

Type 2080

FALTENBALGVENTIL
BELLOWS VALVE
VANNE A SOUFFLET

2/2-way valve with piston actuator and PTFE bellows
2/2-Wege Ventil mit Kolbenantrieb und PTFE-Faltenbalg
Vanne 2/2 voies avec entraînement à piston et soufflet PTFE

Operating Instructions

Bedienungsanleitung
Manuel d'utilisation

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1 OPERATING INSTRUCTIONS

The operating instructions contain important information.

- ▶ Read the instructions carefully and follow the safety instructions in particular, and also observe the operating conditions.
- ▶ Instructions must be available to each user.
- ▶ The liability and warranty for Type 2080 are void if the operating instructions are not followed

1.1 Symbols

- ▶ Designates an instruction to prevent risks.
- designates a procedure which you must carry out.

Warning of injuries:



DANGER!

Imminent danger. Serious or fatal injuries.



WARNING!

Potential danger. Serious or fatal injuries.



CAUTION!

Danger. Minor or moderately severe injuries.

Warns of damage to property:

NOTE!

2 INTENDED USE



WARNING!

Incorrect use of the bellows valve Type 2080 can be dangerous to people, nearby equipment and the environment.

- ▶ The device is designed for the controlled flow of liquid and gaseous media.
- ▶ For use observe the permitted data, operating and application conditions which are described in the contract documents as well as on the type plate and in the operating instructions in the chapters entitled „5 Structure and Function“ and „6 Technical Data“.
- ▶ The device may be used only in conjunction with third-party devices and components recommended and authorised by Bürkert.
- ▶ Correct transport, correct storage and installation and careful use and maintenance are essential for reliable and problem-free operation.
- ▶ Use the bellows valve Type 2080 only as intended.

3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not make allowance for any:

- Contingencies and events which may arise during the installation, operation and maintenance of the devices.
- Local safety regulations – the operator is responsible for observing these regulations, also with reference to the installation personnel.



DANGER!

Risk of injury from high pressure.

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

Risk of burns/fire from continuous operation!

When metering hot media, the device may become very hot.

- ▶ Always wear protective gloves when handling a device which controls hot media.
- ▶ Keep readily flammable materials and media away from the device.



General hazardous situations.

To prevent injury, ensure that:

- ▶ Do not place any loads on the body (e.g. by placing objects on it or standing on it).
- ▶ Do not make any external modifications to the valve bodies.
- ▶ Do not introduce any aggressive or flammable media into the pilot air connections of the system.
- ▶ Supply the media connections only with those media which are specified as flow media in the chapter entitled „6 Technical Data“.
- ▶ Secure to prevent unintentional actuation.
- ▶ Installation and repair work may be carried out by authorized technicians only and with the appropriate tools.
- ▶ 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.

4 GENERAL INFORMATION

4.1 Contact address

Germany

Bürkert Fluid Control Systems
Sales Center
Chr.-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

International

Contact addresses can be found on the final pages of the printed operating instructions. And also on the internet at: www.burkert.com

4.2 Warranty

The warranty is only valid if the bellows valve Type 2080 is used as intended in accordance with the specified application conditions.

4.3 Information on the Internet

The operating instructions and data sheets for Type 2080 can be found on the Internet at: www.burkert.com

5 STRUCTURE AND FUNCTION

5.1 Modularity

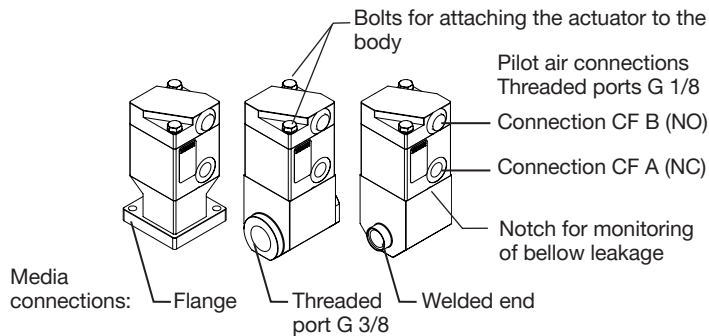
The valve is modular in design and can be supplied with different media connections (also customized) and actuator versions according to the application case. It can be used individually and also in blocks.

5.2 Structure

The valve consists of a pneumatically actuated piston actuator with return spring, a stainless steel body and PTFE bellows. The bellows are used to separate media. If the installation location is appropriate, the valve is self-draining.

The materials used and the inner contours facilitate cleaning (CIP/SIP).

The pneumatic actuator must be controlled externally via a pilot valve or a valve island.



6 TECHNICAL DATA

6.1 Operating Conditions

Ambient temperature	-10 ... +90 °C
Medium temperature	-30 ... +150 °C (see PT graph)
Media	Neutral to aggressive gases and liquids, technical vacuum

6.2 Restrictions

For Valves with a flow inlet over seat:



WARNING!

Risk of injury from water hammer.

If flow inlet over seat with liquid media, water hammers may occur. As a consequence, lines or the device may burst and medium flow out.

- ▶ Consider the type of flow inlet and the type of medium for operation of the device.
- ▶ If flow inlet over seat before the use of liquid media, to avoid water hammers, in case of doubt, clarify the application conditions (medium, line length and cross-section) with the Bürkert sales office.

6.3 Conformity

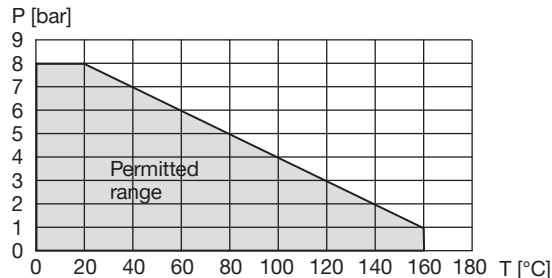
The device conforms to the EU directives according to the EU Declaration of Conformity.

6.4 Standards

The conformity with EU guidelines is guaranteed in accordance with standards: EN 13463-1, EN 13463-5

6.5 PT graph

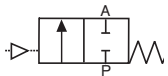
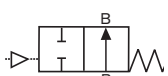
Permitted pressure-temperature compatibility of the PTFE bellows (Pressure value [bar]: Measured as overpressure to the atmospheric pressure).



6.6 Mechanical Data

Dimensions	See data sheet
Body material	
Fitting	Stainless steel 316L (1.4404)
Actuator	Stainless steel 304 (1.4301)
Bellows	PTFE
Bellows stroke	2.5 mm
Internal surface finish	Ra = 0.8 µm

6.7 Fluidic data

Circuit functions		
A		2/2-way valve, servo-assisted, closed without pilot air pressure by spring force, actuation with pilot valve, valve island or similar.
B		2/2-way valve, servo-assisted, opened without pilot air pressure by spring force, actuation with pilot valve, valve island or similar.

Fitting

Pressure range of medium	Vacuum ... 8 bar (see PT graph)
Back pressure tightness	up to 8 bar
Orifice	DN 4 to DN 10
Line connections	Threaded port G 3/8
	Welded ends
	13.5 x 1.6 in accordance with ISO 4200
	13 x 1.5 in accordance with DIN 1850-2
	12.7 x 1.2 in accordance with BS 4825
	Flange connection or customized line connections

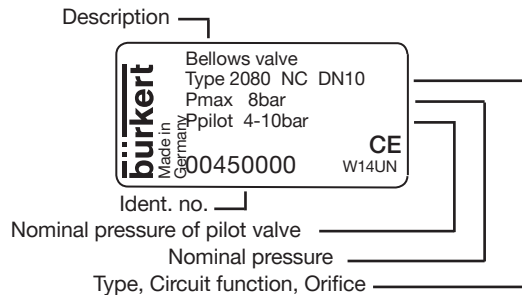
Actuator

Pilot air medium	Compressed air 4.5 – 10 bar (dry and filtered) neutral gases
Pilot air connections	Threaded port G 1/8

6.8 Actuator versions

Version	Operating principle
Actuator Open - Closed	CF A and CF B
Actuator Open - Closed with position indicator	CF A and CF B
3 position actuator (with adjustable intermediate position)	CF A

6.9 Label (example)



7 INSTALLATION



WARNING!

Risk of injury from improper installation!

- ▶ Installation may be carried out by authorized 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 installation, ensure a controlled restart.

7.1 Fluid Installation



DANGER!

Danger – high pressure!

Serious risk of injury when reaching into the equipment.

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



Check that the operating conditions correspond with the performance data of the device.

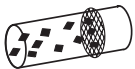
Installation position:

Installation can be in any position.

- Install upright for self-draining (body to bottom and in the case of threaded port and welded ends install at a min. gradient of 1° for drainage of media).

Installation

- Before installation, clean any possible dirt off the pipelines and flange connections.
- If necessary, install a dirt trap in front of the valve to protect it from malfunctions.



Mesh size:
0.1 ... 0.4 mm



WARNING!

Danger - escaping medium!

Leaky connections with seals not properly seated.

- ▶ Fit all connections carefully and seal properly.



Seal the threaded port with a suitable sealing material (PTFE tape is recommended).

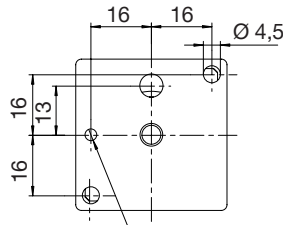


Use the correct size of open-ended wrench to screw in the pipelines; do not use the valve actuator as a screwdriver!

The device must not be subject to any lateral tension forces.
The device connections must be in alignment with the lines!

- Attach the valve according to the connections:
Threaded port by screwing in the pipes, Welded connection by welding, Flange by screwing on.

Flange interface on the valve



Ø 3.1; 6 deep;
Option for positioning pin ø 3
(ensure correct location for installation)

7.2 Option: Valve with 3 position actuator (with adjustable intermediate position)

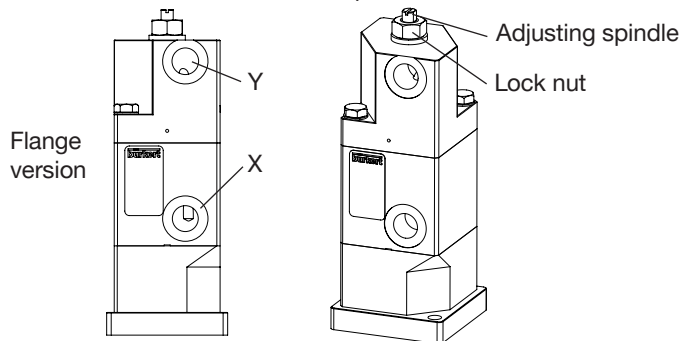
Functions of the valve:

- Closed (without pilot air, by spring force),
- Partial stroke (pilot air simultaneously on X and Y),
- Full stroke (pilot air on X only).

Stroke setting on the spindle:



Flow: plus minus



Setting the intermediate position:

- attach a suitable flow measuring device (measuring cup, flow meter, etc.),
- loosen the lock nut,
- connect pilot air to X and Y,
- open the medium supply,
- set the required flow on the adjusting spindle
stroke range = 0 to 2.5 mm (rotating the spindle clockwise reduces the flow),
- switch off the pilot air,
- tighten the lock nut.

8 MAINTENANCE, MALFUNCTIONS



DANGER!

Danger – high pressure in the equipment!

There is a serious risk of injury when reaching into the equipment.

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



WARNING!

Danger due to improper maintenance work!

Improper maintenance may result in injuries as well as damage to the device and the surrounding area.

- ▶ Maintenance work may be carried out by authorised technicians only and with the appropriate tools!

Danger due to unintentional activation of the equipment!

Unintentional activation of the equipment during maintenance and repair work may result in injuries and/or damage.

- ▶ Take appropriate measures to prevent the equipment from being unintentionally activated.

8.1 Maintenance / Cleaning

The bellows situated between the medium compartment and actuator ensure that the valve switches reliably and protect the medium from contaminants coming from the actuator side. These bellows are subject to symptoms of fatigue. If the bellows are defective, medium will escape out of the leakage detection opening. To prevent them from being destroyed, the bellows should be changed prophylactically at regular intervals (see chapter „8.2“). The valve interior has no gaps and the inner compartment and bellows have been designed with very smooth contours (surface roughness max. 0.8 µm). The valve is CIP compatible (CIP = cleaning in process) and SIP compatible (SIP = sterilization in process).

8.2 Changing the bellows

Removing the actuator

- Provide the required spare parts and a size 7 open-ended wrench,
- Interrupt the pilot air supply, vent and disconnect the lines,
- Interrupt the medium supply and vent the lines,
- Loosen both fastening screws,
- Remove the actuator.

Changing the bellows

- Unscrew the bellows from the spindle,
- Clean the inner compartment of the body,
- Manually screw the new bellows onto the spindle and tighten them hand-tight.

Attaching the actuator

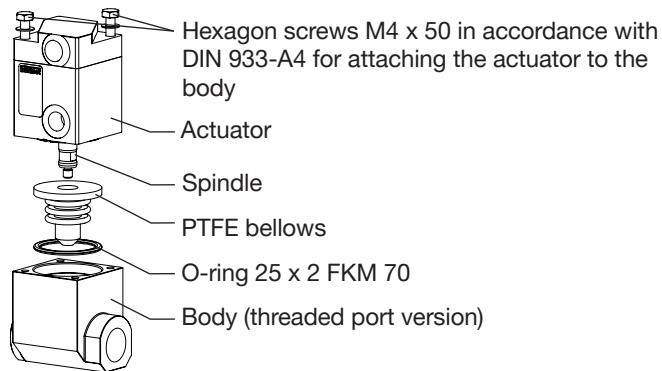
- Clean the O-ring 25 x 2 FKM 70 in the body, check whether it can be re-used and, if required, replace it with a new O-ring
- Place the actuator with new bellows on the body; ensure that the bores in the actuator are correctly aligned with the thread in the body
- Attach the actuator to the body with the fastening screws (tightening torque from 2 to 2.2 Nm).

Restarting the bellows valve

- Connect the pilot air line,
- Open the pilot air,
- Open the medium supply,
- Conduct a function and leak test,,

→ If the valve functions reliably, it can be restarted.

Exploded drawing of changing spare parts, Type 2080



8.3 Malfunctions

If malfunctions occur, check:

- the line connections,
- the operating pressure,

- the pilot air supply which actuates the valve,
 - the bellows and, if required, change them (see chapter „8.2“).
- If the valve still does not switch, please contact your Bürkert Service.

9 REPLACEMENT PARTS



CAUTION!

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

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

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

Order table of spare parts

Spare part	Description	Order no.
Bellows	Material PTFE	247 459
O-ring	25 x 2.0 FKM 70 green	(only available as a set)

10 TRANSPORT, STORAGE, DISPOSAL

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 allowable storage temperature.

Incorrect storage may damage the device.

- Store the device in a dry and dust-free location!
- Storage temperature: -20 ... +65 °C.

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

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

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