

## Type 2702

2/2-way angle seat control valve  
2/2-Wege-Schrägsitzregelventil  
Vanne de réglage à siège incliné 2/2 voies



## Operating Instructions

Bedienungsanleitung  
Manuel d'utilisation

We reserve the right to make technical changes without notice.  
Technische Änderungen vorbehalten.  
Sous réserve de modifications techniques.

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Operating Instructions 1702/08\_EU-ML\_00804367 / Original DE

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# 1 OPERATING INSTRUCTIONS

The operating instructions describe the entire life cycle of the device. Keep these instructions in a location which is easily accessible to every user and make these instructions available to every new owner of the device.

## The operating instructions contain important safety information.

Failure to observe these instructions may result in hazardous situations.

- ▶ The operating instructions must be read and understood.

## 1.1 Definition of term

The term “device” used in these instructions always stands for the angle-seat control valve Type 2702.

Ex area: stands for potentially explosive area.

Ex approval: stands for approval in the potentially explosive area.

## 1.2 Symbols



### **DANGER!**

**Warns of an immediate danger.**

- ▶ Failure to observe the warning may result in a fatal or serious injury.



### **WARNING!**

**Warns of a potentially dangerous situation.**

- ▶ Failure to observe the warning may result in serious injuries or death.



### **CAUTION!**

**Warns of a possible danger.**

- ▶ Failure to observe this warning may result in a moderately severe or minor injury.

### **NOTE!**

**Warns of damage to property!**



Important additional information, tips and recommendations.



Refers to information in these operating instructions or in other documentation.

- ▶ designates instructions for risk prevention.

→ designates a procedure which you must carry out.

## 2 INTENDED USE

**Non-intended use of the device may be a hazard to people, nearby equipment and the environment.**

- ▶ Type 2702 is designed for the controlled flow of liquid and gaseous media. Operation is possible only in combination with a suitable control unit.
- ▶ In the potentially explosion-risk area the device may be used only according to the specification on the separate Ex type label. For use observe the additional information enclosed with the device together with safety instructions for the explosion-risk area.
- ▶ Devices without a separate Ex type label may not be used in a potentially explosive area.
- ▶ The admissible data, the operating conditions and conditions of use specified in the contract documents, operating instructions and on the type label are to be observed during use.
- ▶ The device may be used only in conjunction with third-party devices and components recommended and authorised by Bürkert.
- ▶ Correct transportation, correct storage and installation and careful use and maintenance are essential for reliable and faultless operation.
- ▶ Use the device only as intended.

## 3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not consider any contingencies or incidents which occur during installation, operation and maintenance. The operator is responsible for observing the location-specific safety regulations, also with reference to the personnel.



### **Danger – high pressure.**

- ▶ Before loosening the lines and valves, turn off the pressure and vent the lines.

### **Risk of electric shock.**

- ▶ Before reaching into the device, switch off the power supply and secure to prevent reactivation.
- ▶ Observe applicable accident prevention and safety regulations for electrical equipment.

### **Risk of injury when opening the actuator.**

The actuator contains a tensioned spring. If the actuator is opened, there is a risk of injury from the spring jumping out.

- ▶ The actuator must not be opened.

### **Risk of injury from moving parts in the device.**

- ▶ Do not reach into openings.

**Risk of burns or fire from hot device surface due to prolonged switch-on time.**

- ▶ Do not touch the device unless wearing protective gloves.
- ▶ Keep the device away from highly flammable substances and media.

**General hazardous situations.**

To prevent injury, ensure that:

- ▶ Secure system or device against unintentional activation.
- ▶ Installation, operation and maintenance may only be performed by qualified specialists.
- ▶ After an interruption in the power supply or pneumatic supply, ensure that the process is restarted in a defined or controlled manner.
- ▶ The device may be operated only when in perfect condition and in consideration of the operating instructions.
- ▶ Observe the safety informations in the operating instructions of the corresponding control unit.
- ▶ Observe the general rules of technology.

To prevent damage to property of the device, ensure:

- ▶ Do not make any modifications to the device.
- ▶ Supply the media connections only with those media which are specified as flow media in the chapter technical data.
- ▶ Install the device according to the regulations applicable in the country.

## **4 GENERAL INFORMATION**

### **4.1 Contact address**

#### **Germany**

Bürkert Fluid Control Systems  
Sales Center  
Christian-Bürkert-Str. 13-17  
D-74653 Ingelfingen  
Tel. + 49 (0) 7940 - 10-91 111  
Fax + 49 (0) 7940 - 10-91 448  
E-mail: [info@burkert.com](mailto:info@burkert.com)

#### **International**

Contact addresses are found on the final pages of the printed operating manual.

You can also find information on the Internet under:

[www.burkert.com](http://www.burkert.com)

### **4.2 Warranty**

The warranty is only valid if the device is used as authorized in accordance with the specified application conditions.

### **4.3 Information on the internet**

The operating instructions and data sheets for Type 2702 can be found on the Internet at: [www.burkert.com](http://www.burkert.com)

## 5 PRODUCT DESCRIPTION

### 5.1 Structure

The angle-seat control valve consists of a pneumatically operated piston actuator, a control cone and a 2/2-way angle-seat body. It uses neutral gases or air (control media) to control the flow of water, alcohol, oil, fuel, hydraulic fluid, saline solution, lye, organic solvent and steam (flow media). The flow inlet is always under seat. The operation of the angle-seat control valve Type 2702 is possible only in combination with a control unit.

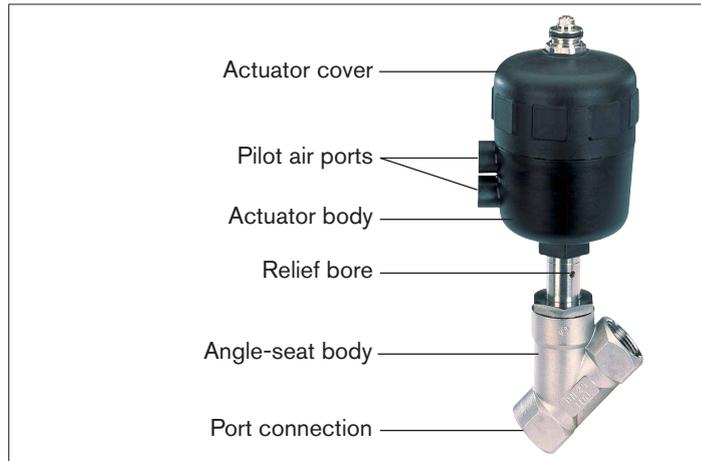


Fig. 1: Angle-seat control valve Type 2702, structure and description

### 5.2 Designated application area



Observe the maximum pressure range according to the type label.

- Neutral gases and liquids up to 16 bar
- Steam up to 10 bar absolute / 180 °C
- Aggressive media

### 5.3 Properties

- Direct installation of the positioner Type 8692, 8694, or the process controller Type 8693.
- High tightness by self-adjusting packing glands.
- High flow values by the streamlined valve body.
- Simple and fast replacement of the control cone.
- Actuator can be rotated steplessly through 360°.

#### 5.3.1 Technical features

- Characteristic: modified equal-percentage flow characteristic.
- Theoretical setting ratio ( $K_{Vs} / K_{Vo}$ ) 50:1; alternatively, other setting ratios can be realized.

#### 5.3.2 Actuator sizes

The angle-seat control valve is available for the following actuator sizes: ø 80 mm, ø 100 mm and ø 125 mm.

### 5.3.3 Options

The operation of the angle-seat control valve Type 2702 is possible only in combination with a control unit. Possible control units are:

- Type 8692, 8693      Positioner, Process controller
- Type 8694            Positioner TopControl Basic
- Type 8635            Positioner SideControl
- Type 8792, 8793      SideControl Remote-Version

## 5.4 Function

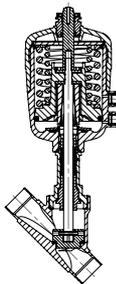
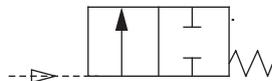
The seat of the valve is always closed against the medium flow.

Spring force (CFA) or pneumatic pilot pressure (CFB and CFI) generates the closing force on the control cone. The force is transferred via a spindle which is connected to the actuator piston.

### 5.4.1 Control functions (CF)

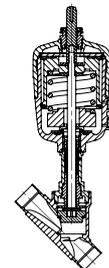
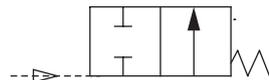
#### Control function A (CFA)

Normally closed by spring action



#### Control function B (CFB)

Normally open by spring action



### 5.4.2 Flow direction below the seat

Depending on the version, the valve is closed against the medium flow with spring force (control function A, CFA) or with pilot pressure (control function B or I, CFB or CFI).

As the medium pressure is under the control cone, this pressure contributes to the opening of the valve.



#### **WARNING!**

**Medium may be discharged if minimum pilot pressure is too low or medium pressure too high.**

If the minimum pilot pressure is too low for CFB or the permitted medium pressure is exceeded, leaks may occur.

- ▶ Observe minimum pilot pressure.
- ▶ Do not exceed medium pressure.

## 6 TECHNICAL DATA

### 6.1 Conformity

The device conforms with the EU Directives according to the EU Declaration of Conformity (if applicable).

### 6.2 Standards

The applied standards, which verify conformity with the EU Directives, can be found on the EU-Type Examination Certificate and / or the EU Declaration of Conformity (if applicable).

### 6.3 Type label

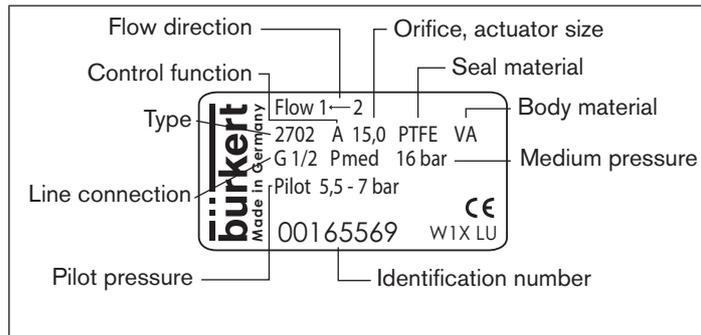


Fig. 2: Description of the type label (example)

## 6.4 Operating conditions

### 6.4.1 Temperature ranges

Actuator size [mm]	Actuator material	Medium temperature [°C]		Ambient temperature [°C]
		Seat seal Steel-Steel	Seat seal PTFE-Steel	
80-125	PA	-10...+180	-10...+130	-10...+60

Tab. 1: Temperature ranges



If a pilot valve or control unit is used, observe its temperature range.

### 6.4.2 Control medium

In conjunction with pneumatic control units (positioner or process controllers), pilot air according to DIN ISO 8573-1 must be used:

- Class 3 (for water content)
- Class 5 (for dust and oil content).



The specification is described in detail in the operating instructions of the respective positioner / process controller in the chapter entitled technical data.

### 6.4.3 Pressure ranges

Maximum pilot pressure for valves without pneumatic control unit

Maximum permitted pilot pressure
5.5...7 bar

Tab. 2: Pilot pressure for valves without pneumatic control unit



Observe the maximum pressure range according to the type label.

Maximum operating pressure

Actuator size [mm]	Orifice valve body	Operating pressure
ø 80	15	0...16 bar
ø 80	20	0...16 bar
ø 80	25	0...16 bar
ø 80	32	0...15 bar
ø 100	40	0...12.5 bar
ø 100	50	0...7.2 bar

Tab. 3: Operating pressure

### 6.5 Flow values and characteristics

Flow values for orifice 15

Stroke [%]	Kv value [m <sup>3</sup> /h]	Stroke [%]	Kv value [m <sup>3</sup> /h]
5	0.23	60	2.9
10	0.24	70	3.5
20	0.26	80	4.0
30	0.35	90	4.3
40	0.7	100	4.5
50	1.85		

Tab. 4: Flow values for orifice 15

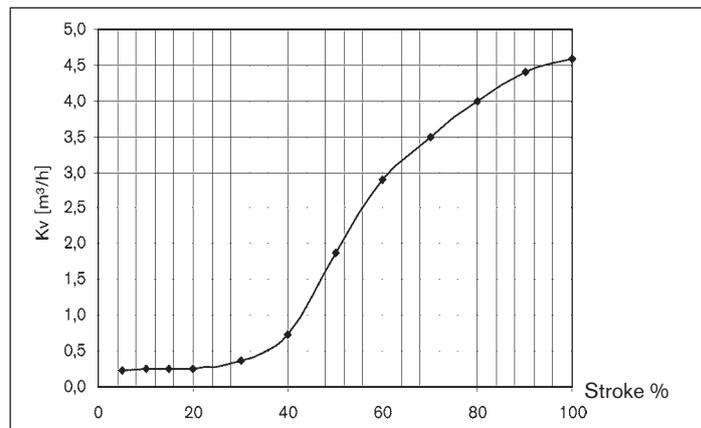


Fig. 3: Flow characteristics for orifice 15

**Flow values for orifice 20**

Stroke [%]	Kv value [m <sup>3</sup> /h]	Stroke [%]	Kv value [m <sup>3</sup> /h]
5	0.3	60	6.6
10	0.33	70	7.5
20	0.42	80	8.2
30	0.7	90	8.6
40	2.85	100	9.0
50	5.3		

Tab. 5: Flow values for orifice 20

**Flow values for orifice 25**

Stroke [%]	Kv value [m <sup>3</sup> /h]	Stroke [%]	Kv value [m <sup>3</sup> /h]
5	0.39	60	10.5
10	0.41	70	12.2
20	0.6	80	13.5
30	1.25	90	14.2
40	4.5	100	15.0
50	8.5		

Tab. 6: Flow values for orifice 25

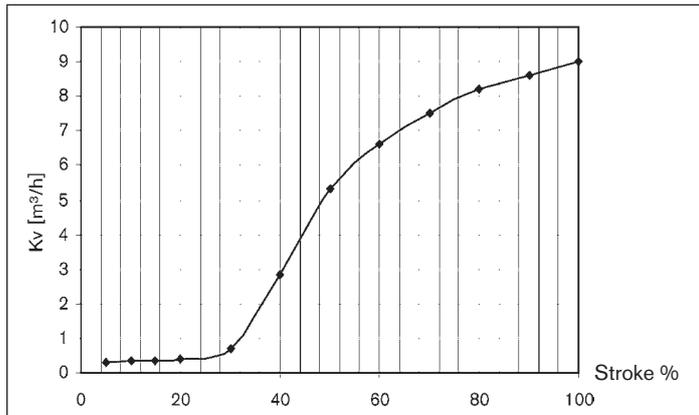


Fig. 4: Flow characteristics for orifice 20

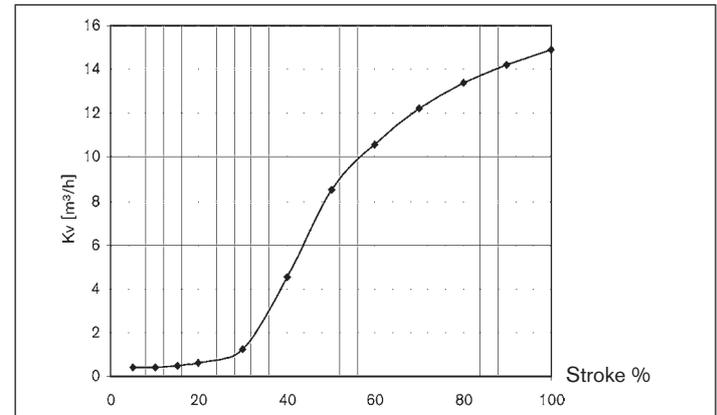


Fig. 5: Flow characteristics for orifice 25

**Flow values for orifice 32**

Stroke [%]	Kv value [m <sup>3</sup> /h]	Stroke [%]	Kv value [m <sup>3</sup> /h]
5	0.55	60	13.8
10	0.65	70	16.5
20	0.95	80	18.8
30	1.5	90	21.0
40	4.0	100	23.0
50	9.3		

Tab. 7: Flow values for orifice 32

**Flow values for orifice 40**

Stroke [%]	Kv value [m <sup>3</sup> /h]	Stroke [%]	Kv value [m <sup>3</sup> /h]
5	0.65	60	25.0
10	0.85	70	27.0
20	1.5	80	30.0
30	5.0	90	33.0
40	14.0	100	35.0
50	20.0		

Tab. 8: Flow values for orifice 40

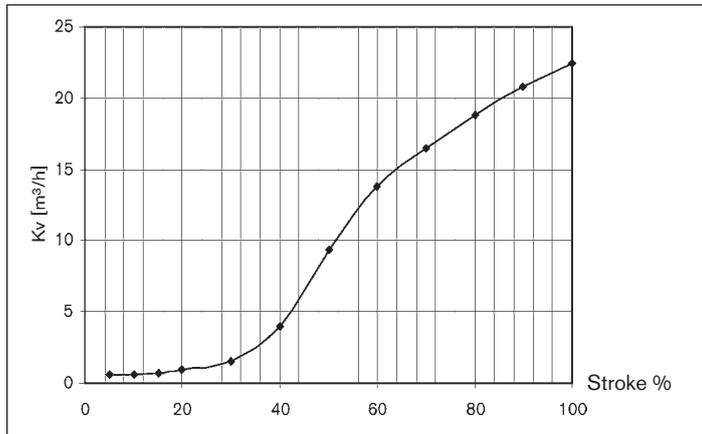


Fig. 6: Flow characteristics for orifice 32

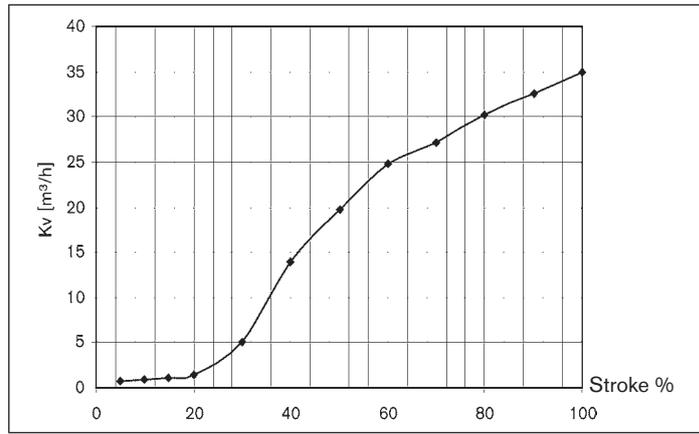


Fig. 7: Flow characteristics for orifice 40

**Flow values for orifice 50**

Stroke [%]	Kv value [m <sup>3</sup> /h]	Stroke [%]	Kv value [m <sup>3</sup> /h]
5	1.0	60	34.0
10	1.3	70	41.0
20	2.0	80	45.0
30	5.0	90	49.0
40	16.0	100	53.0
50	27.0		

Tab. 9: Flow values for orifice 50

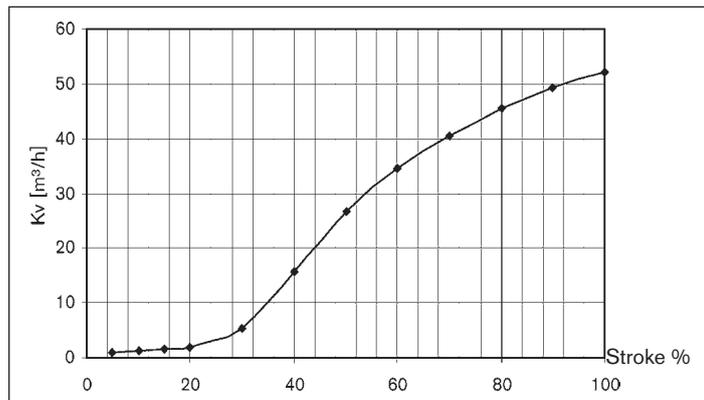


Fig. 8: Flow characteristics for orifice 50

**6.6 General technical data**

Materials

Valve body 316L  
 Actuator PA Polyamide (PPS on request)

Media

Control medium neutral gases, air  
 Flow media water, alcohol, fuel, hydraulic liquids, saline solutions, lyes, organic solvents

Control function see chapter "5.4.1"

Actuator sizes ø 80 mm, ø 100 mm, ø 125 mm

Connections threaded port: G, NPT, Rc  
 welded connection: in accordance with EN ISO 1127 (ISO 4200), DIN 11850 R2  
 other connections on request

Installation position any position, preferably with the actuator face up

Degree of protection IP67 in accordance IEC 529 / EN 60529

## 7 INSTALLATION



### DANGER!

**Danger – high pressure in the equipment.**

- ▶ Before loosening the lines and valves, turn off the pressure and vent the lines.



### WARNING!

**Risk of injury from improper installation.**

- ▶ Installation may be carried out by authorised technicians only and with the appropriate tools.

**Risk of injury from unintentional activation of the system and an uncontrolled restart.**

- ▶ Secure system from unintentional activation.
- ▶ Following assembly, ensure a controlled restart.

**Risk of injury from moving parts in the device.**

- ▶ Do not reach into openings.

### 7.1 Before installation

Installation position: any, preferably with the actuator in upright position.

- Before connecting the valve, ensure the pipelines are flush.
- Make certain the flow direction is correct (flow direction always below seat).
- Clean pipelines.

Devices with welded body

### NOTE!

**For valves with installed control:**

When welding the valve body into the pipeline, the control unit must not be installed.

- ▶ Remove control unit from the actuator described below.

### 7.2 Remove the control unit from the actuator

- Clamp the valve body in a holding device.
- Disconnect the pneumatic connection between the control unit and the actuator.
- Loosen the fastening screws (2x).
- Remove the control unit upwards.

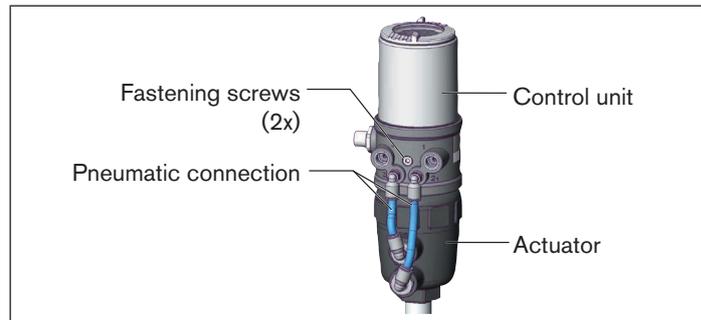


Fig. 9: Remove the control unit

## 7.3 Remove the actuator from the valve body

### NOTE!

#### Damage to the seat seal or the seat contour.

- ▶ When removing the actuator, ensure that the valve is open.

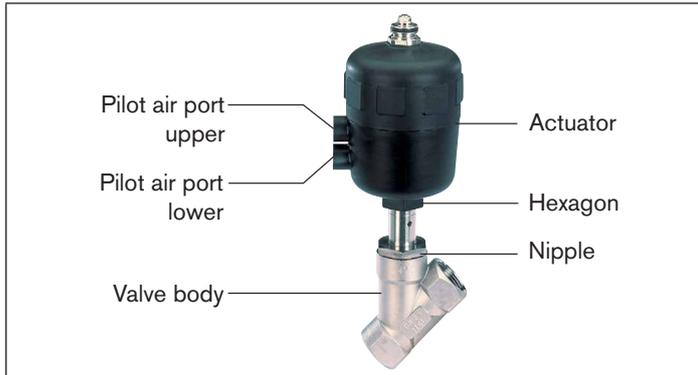


Fig. 10: Remove the actuator from the valve body

- Control function A pressurize the lower pilot air port with compressed air (6 bar): valve opens.  
Control function B: the valve is already open.
- Using a suitable open-end wrench, place the wrench flat on the pipe.
- Unscrew the actuator from the valve body.

## 7.4 Installation of the valve body



### WARNING!

#### Risk of injury from improper installation.

- ▶ Installation may be carried out by authorised technicians only.
- ▶ Installation may be carried out with the appropriate tools.

### Dirt trap for devices with authorisation in accordance with DIN EN 161

In accordance with DIN EN 161 "Automatic shut-off valves for gas burners and gas appliances" a dirt trap must be connected upstream of the valve and prevent the insertion of a 1 mm plug gauge.

- If the authorisation also applies to stainless steel bodies, the same type of dirt trap must be attached in front of the angle-seat control valve.

### Welded bodies

- Weld valve body in pipeline system.



When welding the valve body into the pipeline, the control unit must not be installed.

### Other body versions

- Connect body to pipeline.

## 7.5 Installation of the actuator

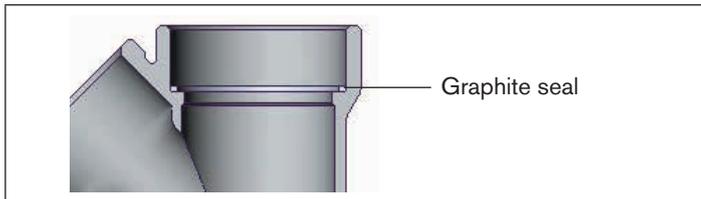


Fig. 11: Graphite seal

→ Check the graphite seal and if required, replace it.

### **WARNING!**

#### **Danger if incorrect lubricants used.**

Unsuitable lubricant may contaminate the medium. In oxygen applications there is a risk of an explosion!

▶ In specific applications, e.g. oxygen or analysis applications, use appropriately authorized lubricants only.

→ Grease nipple thread before re-installing the actuator (e.g. with Klüber paste UH1 96-402 from Klüber).

### **NOTE!**

#### **Damage to the seat seal or the seat contour!**

▶ When installing the actuator, ensure that the valve is open.

→ Control function A pressurize the lower pilot air port with compressed air (6 bar): valve opens

→ Screw actuator into the valve body. Observe tightening torque "Tab. 10".

Orifice valve body	Tightening torque [Nm]
15	45±3
20	50±3
25	60±3
32	65±3
40	
50	70±3
65	100±3

Tab. 10: Tightening torques of valve body / nipples

## 7.6 Installation of the control unit

→ Unscrew the guide element from the actuator (if present).

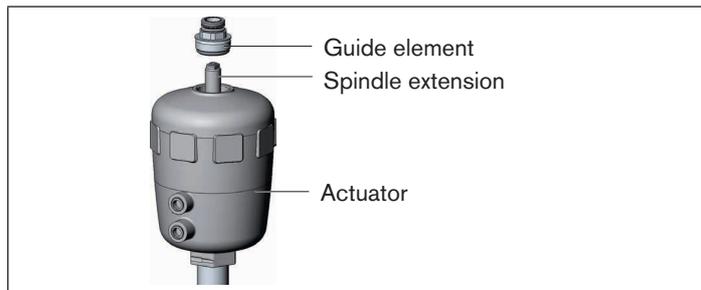


Fig. 12: Unscrew the guide element

→ Remove intermediate ring (if present).

## Type 2702

### Installation

- Press the O-ring downwards into the cover of the actuator.
- Actuator size 125: remove existing spindle extension and replace with the new one. To do this, apply some screw locking paint (Loctite 290) in the tapped bore of the spindle extension.
- Screw the guide element into the cover of the actuator using a face wrench (Journal  $\varnothing$ : 3 mm, journal gap: 23.5 mm). Tightening torque: 8.0 Nm.
- To secure the switch spindle, apply some screw locking paint (Loctite 290) to the thread of the switch spindle.
- Screw the switch spindle onto the spindle extension. To do this, there is a slot on the upper side (maximum torque: 1 Nm).
- Push the puck onto the switch spindle until it engages.

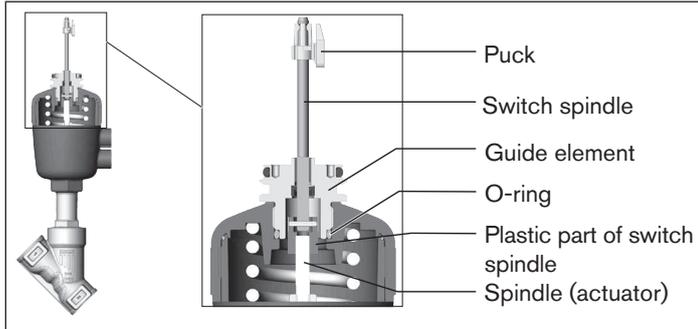


Fig. 13: Installing the switch spindle

- Push the control unit onto the actuator. The puck must be aligned in such a way that it is inserted into the guide rail of the control unit.

### NOTE!

#### Damaged printed circuit board or malfunction.

- ▶ Ensure that the puck holder is situated flat on the guide rail.

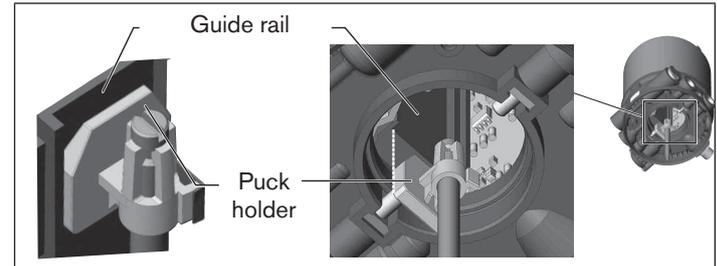


Fig. 14: Aligning the puck

- Press the control unit all the way down as far as the actuator and turn it into the required position.

### NOTE!

#### Too high torque when screwing in the fastening screw does not ensure protection class IP65 / IP67.

- ▶ The fastening screws may be tightened to a maximum torque of 1.5 Nm only.
- Attach the control unit to the actuator using the two side fastening screws. Tightening torque: 1.5 Nm.
- Screw the plug-in hose connectors onto the control unit and the actuator.
- Make the pneumatic connection between the control unit and actuator.

## 7.7 Rotating the actuator module

The position of the connections can be aligned steplessly by rotating the actuator module (control unit and actuator) through 360°.

**!** Only the entire actuator module can be rotated. The control unit cannot be rotated contrary to the actuator.

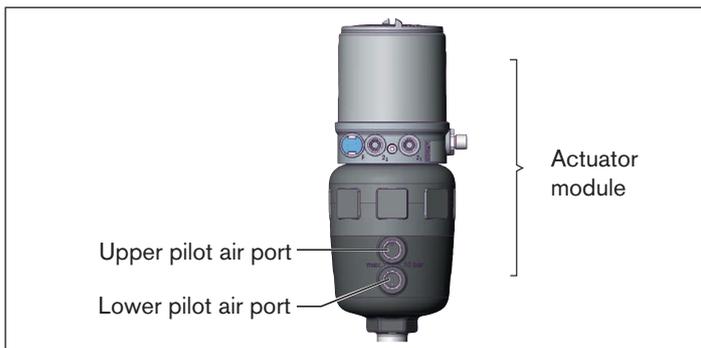


Fig. 15: Rotating the actuator module

### NOTE!

**Damage to the seat seal or the seat contour.**

▶ When removing the actuator module, ensure that the valve is open.

- Clamp the valve body in a holding device (applies only to valves which have not yet been installed).
- Control function A pressurize the lower pilot air port with compressed air (6 bar): valve opens.

- Using a suitable open-end wrench, place the wrench flat on the pipe.
- Place suitable open-end wrench on the hexagon of the actuator.



**WARNING!**

**Risk of injury from discharge of medium and pressure.**

If the direction of rotation is wrong, the body interface may become detached.

▶ Rotate the actuator module in the specified direction only.

- Rotate actuator module counter-clockwise (as seen from below) to bring the actuator module into the required position.

## 7.8 Rotating the control unit

If the connecting cables or hoses cannot be fitted properly following installation of the process valve, the control unit can be rotated contrary to the actuator.

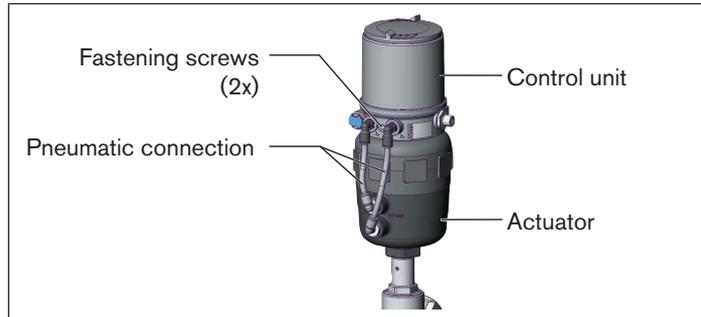


Fig. 16: Rotating the control unit

- Loosen the pneumatic connection between the control unit and the actuator.
- Loosen the fastening screws (hexagon socket wrench size SW3).
- Rotate the control unit into the required position.

### NOTE!

**Too high torque when screwing in the fastening screw does not ensure protection class IP65 / IP67.**

- ▶ The fastening screws may be tightened to a maximum torque of 1.5 Nm only.

- Tighten the fastening screws hand-tight only (maximum torque: 1.5 Nm).
- Re-attach the pneumatic connections between the control unit and the actuator.

## 7.9 Pneumatic connection



### DANGER!

**Danger – high pressure in the equipment.**

- ▶ Before loosening the lines and valves, turn off the pressure and vent the lines.



### WARNING!

**Risk of injury from unsuitable connection hoses.**

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



The pneumatic connection of the angle-seat control valve can be carried out only in connection with the appropriate control unit.

### 7.9.1 Connection of the control medium

- Connect the control medium to the pilot air port (1) (3 – 7 bar; instrument air, free of oil, water and dust).
- Fit the exhaust line or a silencer to the exhaust air port (3) and, if available, to the exhaust air port (3.1).

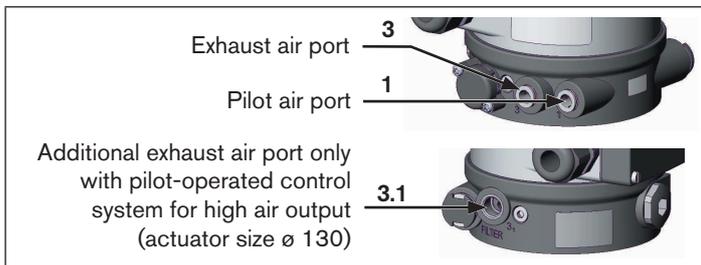


Fig. 17: Pneumatic connection

 If used in an aggressive environment, we recommend conveying all free pneumatic connections into a neutral atmosphere with the aid of a pneumatic hose.

#### Control air hose:

6/4 mm or 1/4" pilot air hoses can be used.

A pilot air port via G 1/8 thread is available as an option.

### 7.10 Start-up

After installing the device, run the *X.TUNE* function. This function presets the control parameters.

 Description see operating instructions for the control unit.

## 8 REMOVAL



### DANGER!

**Danger – high pressure in the equipment.**

- ▶ Before loosening the lines and valves, turn off the pressure and vent the lines.

→ Loosen the pneumatic connection.

→ Remove the device.

## 9 ELECTRICAL CONTROL UNIT

The valve Type 2702 can be combined with following control units:

- Type 8692 Positioner
- Type 8694 Positioner
- Type 8635 Positioner
- Type 8693 Process controller
- Type 8792 SideControl
- Type 8793 SideControl



The electrical connection of the pilot valve or the control unit is described in the respective operating instructions for the pilot valve/control unit.

## 10 MAINTENANCE, CLEANING

### DANGER!

**Danger – high pressure in the equipment.**

- ▶ Before loosening the lines and valves, turn off the pressure and vent the lines.

### WARNING!

**Risk of injury from improper maintenance.**

- ▶ Maintenance may be performed by authorised technicians only.
- ▶ Maintenance work use only the appropriate tools.

### 10.1 Maintenance work

#### Actuator:

The actuator of the angle-seat control valve is maintenance-free provided it is used according to these operating instructions.

#### Wearing parts of the angle-seat control valve:

Parts which are subject to natural wear:

- Seals
- Control cone

→ If leaks occur, replace the particular wearing part with an appropriate spare part.

 The replacing of the wearing parts is described in chapter [“11 Replacing the control cone set”](#).

#### Visual inspection:

Perform regular visual inspections according to the application conditions:

- Check media connections for leaks.
- Check relief bore on the tube for leaks.



Fig. 18: Relief bore

#### 10.1.1 Cleaning

Commercially available cleaning agents can be used to clean the outside.

#### NOTE!

**Avoid causing damage with cleaning agents.**

- ▶ Before cleaning, check that the cleaning agents are compatible with the body materials and seals.

## 11 REPLACING THE CONTROL CONE SET

The control cone set consists of

- Control cone
- Dowel pin
- Graphite seal
- Lubricant

Before the control cone set can be replaced, the actuator must be removed from the valve body.

### 11.1 Removing the actuator from the valve body



#### **DANGER!**

**Danger – high pressure in the equipment.**

- ▶ Before loosening the lines and valves, turn off the pressure and vent the lines.



#### **WARNING!**

**Risk of injury if the wrong tools are used.**

- ▶ To remove the actuator from the valve body, use an open-end wrench, never a pipe wrench.

→ Clamp the valve body in a holding device (applies only to valves which have not yet been installed).

#### **NOTE!**

**Damage to the seat seal or the seat contour.**

- ▶ When removing the actuator, ensure that the valve is open.

→ Control function A pressurize the lower pilot air port with compressed air (6 bar): valve opens.

Control function B: the valve is already open.

→ Using a suitable open-end wrench, place the wrench flat on the pipe.

→ Unscrew the actuator from the valve body.

### 11.2 Replace the control cone set

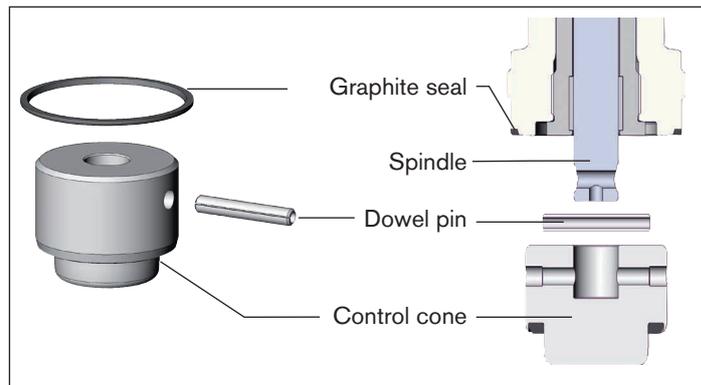


Fig. 19: Replace the control cone set

**NOTE!**

**Information for the problem-free and safe functioning of the device.**

The sealing face of the control cone must not be damaged.

- Knock out dowel pin with a suitable pin punch.  
**Pin punch ø 4 mm**, for spindle diameter 10 mm  
**Pin punch ø 5 mm**, for spindle diameter 14 mm
- Remove control cone.
- Attach new control cone to the spindle.
- Align bores of the control cone and spindle.
- Support control cone on the cylindrical part with the aid of a prism or something similar.
- Put on dowel pin and carefully knock in with a hammer.
- Position the dowel pin in the centre of the spindle axis.

**11.3 Install the actuator (with control unit) on the valve body**

- Check the graphite seal and if required, replace it.



**WARNING!**

**Danger if incorrect lubricants used.**

Unsuitable lubricant may contaminate the medium. In oxygen applications there is a risk of an explosion!

- ▶ In specific applications, e.g. oxygen or analysis applications, use appropriately authorised lubricants only.

**NOTE!**

**Damage to the seat seal or the seat contour.**

- ▶ When installing the actuator, ensure that the valve is open.
- Control function A pressurize the lower pilot air port with compressed air (6 bar): valve opens.  
 Control function B: the valve is already open.
- Screw actuator into the valve body. Observe tightening torque "[Tab. 11](#)".

Orifice valve body	Tightening torques [Nm]
15	45±3
20	50±3
25	60±3
32	65±3
40	
50	70±3

Tab. 11: Tightening torques of valve body / nipples

## 12 MALFUNCTIONS

Malfunction	Cause	Remedial action
Actuator does not switch	Pilot air port interchanged	CFA: connect lower pilot air port CFB: connect upper pilot air port
	Pilot pressure too low	See pressure specifications on the type label
	Medium pressure too high	
	Flow direction reversed	See direction arrow on the body
Valve is not sealed	Dirt between seal and valve seat	Installing dirt trap
	Seat seal worn	Installing a new control cone
	Flow direction reversed	See direction arrow on the body
	Medium pressure too high	See pressure specifications on the type label
Pilot pressure too low		
Valve is leaking on the relief bore	Packing gland worn	Replacing packing gland

Tab. 12: Malfunctions

## 13 REPLACEMENT PARTS



### CAUTION!

**Risk of injury and/or damage by the use of incorrect parts.**

Incorrect accessories and unsuitable replacement parts may cause injuries and damage the device and the surrounding area.

- ▶ Use only original accessories and original replacement parts from Bürkert.

### 13.1 Replacement part sets

Replacement part sets for the angle-seat control valve Type 2702:

- Control cone set consisting of control cone, dowel pin, graphite seal and lubricant.

Control cone set			
Orifice	Actuator size	Order number	
		Steel-Steel	PTFE-Steel
15	∅ 80	170 322	170 315
20	∅ 80	170 323	170 316
25	∅ 80	170 324	170 318
32	∅ 80	170 325	170 319
40	∅ 100	170 326	170 320
50	∅ 100	170 327	170 321

Tab. 13: Control cone set

## 14 TRANSPORT, STORAGE, ENVIRONMENT

### NOTE!

#### **Transport damages.**

Inadequately protected equipment may be damaged during transport.

- During transportation protect the device against wet and dirt in shock-resistant packaging.
- Avoid exceeding or dropping below the permitted storage temperature.

#### **Incorrect storage may damage the device.**

- Store the device in a dry and dust-free location.
- Storage temperature -10...+60 °C.

#### **Damage to the environment caused by device components contaminated with media.**

- Dispose of the device and packaging in an environmentally friendly manner.
- Observe applicable regulations on disposal and the environment.





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