50             | 51.0 x 1.2      | 20                               |
| SA64                                                   | 65  | 65             | 63.5 x 1.6      | 16                               |
| SA65                                                   | 80  | 80             | 76.1 x 1.6      | 19                               |
| SA66                                                   | 100 | 100            | 101.6 x 2.0     | 18                               |

Tab. 47: Cast valve body with welded connection as per SMS 3008

### 17.2.3 Tube valve body (VP)

| Tube valve body with welded connection as per DIN EN ISO 1127 / ISO 4200 / DIN 11866 Series B |    |                |                 |                                  |
|-----------------------------------------------------------------------------------------------|----|----------------|-----------------|----------------------------------|
| Port connection code                                                                          | DN | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
| SA40                                                                                          | 8  | 8              | 13.5 x 1.6      | 20                               |
| SA41                                                                                          | 10 | 8              | 17.2 x 1.6      | 16                               |
| SA42                                                                                          | 15 | 15             | 21.3 x 1.6      | 20                               |
| SA43                                                                                          | 20 | 20             | 26.9 x 1.6      | 20                               |
| SA44                                                                                          | 25 | 25             | 33.7 x 2.0      | 19                               |
| SA45                                                                                          | 32 | 32             | 42.4 x 2.0      | 18                               |
| SA46                                                                                          | 40 | 40             | 48.3 x 2.0      | 18                               |
| SA47                                                                                          | 50 | 50             | 60.3 x 2.0      | 18                               |

Tab. 48: Tube valve body with welded connection as per DIN EN ISO 1127 / ISO 4200 / DIN 11866 Series B

| Tube valve body with welded connection as per DIN 11850 Series 2 / DIN 11866 Series A / DIN EN 10357 Series A |    |                |                 |                                  |
|---------------------------------------------------------------------------------------------------------------|----|----------------|-----------------|----------------------------------|
| Port connection code                                                                                          | DN | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
| SD40                                                                                                          | 10 | 8              | 13.0 x 1.5      | 20                               |
| SD42                                                                                                          | 15 | 15             | 19.0 x 1.5      | 24                               |
| SD43                                                                                                          | 20 | 15             | 23.0 x 1.5      | 16                               |
| SD44                                                                                                          | 25 | 20             | 29.0 x 1.5      | 18                               |
| SD45                                                                                                          | 32 | 25             | 35.0 x 1.5      | 17                               |
| SD46                                                                                                          | 40 | 32             | 41.0 x 1.5      | 21                               |
| SD47                                                                                                          | 50 | 40             | 53.0 x 1.5      | 13                               |

Tab. 49: Tube valve body with welded connection as per DIN 11850 Series 2 / DIN 11866 Series A / DIN EN 10357 Series A

| Tube valve body with welded connection as per ASME BPE / DIN 11866 Series C |        |                |                 |                                  |
|-----------------------------------------------------------------------------|--------|----------------|-----------------|----------------------------------|
| Port connection code                                                        | DN     | Diaphragm size | Pipe dimensions | Self-draining angle ( $\alpha$ ) |
| SA92                                                                        | 1/2"   | 8              | 12.7 x 1.65     | 23                               |
| SA93                                                                        | 3/4"   | 15             | 19.5 x 1.65     | 24                               |
| SODF                                                                        | 1"     | 20             | 25.4 x 1.65     | 23                               |
| SODH                                                                        | 1 1/2" | 32             | 38.1 x 1.65     | 24                               |
| SODI                                                                        | 2"     | 40             | 50.8 x 1.65     | 16                               |
| SODJ                                                                        | 2 1/2" | 50             | 63.5 x 1.65     | 15                               |
| SODK                                                                        | 3"     | 65             | 76.2 x 1.65     | 14                               |
| SODL                                                                        | 4"     | 80             | 101.6 x 2.11    | 12                               |

Tab. 50: Tube valve body with welded connection as per ASME BPE / DIN 11866 Series C