bürkert
FLUID CONTROL SYSTEMS

# Type 2060, 2061

2/2-way angle seat valve, 2/2-way globe valve
2/2-Wege-Schrägsitzventil, 2/2-Wege Geradsitzventil
Vanne à siège incliné 2/2 voies, Vanne à siège droit 2/2 voies

## Quickstart

English Deutsch Français

MAN 1000291790 EN Version: BStatus: RL (released | freigegeben) printed: 22.09.2017

Operating Instructions 1706/01_EU-EN_00810476 / Original DE

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# 1 QUICKSTART

The quickstart contains the most important information and notes regarding the use of the device. Keep the quickstart in a location which is easily accessible to every user, and make these instructions available to every new owner of the device.

**Important Safety Information.**

Failure to observe these instructions may result in hazardous situations.

▸ Quickstart must be read and understood.

A detailed description of the device can be found in the operating instructions for Type 2060 and 2061.

The operating instructions can be found on the Internet at: www.burkert.com

## 1.1 Definition of term

The term “device” used in these instructions always stands for the angle seat valve Type 2060 or globe valve 2061.

## 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 moderate or minor injury.

**NOTE!**

**Warns of damage to property.**

Important 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.

## 3 AUTHORIZED USE

**Non-authorized use of the Types 2060 and 2061 may be a hazard to people, nearby equipment and the environment.**

- The device is designed for the controlled flow of liquid and gaseous media.
- The admissible data, the operating conditions and conditions of use specified in the contract documents 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 authorized 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.

# 4 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!**

**Risk of injury from high pressure in the equipment or device.**

- Before working on equipment or device, switch off the pressure and deaerate or drain lines.

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

- Do not touch the device with bare hands. Keep away from highly flammable substances and media.

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

- Do not reach into openings.

**Risk of injury caused by the lines and device rupturing.**

- Due to the risk of water hammer, valves with a flow direction above the seat must not be used for liquid media.
- Consider the type of flow direction and the type of medium for operation of the device.

**Risk of injury caused by the spring jumping out when the actuator is opened.**

- The actuator must not be opened.

**General hazardous situations.**

To prevent injury, ensure:

- Secure system 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.
- The general rules of technology apply to application planning and operation of the device.

To prevent damage to property of the device, ensure:

- Supply the media connections only with those media which are specified as flow media in the chapter entitled “Technical data”.
- Do not put any loads on the valve.
- Do not make any external modifications to the valves. Do not paint the body parts.

# 5 GENERAL INFORMATION

## 5.1 Contact address

**Germany**

Bürkert Fluid Control Systems
Sales Center
Chr.-Bürkert-Str. 13-17
D-74653 Ingelfingen
Tel. : 07940 - 10 91 111
Fax: 07940 - 10 91 448
E-mail: info@de.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

## 5.2 Warranty

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

# 6 TECHNICAL DATA

## 6.1 Conformity

Type 2060 and 2061 conforms with the EC Directives according to the EC Declaration of Conformity (if applicable) .

## 6.2 Standards

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

According to Pressure Equipment Directive the following operating conditions must be observed:

| Line connection orifice | Maximum pressure for compressible fluids of Group 1 (hazardous gases and vapors according to Art. 3 No. 1.3 Letter a first dash) |
|---|---|
| DN65 | 12 bar |

## 6.3 Type label

**WARNING!**

**Risk of injury from high pressure.**

Excessive pressure can damage the device.

▸ Comply with pressure range values on the type label.

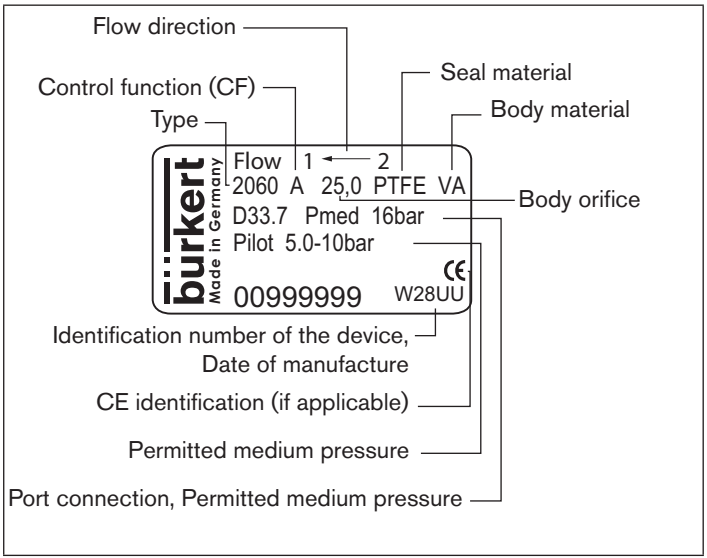



*Fig. 1: Description of the type label (Example)*

## 6.4 Operating conditions

### 6.4.1 Temperature ranges

| Actuator size | Actuator material | Medium temperature (for PTFE seal) | Ambient temperature |
|---|---|---|---|
| ø 50 mm | Stainless steel | -10...+185 °C | 0...+100 °C (at 150 °C Medium temperature) 0...+80 °C (at 150 °C > Tmed < 180 °C) |
| ø 70 mm | | | |
| ø 90 mm | | | |
| ø 130 mm | | | |

*Tab. 1: Temperature ranges*

The angle seat valve is suitable for steam sterilization.

### 6.4.2 Pressure ranges

| Actuator size | Maximum pilot pressure |
|---|---|
| ø 50 mm | 10.5 bar |
| ø 70 mm | |
| ø 90 mm | |
| ø 130 mm | 7.5 bar |

*Tab. 2: Pressure ranges*

**Minimum pilot pressure: flow direction below the seat**
(medium flow against the closing direction of the valve)

Required minimum pilot pressure $P_{min}$ with control function A:

| Actuator size [mm] | 50 | 70 | 90 | 130 |
|---|---|---|---|---|
| $P_{min}$ [bar] | 5.2 | 4.8 | 5.0 | 5.0 |

*Tab. 3: Required minimum pilot pressure - CFA*

The required minimum pilot pressure $P_{min}$ with control function B and I (flow direction below the seat) is dependent on the pressure of the medium.

**Minimum pilot pressure: flow direction above the seat**
(medium flow with the closing direction of the valve)

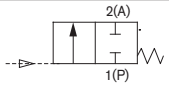
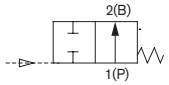
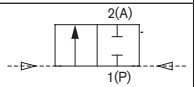
The required minimum pilot pressure $P_{min}$ with control function A (flow direction above the seat) is dependent on the pressure of the medium.

## 6.5 General technical data

**Media**

| | |
|---|---|
| Control medium | Neutral gases, air |
| Flow media | Water, alcohol, fuel, hydraulic liquids, saline solutions, lye, organic solvents |
| **Materials and connections** | see data sheet |
| **Installation** | as required, preferably with actuator in upright position. |
| **Protection class** | IP67 in accordance with IEC 529 / EN 60529 |

## 6.6 Control functions (CF)

| | | |
|---|---|---|
| A |  | Normally closed by spring action. |
| B |  | Normally open by spring action. |
| I |  | Actuating function via reciprocal pressurization. |

*Tab. 4: Control functions*

# 7 INSTALLATION

**DANGER!**

**Risk of injury from high pressure.**

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

**WARNING!**

**Risk of injury from improper installation.**

- Installation may only be performed by qualified and trained personnel.
- Use a open-end wrench for the installation.
- Following installation, ensure a controlled restart.

**For control function I – Danger if pilot pressure fails.**

For control function I control and resetting occur pneumatically. If the pressure fails, no defined position is reached.

- To ensure a controlled restart, first pressurize the device with pilot pressure, then switch on the medium.

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

- Do not reach into openings.

## 7.1 Preparatory work

- Ensure the lines are flush.
- Clean pipelines (sealing material, swarf, etc.).
- Observe direction of flow (see type label).

## 7.2 Remove the actuator from the valve body

→ Clamp the valve body in a holding device.

**NOTE!**

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

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

→ Control function A pressurize the pilot air port 1 with compressed air: valve opens.

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

→ Unscrew the actuator from the valve body.

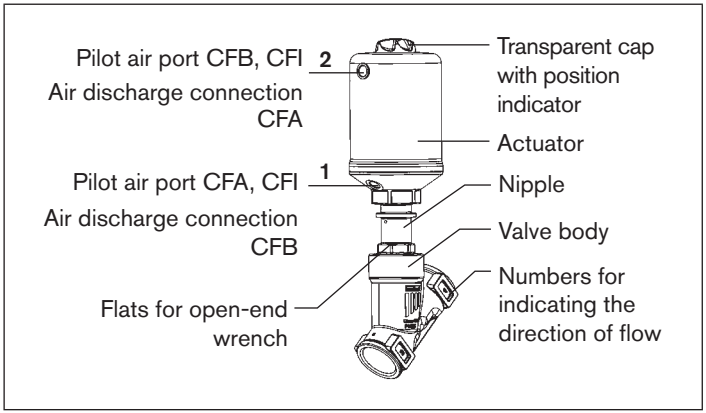



*Fig. 2: Angle seat valve, Type 2060*

## 7.3 Installation of the valve body

**WARNING!**

**Risk of injury from improper installation.**

- Installation may only be performed by qualified and trained personnel.
- For installation use an open-end wrench.
- Observe the tightening torque.

**Dirt trap for devices with authorization 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 valve.

**Welded bodies**

→ Weld valve body in pipeline system.

**Other body versions**

→ Connect body to pipeline.

## 7.4 Install actuator (welded body)

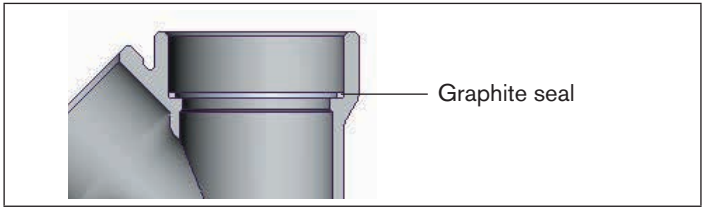



*Fig. 3: Graphite seal*

→ 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 authorised 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 in open position.

→ Control function A pressurize the pilot air port 1 with compressed air: valve opens.

→ Screw actuator into the valve body. Observe tightening torque (see “Tab. 5”).

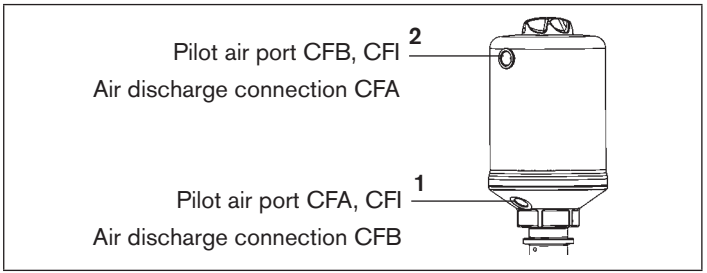



*Fig. 4: Connections*

| DN | Tightening torque [Nm] |
|---|---|
| 15 | 45 ±3 |
| 20 | 50 ±3 |
| 25 | 60 ±3 |
| 32 | 65 ±3 |
| 40 | |
| 50 | 70 ±3 |
| 65 | 100 ±3 |

*Tab. 5: Tightening torques of valve body / nipples*

## 7.5 Mount accessories

For description, refer to documentation of corresponding accessories.

## 7.6 Rotating the actuator

The position of the connections can be aligned steplessly by rotating the actuator through 360°.

**NOTE!**

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

- When rotating the actuator, ensure that the valve is in open position.

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

→ Control function A pressurize the pilot air port 1 with compressed air: valve opens.

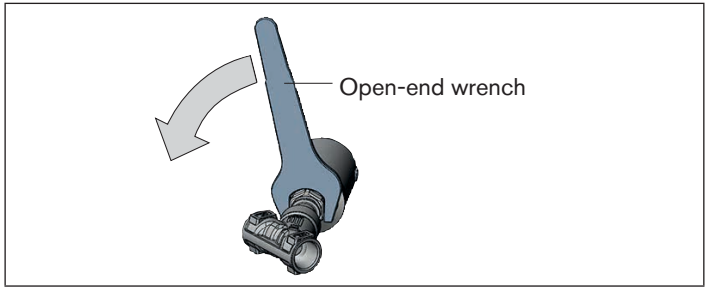



*Fig. 5: Rotating with open-end wrench*

→ Counter on the flats of the nipple with a suitable open-end wrench.

→ Place suitable open-end wrench on the hexagon of the actuator.

→ Move the actuator to the required position.

## 7.7 Pneumatic connection

**WARNING!**

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

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

**For control function I – Danger if pilot pressure fails.**

For control function I control and resetting occur pneumatically. If the pressure fails, no defined position is reached.

- To ensure a controlled restart, first pressurize the device with pilot pressure, then switch on the medium.

### 7.7.1 Connection of the control medium

If the position of the pilot air port for installation of the hoses is unfavorable, these can be aligned steplessly by rotating the actuator through 360°.

The procedure is described in the chapter entitled “7.6”.

**Control functions A and B:**

→ Connect the control medium to the pilot air port 1 of the actuator.

**Control function I:**

→ Connect the control medium to the pilot air port 1 and 2 of the actuator
Pressure on connection 1 opens the valve.
Pressure on connection 2 closes the valve.

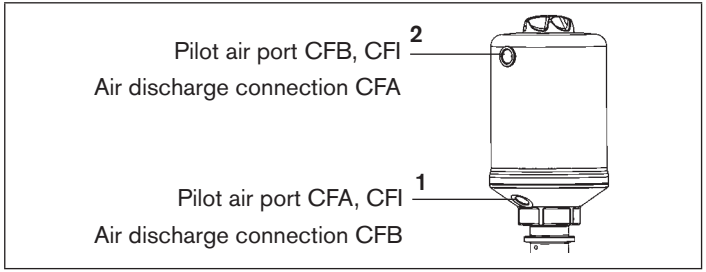



*Fig. 6: Pneumatic connection*

**Silencer**[1)]

→ Bolt silencer in the exposed venting port.

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“ control air hoses can be used[2)].

1) *Silencers for reducing the loudness of the exhaust air can be ordered as an accessory.*
2) *Push-Lock Fittings can be ordered as accessories.*

# 8 START-UP

**WARNING!**

**Risk of injury from improper operation.**

Improper operation may result in injuries as well as damage to the device and the area around it.

- Before start-up, ensure that the operating personnel are familiar with and completely understand the contents of the operating instructions.
- Observe the safety instructions and intended use.
- Only adequately trained personnel may operate the equipment or the device.

## 8.1 Pilot pressure

**WARNING!**

**For control function I – Danger if pilot pressure fails.**

For control function I control and resetting occur pneumatically. If the pressure fails, no defined position is reached.

- To ensure a controlled restart, first pressurize the device with pilot pressure, then switch on the medium.

→ Set the pilot pressure according to the type label specifications, chapter “6 Technical data” and flow direction (chapter “8.2 Flow direction”).

## 8.2 Flow direction

### 8.2.1 Angle seat valve

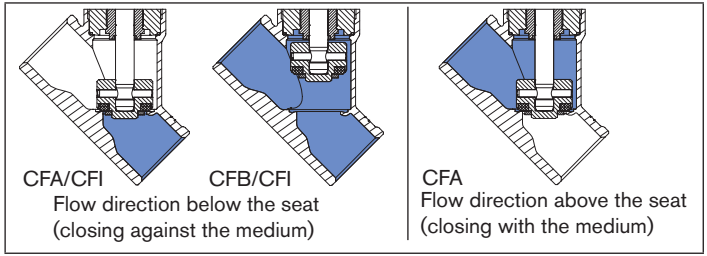



*Fig. 7: Flow direction below and above the seat*

### 8.2.2 Globe valve

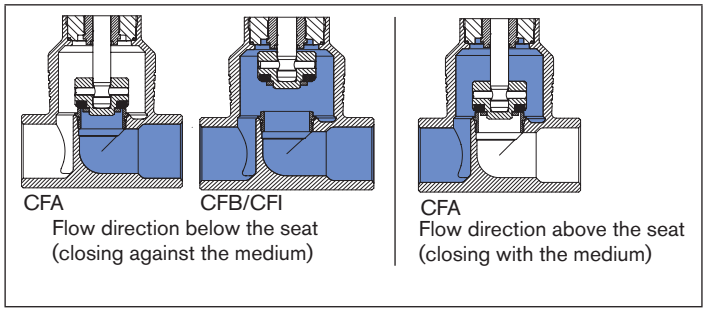



*Fig. 8: Flow direction below and above the seat*

### 8.2.3 Flow direction above the seat

Control function A, CFA: closes by spring force against the medium flow. Control function B, CFB: closes with the control pressure against the medium flow. The medium pressure supports the opening of the valve.

**WARNING!**

**Risk of injury caused by the lines and device rupturing.**

- Use valves with flow direction above the seat for gaseous media and steam only.

To ensure complete opening, the minimum pilot pressure must be used.

### 8.2.4 Flow direction below the seat

Control function A, CFA: closes by spring force against the medium flow. Control function B, CFB: closes with the control pressure against the medium flow. The medium pressure supports the opening of the valve.

**WARNING!**

**Seat leaks caused by the minimum pilot pressure being too low (on CFB and CFI) or the medium pressure being too high.**

- Observe the minimum control pressure and medium pressure (see “6.4.2 Pressure ranges”).

## 9 MAINTENANCE WORK

→ Complete a visual inspection of the equipment once a year. Shorter maintenance intervals may be recommended depending on the operating conditions.

### 9.1 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.

**Wearing parts:** Seals and the swivel plate

→ In the event of a leak, replace the relevant wear part.

The maintenance and repair instructions are available on the Internet: www.burkert.com

# 10 REMOVAL

**DANGER!**

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

It is dangerous to remove a device which is under pressure due to the sudden release of pressure or discharge of medium.

- Before removing a device, switch off the pressure and vent the lines.

→ Loosen the pneumatic connection.

→ Remove the device.

# 11 PACKAGING, TRANSPORT, STORAGE

**NOTE!**

**Transport and storage damage.**

- Protect the device against moisture and dirt in shock-resistant packaging during transportation and storage.
- Permitted storage temperature: -20...+65°C.

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

- Ensure the device and packaging are disposed of in an environmentally sound manner.
- Observe applicable regulations on disposal and the environment.

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