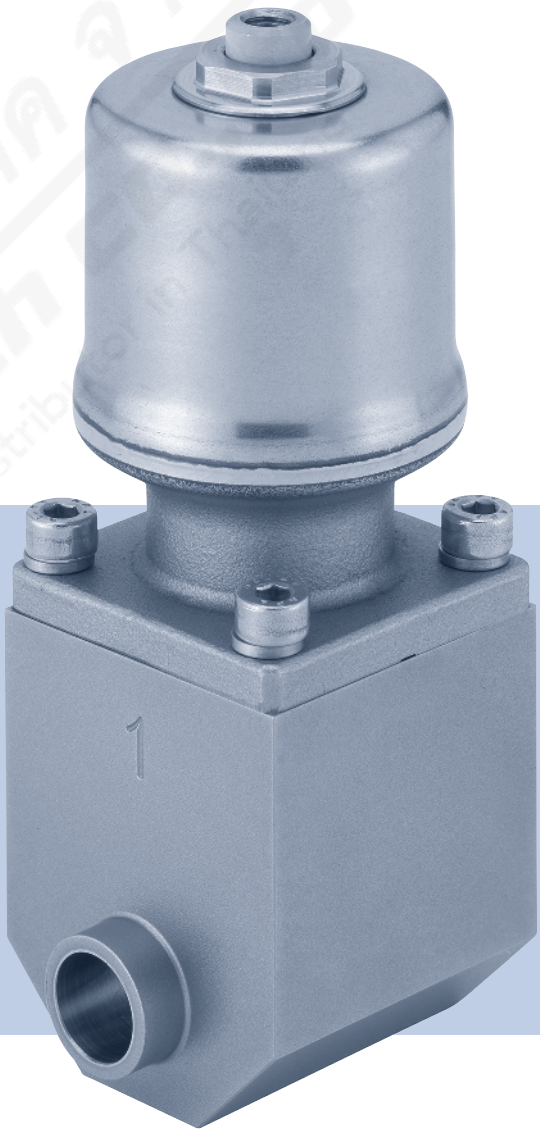
bürkert
FLUID CONTROL SYSTEMS

Type 2080
INOX

2/2 way valve with piston actuator and PTFE bellows



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Operating Instructions

INHALT

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1 OPERATING INSTRUCTIONS

The operating instructions describe the entire life cycle of the device. Keep these instructions ready to hand at the operation site.

Important safety information!

- Carefully read these instructions.
- Observe in particular the safety instructions, intended use and operating conditions.
- Persons who work on the device must read and understand these instructions.

1.1 Symbols

DANGER!

Warns of an immediate danger.

- Failure to observe will result in death or serious injuries.

WARNING!

Warns of a potential danger.

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

CAUTION!

Warns of a potential danger.

- Failure to observe may result in moderate or minor injuries.

NOTE!

Warns of damage.

- Failure to observe may result in damage to the device or the system.

Indicates important additional information, tips and recommendations.

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

▶ Designates instructions to avoid danger.

→ Designates a procedure which you must carry out.

1.2 Definition of the term “device”

In these instructions, the term “device” refers to the following types of devices:

Bellows valve type 2080 INOX.

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2 INTENDED USE

Improper use of the bellows valve type 2080 INOX may be hazardous to people, nearby equipment and the environment.

The device is designed to control the flow of liquid and gaseous media.

- Be sure to observe the permissible data, operating conditions and conditions of use. These are described in the contract documents, on the type label and in the operating instructions (chapter "5 Structure and function" and chapter "6 Technical data").
- Use the device only in conjunction with third-party devices and components that are recommended or approved by Bürkert.
- Prerequisites for safe and trouble-free operation include correct transport, storage and installation as well as careful operation and maintenance.
- Only use the device as intended.

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3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not take into account any unforeseen circumstances or events occurring during installation, operation and maintenance. The operator is responsible for observing the location-specific safety regulations, also with reference to personnel.

Risk of injury from high pressure.

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

Risk of burns / fire during continuous operation.

The device can become very hot when dosing hot media.

- The device regulates hot media and must only be handled with protective gloves.
- Keep highly flammable substances and media away from the device.

General hazardous situations.

To prevent injuries, ensure that:

- The housing is not placed under mechanical stress (e.g. by placing objects on it or standing on it).
- Do not make any external changes to the valve bodies.
- Do not feed aggressive or flammable media into the pilot air ports of the system.
- Only the media listed in the chapter "6 Technical data" as flow media should be fed into the fluid connections.
- Secure the device against unintentional activation.
- Installation and maintenance may be performed by authorised technicians only and with the appropriate tools.
- After an interruption of the electrical / pneumatic supply you must ensure a defined or controlled restart of the process.
- The device should only be operated when in perfect condition and in compliance with these operating instructions.
- The general rules of technology apply to application planning and operation of the device.

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4 GENERAL NOTES

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

International

The contact addresses can be found on the back pages of the printed Quickstart. They are also available online at: www.burkert.com

4.2 Warranty

A precondition for the warranty is that the device is used as intended and that the specified usage conditions are taken into account.

4.3 Information on the Internet

Operating instructions and data sheets for the Bürkert products can be found on the Internet at: www.burkert.com

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5 STRUCTURE AND FUNCTION

5.1 Modularity

The device has a modular design and can be supplied with different media connections (also customised) and actuator versions depending on the application.

5.2 Design

The device consists of a pneumatically operated piston actuator with a return spring, a stainless steel housing and a PTFE bellows. The bellows serves to separate the media.

The materials used and the internal contours allow easy cleaning (CIP/SIP).

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

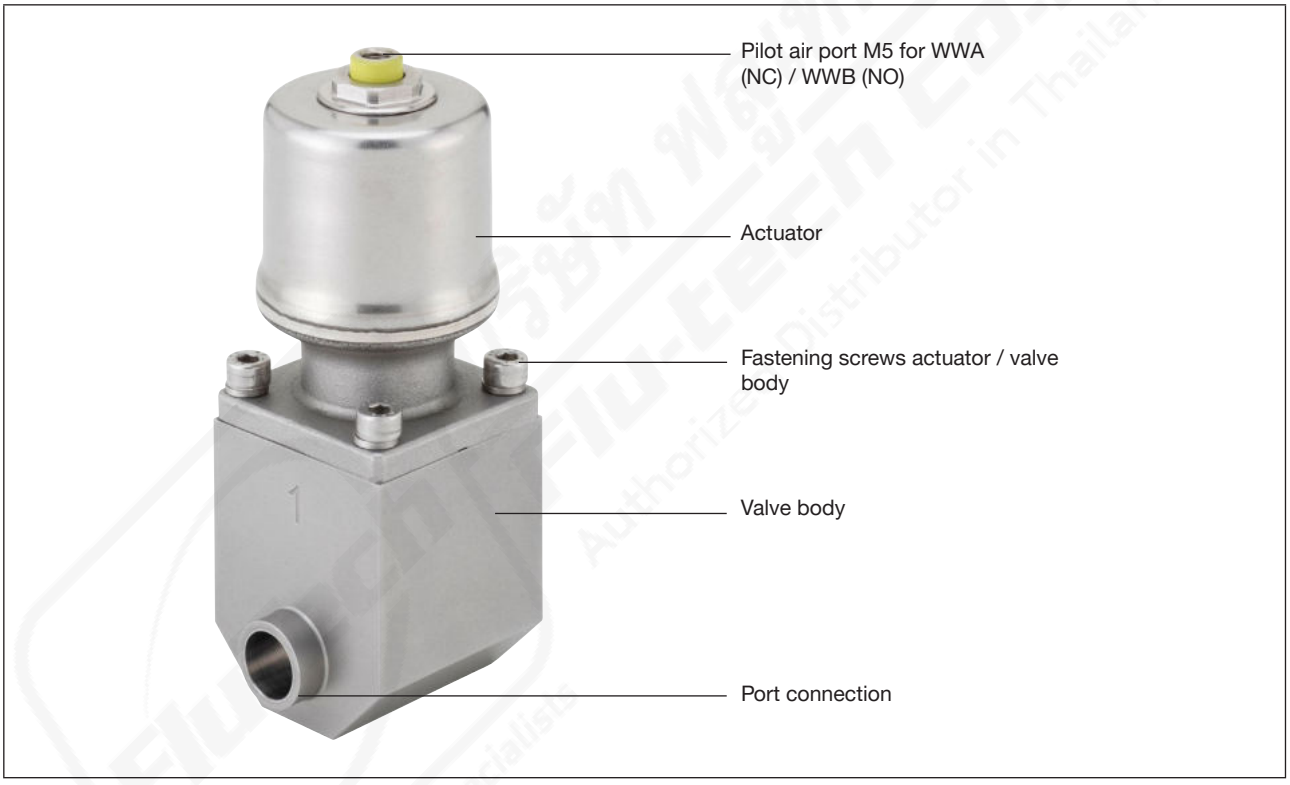

Fig. 1: Design of the bellows valve type 2080 INOX with welded connection

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6 TECHNICAL DATA

6.1 Operating conditions

Ambient temperature	–10 ... +90 °C
Medium temperature	–30 ... +160 °C (see PT diagramm)
Flow media	Neutral to aggressive gases and liquids, technical vacuum

6.2 Restrictions

For valves with flow direction above the seat:

WARNING!

Risk of injury from pressure surge.

Pressure surges may occur if liquid media flow direction is above the seat. As a result, lines or equipment may burst and medium may flow out.

- Observe the type of flow and type of medium for operating the device.
- In the case of flow direction above the seat: to avoid pressure surges, clarify the operating conditions (medium, line length and line cross-section) with the Bürkert sales office before using liquid media.

6.3 Conformity

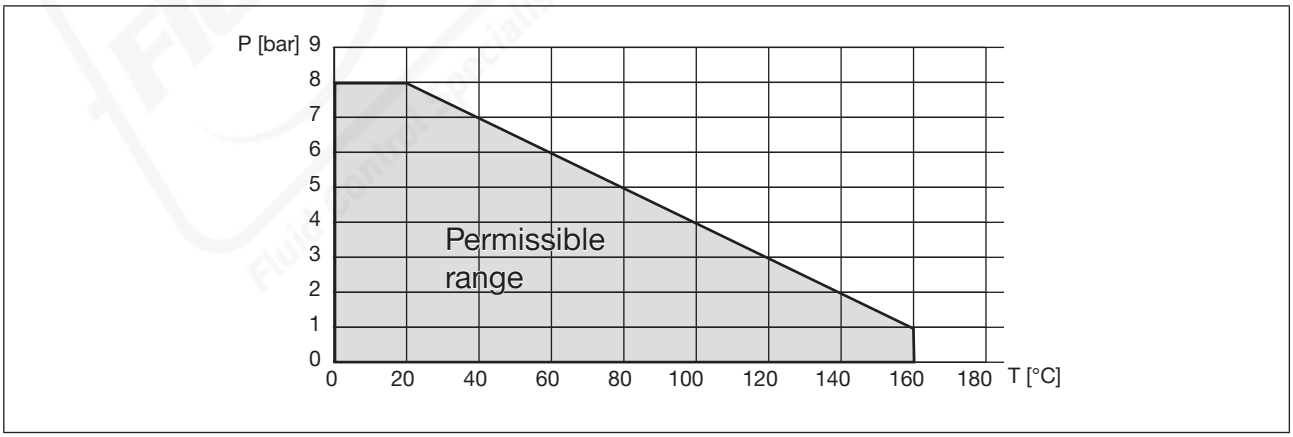
The bellows valve type 2080 INOX conforms to the EU directives as per the EU declaration of conformity.

6.4 Standards

The applied standards as used to verify compliance with the Directives can be found in the EC type examination certificate and/or the EC Declaration of Conformity.

6.5 PT diagram

Permissible pressure-temperature compatibility of the PTFE bellows (pressure specification [bar]: overpressure with respect to atmospheric pressure).



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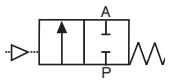
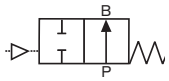
6.6 Mechanical data

Dimensions	See data sheet
Materials	
Valve body	Stainless steel 316TI (1.4571)
Actuator housing	Stainless steel 316L (1.4404) / 316 (1.4408)
Bellows	PTFE
Stroke bellows	2.5 mm
Surface quality pipe interior	Ra = 0.8 µm

6.7 Fluidic data

Circuit functions		
A		2/2 way valve, externally controlled, closed by spring force without pilot pressure, actuation with pilot valve, valve island or similar.
B		2/2 way valve, externally controlled, opened by spring force without pilot pressure, actuation with pilot valve, valve island or similar.

Valve body	
Pressure range of medium	Vacuum... 8 bar (see PT diagram)
High backpressure tightness	Up to 8 bar
DN	DN 4 ... DN 10
Port connections	Threaded connection, welded connection, clamp connection
Other port connections on request.	

Actuator	
Control medium	Compressed air 4.5... 10 bar (dried and filtered) neutral gases
Pilot air port	Internal thread M5

6.8 Actuator versions

Version	Circuit function (CF)
Actuator Open-Close	WWA and WWB

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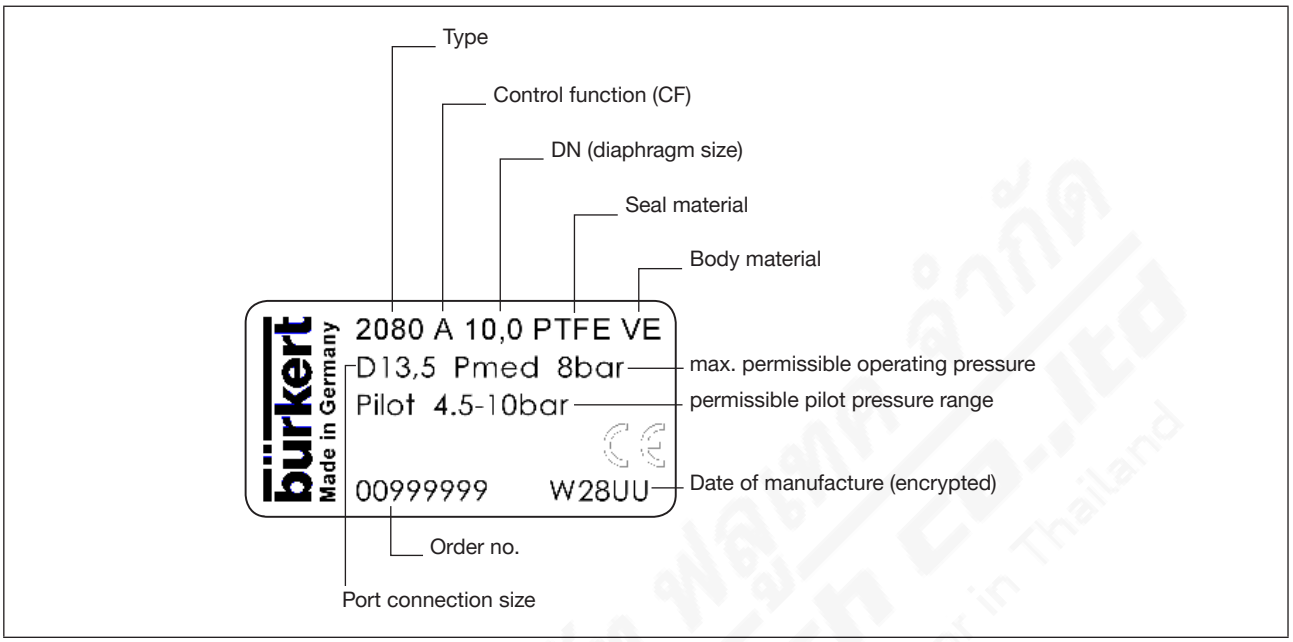
6.9 Type label (example)



7 INSTALLATION

WARNING!

Risk of injury due to improper installation.

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

Risk of injury due to unintentional activation of the system and uncontrolled restart.

▸ Secure the system against unintentional activation.

▸ Following installation, ensure a controlled restart.

7.1 Fluidic installation

DANGER!

High pressure danger!

Acute risk of injury when intervening with the system.

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

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

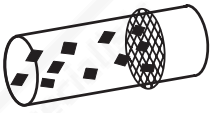
7.1.1 Installation position

The installation position is arbitrary. Preferably actuator face up.

7.1.2 Prior to installation

→ Clean any dirt from the pipelines and flange connections.

→ If necessary, install a strainer upstream of the valve to protect against malfunctions.



Mesh size:
0.1 ... 0.4 mm

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7.1.3 Installation

WARNING!

Danger due to medium leakage.

Leaky connections with incorrect seating of the seals.

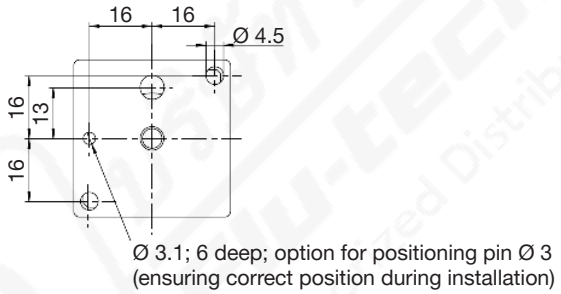
▸ Install all connections carefully and make sure the seals are seated properly.

Use suitable sealing material to seal the threaded connections (PTFE tape is recommended).

For threaded connections: Use open-end wrenches of the appropriate size to screw in the pipelines and do not use the valve actuator as a screw-in lever.

No lateral bracing forces may act on the connections of the device. The device connections and cables must be tidy.

→ Fasten the valve according to the selected connection type:
Threaded connection by screwing in the pipes, welded connection by welding, flange connection by screwing in.



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8 MAINTENANCE, MALFUNCTIONS

DANGER!

▸ Danger due to high pressure in the system.

Acute risk of injury when intervening in the system.

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

Risk of injury from discharge of pressure and escaping medium.

Dismantling a device that is under pressure is hazardous due to a sudden discharge of pressure or escaping medium.

▸ Before disassembly, shut off the pressure and vent all lines.

▸ Empty the lines completely.

WARNING!

Risk of injury through improper maintenance.

Improper maintenance may result in injuries as well as damage to the device and its surroundings.

▸ Maintenance work may only be carried out by authorised specialist personnel and with suitable tools.

Danger due to unintentional operation of the system.

Unintentional restarting of the unit during maintenance and repair work can lead to injuries and damage to property.

▸ Take appropriate measures to prevent the system from being operated unintentionally.

8.1 Maintenance / cleaning

The bellows between the medium chamber and the actuator enables functionally reliable switching of the valve and protects the medium from contamination from the actuator side.

This bellows is subject to fatigue. If the bellows is defective, medium leaks out of the opening for leakage control.

To avoid damage, the bellows should be replaced preventively on a regular basis (see chapter “8.2 Change bellows”).

The valve is designed without gaps on the inside and with very smooth contours on the interior as well as on the bellows (surface roughness max. 0.8 µm).

The valve is CIP-capable (CIP = cleaning-in-place) and SIP-capable (SIP = sterilisation-in-place).

8.2 Change bellows

Disassemble actuator

→ Have the necessary spare parts and an open-end wrench SW 7 ready.

→ ⚠ Observe safety instructions!

→ Loosen fastening screws

→ Remove actuator.

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Change bellows

→ Unscrew the bellows from the spindle.

→ Clean the inside of the valve body.

→ Screw the new bellows onto the spindle with two fingers until it stops (tightening torque approx. 0.2 Nm; too much tightening torque can damage the bellows!).

Install actuator

→ Clean O-ring 25 x 2 FKM 70, check for reusability. Replace with new O-ring if necessary.

→ Place the actuator with the new bellows on the housing and fasten it to the housing with the fastening screws. Observe a tightening torque of 2 to 2.2 Nm at .

Restarting the bellows valve

→ Connect the pilot air line.

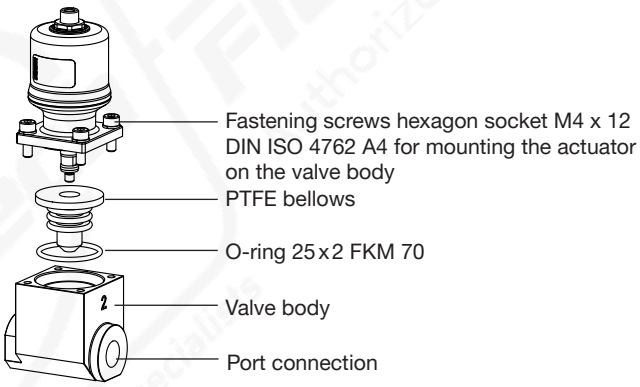
→ Open the pilot air.

→ Open the media supply.

→ Carry out a function and leak test.

→ If it functions safely, the valve can be put back into operation.

8.2.1 Exploded view of spare part replacement Type 2080 INOX



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8.3 Faults

Check in case of faults:

- Port connections
- Operating pressure
- Pilot air supply to the valve actuator
- Bellows
- O-ring

Replace the O-ring if damaged (see chapter “8.2 Change bellows”).

→ If the valve still does not actuate, contact your local Bürkert Service representative.

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9 SPARE PARTS

CAUTION!

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

Incorrect accessories and unsuitable spare parts may cause injuries and damages to both the device and the area around it.

▸ Use only original accessories and original replacement parts from Bürkert.

Spare parts order table

Spare part	Description	Order no.
Bellows	Material PTFE	247 459
O-ring	25 x 2.0 FKM 70 green	

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10 TRANSPORTATION, STORAGE, DISPOSAL

NOTE!

Transport damages.

Inadequately protected devices may be damaged during transport.

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

Damage to the environment caused by device parts that are contaminated with media.

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

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