

## Type 2031 INOX

2/2-way diaphragm valve  
2/2-Wege-Membranventil  
Vanne à membrane 2/2 voies



## Quickstart

English    Deutsch    Français

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

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Operating Instructions 2110/02\_EU-ML\_00810366 / Original DE

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## 1 QUICKSTART

The quickstart comprises important information.

- ▶ Carefully read the quickstart and observe any safety information.
- ▶ The quickstart must be available to every user.
- ▶ The liability and warranty for type 2031 INOX do not apply if the quickstart are not observed.

The quickstart illustrates the installation and commissioning of the equipment with examples. A detailed description of the device can be found in the operating instructions in the internet at: [www.burkert.com](http://www.burkert.com)

### 1.1 Definition of term

The term “device” used in these instructions always stands for the diaphragm valve Type 2031 INOX.

## 2 CONTACT ADDRESSES

Bürkert Fluid Control Systems / Sales Center  
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### International

Contact addresses can be found in the internet at: [www.burkert.com](http://www.burkert.com)



If you have any queries, please contact your Bürkert sales office.

## 2.1 Symbols

Warning to prevent death or serious injuries:

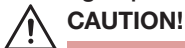


Warns of an immediate danger.



Warns of a potentially dangerous situation.

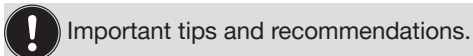
Warning to prevent moderate or minor injuries:



Warns of a possible danger.

### NOTE!

Warns of material damage.



→ designates a procedure which you must carry out.

## 3 INTENDED USE

Diaphragm valve Type 2031 INOX is designed to control the flow-rate of liquid and gaseous media.

- Observe the permitted application conditions for using the equipment.
- Operate only when in perfect condition and pay attention to correct storage, transportation, installation and operation.

## 4 BASIC SAFETY INSTRUCTIONS



**Danger – high pressure.**

- ▶ Before dismantling 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 crushing from moving pneumatic connection.**

- ▶ When opening and closing the device, do not touch the moving pneumatic connection.
- ▶ Do not reach into the area immediately above and below the control air connection.

**Risk of burns/risk of fire if used during long-term operation through hot device surface.**

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

### General hazardous situations.

To prevent injury, ensure:

- ▶ Secure system/equipment against unintentional activation.
- ▶ Supply only media to the media connections which have been specified as flow media in the chapter [“Technical data”](#).
- ▶ Do not make any internal or external changes to type 2031 INOX and do not load mechanically.
- ▶ 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 general rules of technology apply to application planning and operation of the device.

## 5 TECHNICAL DATA

### 5.1 Conformity

The diaphragm valve Type 2031 INOX is compliant with the EC Directives according to the EC Declaration of Conformity.

### 5.2 Standards

The applied standards which are used to demonstrate compliance with the EC Directives are listed in the EC type test certificate and/or the EC Declaration of Conformity.

## 5.3 Operating conditions

### 5.3.1 Temperature ranges

Ambient temperature: 0 °C...+60 °C  
Medium temperature: -10 °C...+140 °C

Permitted medium temperature depending on diaphragm material:

Material	Temperature [°C] <sup>1)</sup>	Remarks
EPDM (AB)	-10...+130	Steam sterilization up to +140 °C / 60 min
EPDM (AD)	-5...+143	Steam sterilization up to +150 °C / 60 min
FKM (FF)	0...+130	No steam / dry heat up to +150 °C / 60 min
PTFE (EA)	-10...+130	Steam sterilization up to +140 °C / 60 min
Advanced PTFE (EU)	-5...+143	Steam sterilization up to +150 °C / 60 min
Gylon (ER)	-5...+130	Steam sterilization up to +140 °C / 60 min

1) *The indicated medium temperatures apply only to media which do not corrode or swell the diaphragm materials. The behavior of the medium with respect to the diaphragm may be changed by the medium temperature. The function properties, in particular the service life of the diaphragm, may deteriorate if the medium temperature increases. Do not use the diaphragms as steam shut-off element.*

### 5.3.2 Pressure ranges



#### WARNING!

Risk of bursting due to overpressure.

If the device bursts, there is a risk of serious injury, chemical burns, scalding.

- ▶ Do not exceed the maximum pilot and medium pressure. Observe specifications on the type label.

Permitted pilot- and medium pressure:

Control function (CF)	Minimum pilot pressure [bar]	Maximum pilot pressure [bar]	Maximum medium pressure [bar]	
			Elastomer (including coated)	PTFE and Advanced PTFE
CFA	5.5	10	10	6
CFB	2.2	7	see "Fig. 1"	

Required minimum pilot pressure for control function B depending on the medium pressure on one side:

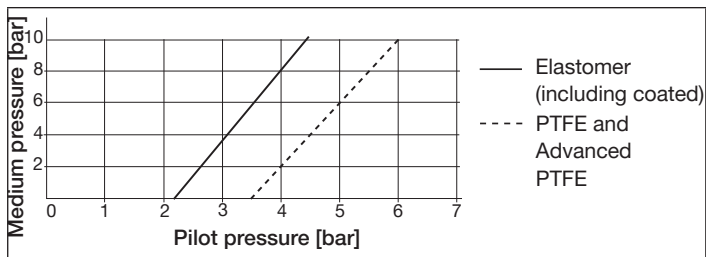


Fig. 1: Pressure graph, elastomer and Advanced PTFE diaphragm

### 5.3.3 Permitted media

Control medium: neutral gases, air

Flow media: neutral gases and liquids, high-purity, sterile, aggressive and abrasive media

### 5.4 Control functions

A		Closed in rest position by spring force
B		Open in rest position by spring force

### 5.5 Type label

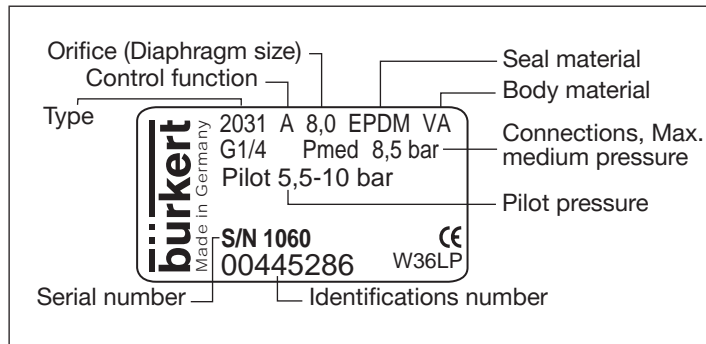


Fig. 2: Description of the type label

## 6 INSTALLATION

### DANGER!

Danger – high pressure.

- ▶ Before dismantling 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.

### WARNING!

Risk of injury from improper installation, unintentional activation of the system and uncontrolled restart.

- ▶ Installation must only be carried out by authorized technicians and with the appropriate tools.
- ▶ Secure system from unintentional activation.
- ▶ Following installation, ensure a controlled restart.

Risk of crushing from moving pneumatic connection.

- ▶ When opening and closing the device, do not touch the moving pneumatic connection.
- ▶ Do not reach into the area immediately above and below the control air connection.

### 6.1 Before installation

- Before connecting the valve, ensure the lines are flush.
- The flow direction is optional.

### 6.1.1 Installation position

Installation position: any, preferably with the actuator face up.

Installation for self-drainage of the body:



It is the responsibility of the installer and operator to ensure self-drainage.

To ensure self-drainage:

- mark (-) on the body must be at 12 o'clock,
- hole in the diaphragm base must be at the lowest point to monitor leakage.

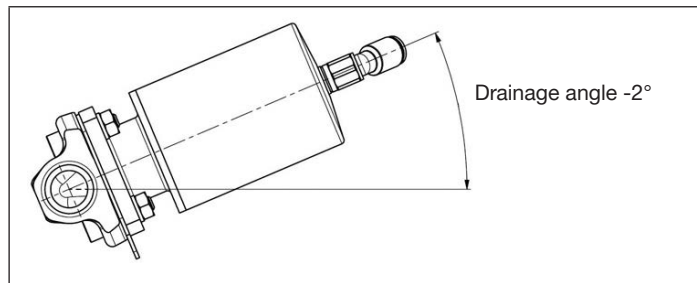


Fig. 3: Installation position for self-drainage of the body

### 6.1.2 Preparatory work

- Clean pipelines (sealing material, swarf, etc.).
- Support and align pipelines.

Devices with VG/VS welded connection



Before welding the body, the actuator must be removed.

## 6.2 Installation



### WARNING!

**Risk of injury from incorrect installation.**

Non-observance of the specified tightening torque is hazardous as the device may be damaged.

- ▶ Observe tightening torque during installation.

### 6.2.1 Devices with VG/VS welded connection



Before welding the body, the actuator must be removed.

Remove actuator and diaphragm from the body

#### Procedure for control function A:

- Apply control air connection with compressed air (5.5 bar).
- Loosen fastening screws in diagonal pairs and remove actuator together with diaphragm from the body.
- Weld body into the pipeline.

#### Procedure for control function B:

- Loosen fastening screws in diagonal pairs and remove actuator together with diaphragm from the body.
- Weld body into the pipeline.

### 6.2.2 Installation

Installation for actuator with control function A:

- Align diaphragm.  
**The mark tab of the diaphragm must be vertical to the flow of direction.**

- Place actuator on the body.
- Apply control air connection with compressed air (5.5 bar).
- Lightly tighten fastening screws crosswise until the diaphragm is situated between the body and actuator.  
**Do not tighten screws yet!**
- Switch diaphragm valve twice.
- Tighten the fastening screws in a diagonal pattern up to 1/3 of the tightening torque, without pressurisation. Then follow a diagonal pattern again in tightening the screws to 2/3 of the tightening torque value. Then, in the 3rd step, tighten the screws in a diagonal pattern up to the full permitted tightening torque.  
 Observe tightening torque (2.5 Nm)!

Installation for actuator with control function B:

- Align diaphragm.  
**The mark tab of the diaphragm must be vertical to the flow of direction.**
- Place actuator on the body.
- Lightly tighten fastening screws crosswise until the diaphragm is situated between the body and actuator.  
**Do not tighten screws yet!**
- Switch diaphragm valve twice.
- Tighten the fastening screws in a diagonal pattern up to 1/3 of the tightening torque, with pressurisation. Then follow a diagonal pattern again in tightening the screws to 2/3 of the tightening torque value. Then, in the 3rd step, tighten the screws in a diagonal pattern up to the full permitted tightening torque.  
 Observe tightening torque (2.5 Nm)!



## 6.3 Pneumatic connection



### WARNING!

Risk of injury from unsuitable connection hoses.

Hoses which cannot withstand the pressure and temperature range may result in hazardous situations.

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

### 6.3.1 Control air connections

	<p>The 45° angle connection, which can be ordered separately, is recommended for the control air connection! In this case the free-moving hose length should be min. 250 mm. If the hose length is shorter, the durability and function of the plug-in coupling will be impaired.</p>
	<p>If a straight control air connection is used, the free-moving hose length should be min. 400 mm. If the hose length is shorter, the durability and function of the plug-in coupling will be impaired.</p>
	<p><b>⚠ Risk of crushing!</b></p> <ul style="list-style-type: none"> <li>▶ Due to the risk of crushing, a 90° control air connection must not be used.</li> </ul>

## 7 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 manual.
- ▶ Observe the safety instructions and intended use.
- ▶ Only adequately trained personnel may start up the device.



Observe the type label specifications and information on pressure and temperature values in chapter [“Technical data”](#).

## 8 MAINTENANCE, CLEANING

### 8.1 Actuator

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

#### 8.1.1 Wearing parts of the diaphragm valve

Parts which are subject to natural wear:

- Diaphragm

→ If leaks occur, replace the diaphragm with a new one.



A distended PTFE diaphragm may reduce the flow-rate.

### 8.1.2 Inspection intervals

The following maintenance must be performed on the diaphragm valve:

- After initial steam sterilisation and whenever necessary, re-tighten fastening screws following a diagonal pattern.
- Check the diaphragm for wear after a maximum of  $10^5$  switching cycles.



Muddy and abrasive media require correspondingly shorter inspection intervals.

### 8.2 Cleaning

Commercially available cleaning agents can be used to clean the surface of the device.

#### NOTE!

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

## 9 TRANSPORTATION, STORAGE, DISPOSAL

#### NOTE!

##### Transport and storage damage.

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

**Storage with tightened body screws may result in permanent deformation of the diaphragm.**

- ▶ Slacken body screws for prolonged storage.

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

- ▶ Dispose of the device and packaging in an environmentally friendly manner.



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