

# Type 6481

2/2-way solenoid valve



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Operating Instructions 2407/00 00815479 / Translation of the original DE

## Foreword

These Operating and Installation Instructions assist in the proper, safe and economic use the pressure controlled, direct acting valve Type, called valve for short. It is intended for any person that uses, operates, handles, services and cleans this valve. It particularly applies to customer service technicians, trained professionals and qualified and authorized personnel.

Each of these individuals must have read and understood these Operating and Installation Instructions. Always keep these operating and installation instructions within reach of the valve. Following the instructions in this manual helps avoid dangers and increase the reliability and service life of the valve.

In addition to these Operating and Installation Instructions, you must comply with the mandatory regulations relevant to accident prevention as well as the recognized technical rules for the safe and professional work applicable in the country and place of use.

## Availability

You can request a new copy of these Operating and Installation Instructions from Bürkert if these are lost or become unusable. Enclose these Operating and Installation Instructions when you sell the valve or pass it on in any other way.

## Design features used in the text

Various elements of these Operating and Installation Instructions use specific design features. These help to easily distinguish between the following elements:

Normal text

- Bulleted list
- Action step



Tips contain additional information on the economic use of the valve.

## Contact with manufacturer

If this manual leaves any of your questions unanswered, contact:

Bürkert Fluid Control Systems  
Christian-Bürkert-Str. 13-17  
D-74653 Ingelfingen

The contact addresses can be found at [country.burkert.com](https://country.burkert.com) in the "Contact" menu.



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## Safety

### Proper use

The purpose of the valves is to shut off liquid or gaseous media flows. The media must be compatible with the materials from which the housing and seals are made. The valves must only be installed in the flow direction indicated.

Proper use also includes the observance and compliance with all specifications in these instructions, in particular the safety instructions. Any other use or use going beyond this is considered improper use.

### Improper use

Bürkert cannot be held liable for damage arising from improper use.

### Notes on residual risks

This valve has been built using state-of-the-art technology and according to the generally recognised rules of technology and applicable standards. Sources of danger have been designed out from the outset, or rendered harmless by using appropriate protective equipment.

Despite this however, operation of the valve is still not entirely risk free.

The following conditions may pose a risk to persons or lead to impaired performance of the valve and other material assets:

- If the valve is fitted, operated or serviced by insufficiently qualified personnel.
- If the valve is used for a purpose other than its intended purpose.

### Prohibition of unauthorized constructional changes and modifications

- Do not perform unauthorised conversions or modifications to the valve. Modifications or changes are not permitted without the consent of the manufacturer.
- Never bridge or bypass existing protective equipment.

### Personal protective measures

- Wear protective gloves in accordance with EN388.
- Wear protective footwear according to EN20345 S1 or EN20345 S2.

### Basic safety instructions

#### Avoiding risk of burns

Risk of burns from cold or hot surfaces. Depending on the medium temperature and during continuous operation, the surface of the valve and other system parts can become cold or hot.

- Wear protective gloves.
- In cold temperatures, allow the valve and other system parts to warm up before starting maintenance or cleaning work.
- In hot temperatures, allow the valve and other system parts to cool down before starting maintenance or cleaning work.

#### Avoiding injuries due to pressure in the piping system

- Release the pressure from the piping system before maintenance or repair work.
- Do not perform any maintenance or repair work at the valves while they are under pressure.

#### Avoid injuries from electric shock

- Only have work on the power supply carried out by a qualified electrician.
- Switch off the power supply before carrying out maintenance or repair work.
- Ensure that the electrical connection data specified on the rating plate is observed.
- Protect the electrical connections from moisture.
- Earth the valve with a cable at the threaded holes provided for this purpose.

## Layout attributes of the danger notes

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### **DANGER**

Notes with the word DANGER warn against a dangerous situation which leads to severe injuries or death.

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### **WARNING**

Notes with the word WARNING warn against a dangerous situation which may lead to severe injuries or death.

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### **CAUTION**

Notes with the word CAUTION warn against a situation which may lead to minor injuries.

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## Layout attributes of notes on material and environmental damage

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### **ATTENTION**

These notes warn against a situation which leads to material or environmental damage.

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## Description of the valve

These operating and installation instructions apply to valve type 6481.

## Functional description

The valves are used to shut off a media flow using a valve seat seal or a diaphragm. The valves only seal in the flow direction of the media flow. Direct operated valves do not require a minimum operating or differential pressure for the switching function; they operate from 0 bar.

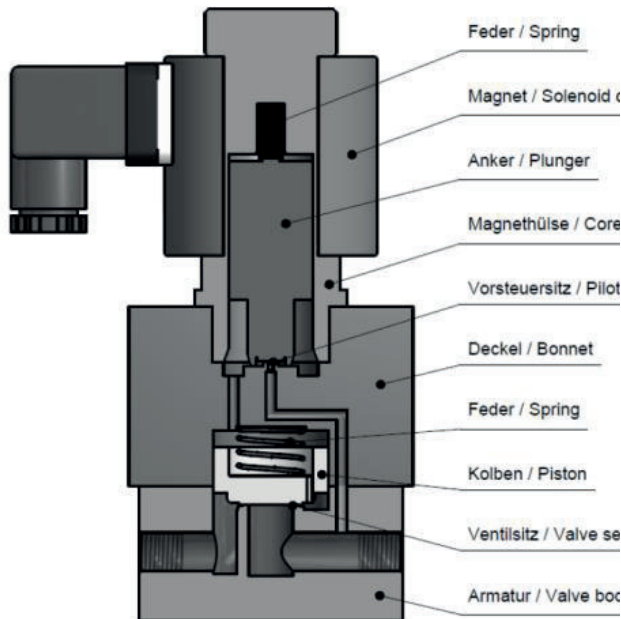
The designations P (valve inlet) and A (valve outlet) are engraved on the valve or labelled with an arrow to indicate the direction of flow.

## Type NC

In the NC (Normally Closed) version, the valve is closed when de-energised.

The seal is connected to the solenoid armature. The solenoid armature is pressed onto the valve seat by the spring force of the compression spring and the pressure of the medium. To open the valve, the solenoid must overcome the force of the compression spring and the closing force resulting from the effective pressure difference and the seat cross-section between the inlet and outlet.

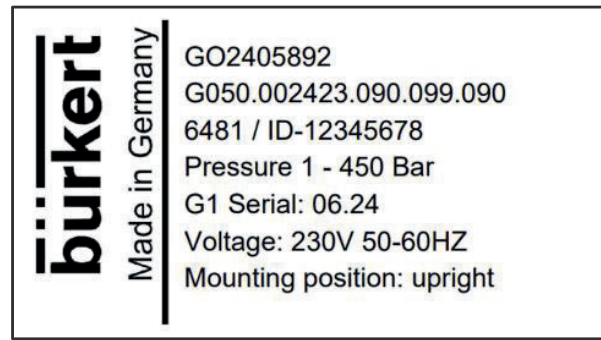
The valve opens



## Type label

The type label is affixed to the cylinder of the drive compartment. The following information is provided

- Manufacturer
- Order number
- Reference
- Series and identification number
- Operating pressure
- Nominal diameter or connection size
- Date of manufacture [mm.yy]
- Supply voltage
- Connection note



## Installing the valve

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### Installing the valve

#### Qualification of the personnel

Make sure that the installation work is only carried out by persons who have received training in the following areas:

- Connecting valves to pipes
- Welding of pipes
- Connecting valves to the power supply
- The safety regulations that apply at the place of operation.

#### Installing the valve in a pipe

**You must fit the pipe ends before the valve can be fitted at the mounting location.**

- Before fitting the valve, flush the pipes using a neutral medium at pressure intervals.
- Fit a dirt trap in front of each valve to stop it malfunctioning if the medium is contaminated.

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#### **ATTENTION**

The valve and its attachments may be damaged.

- Do not use the the valve attachments, e.g. solenoid and solenoid sleeve, as levers.

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#### **CAUTION**

Incorrect installation may damage the valve or equipment.

- Make sure the valve is mounted in the correct installation position.
- Make sure the valve is mounted in the correct flow direction.
- Make sure the drive chamber is not used as a lever.

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- Put the valve in the fitting position.
  - Connect the pipe ends to the connections on the valve.
  - Tighten the connections of the pipe ends.



#### **CAUTION**

Risk of burns due to hot surfaces. The valve and solenoid may become hot when in operation.

- Wear protective gloves.

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- If the valve is in an easily accessible location, fit a guard to prevent accidental contact.

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#### **ATTENTION**

Possible damage due to overheating of solenoid.

- Do not insulate the solenoid.

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#### Electrical installation

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#### **ATTENTION**

Damage to electrical components of valve.

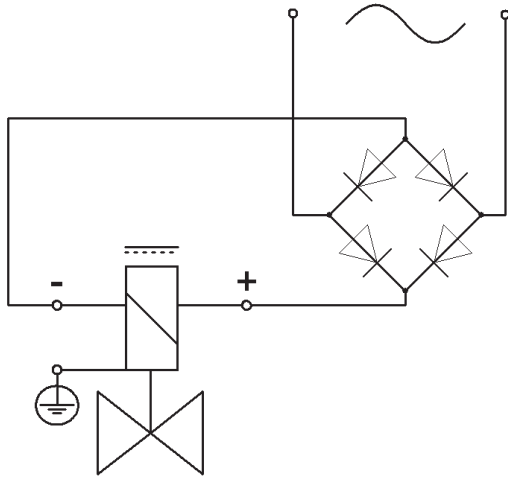
- Make sure that the correct voltage is supplied to the electrical components.

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- Make sure that the plug is freely accessible.

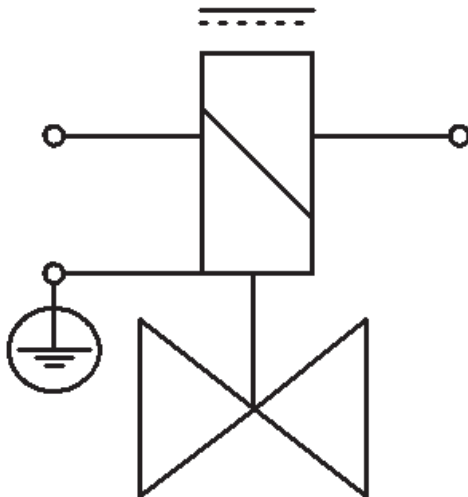
## Wiring diagram

Follow the wiring diagram when connecting the power supply. Follow the directions on the nameplate.

### Wiring diagram for DC voltage and direct connection to AC



### Wiring diagram with an upstream voltage rectifier for AC



- Make sure that magnetic coils operating with switching electronics or a voltage rectifier are connected accordingly.

### Operating the valve

As there is no general procedure for bringing the valve into operation that can be applied in all cases, you should agree on the method to be used with the owner/operator of the system.



#### **CAUTION**

Risk of burns due to hot surfaces. The valve and solenoid may become hot when in operation.

- Wear protective gloves.

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#### **ATTENTION**

Possible damage to the solenoid due to high temperature.

- Make sure AC solenoids rest on the tube when you put them into operation.
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## Troubleshooting

Fault	Possible cause	Corrective action
Valve does not close.	The armature is blocked.	Eliminate the cause of the blocked armature.
	The nominal voltage is still applied. (Only applies to the NC version).	Check whether the electrical connection has been executed correctly. Establish the electrical connection.
	The installation position is wrong.	Mount the valve in the correct installation position.
	The direction of flow is wrong.	Mount the valve in the correct direction of flow.
	The seat seal is defective.	Replace the defective seat seal with a perfect seal.
	The operating pressure is too high. (Only applies to the NO version).	Lower the operating pressure Install a valve which is suitable for the operating pressure.
	The armature is not moving. (Only applies to the NO version).	Check whether the connection voltage is active. Establish the electrical connection. Check whether the armature is blocked. Release the blocked armature.
	The connection voltage is interrupted or insufficient. (Only applies to the NO version).	Eliminate the cause of the interruption. Ensure a sufficiently high connection voltage.
	The solenoid coil or the rectifier is defective. (Only applies to the NO version).	Replace any defective parts.
The nominal voltage differs from the coil voltage. (Only applies to the NO version).	Ensure that the nominal and coil voltages are identical.	

## Troubleshooting

Fault	Possible cause	Corrective action
Valve does not open.	The operating pressure is too high. (Only applies to the NC version).	Lower the operating pressure. Install a valve which is suitable for the operating pressure.
	The armature is not moving. (Only applies to the NC version).	Check whether the connection voltage is active. Establish the electrical connection. Check whether the armature is blocked. Release the blocked armature.
	The connection voltage is interrupted or insufficient. (Only applies to the NC version).	Eliminate the cause of the interruption. Ensure a sufficiently high connection voltage.
	The solenoid coil or the rectifier is defective. (Only applies to the NC version).	Replace any defective parts.
	The nominal voltage differs from the coil voltage. (Only applies to the NC version).	Ensure that the nominal and coil voltages are identical.
	The armature is blocked.	Clean the armature if it is dirty. Replace any damaged or defective parts.

### Maintenance and cleaning

- Check the valve for leaks at least every six months.
- Replace the set of seals if a leak is present.
- Check that the valve is functional at least every six months.
- Clean the valve regularly.  
The frequency at which the valve is cleaned depends on the medium and the operating conditions.

### Qualification of staff

Make sure that maintenance and cleaning is only carried out by persons who have received training in the following areas:

- Removing valves
- Replacing seals
- Fitting valves
- Cleaning valves
- The safety regulations that apply in the country where the valve is operated.

### Cleaning the valve

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#### **DANGER**

Danger of death due to electric shock.

- Switch the power supply off before starting the cleaning work.



#### **CAUTION**

Risk of burns due to hot surfaces. The valve and solenoid may become hot when in operation.

- Wear protective gloves.

- Spray the fitting body with spray cleaner.
- Wipe the fitting body with a cloth.

# Disassembling and storing the valve

## Disassembling the valve

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### WARNING

Risk of injury posed by residual media in pipe.

- Follow the specifications in the safety data sheet for the medium.
  - Wear suitable protective clothing for the medium being handled.
  - Depressurize the pipe before starting work.
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### CAUTION

Risk of burns due to hot surfaces. The valve and solenoid may become hot when in operation.

- Wear protective gloves.
- 

### ATTENTION

The valve and its attachments may be damaged.

- Do not use the the valve attachments, e.g. solenoid and solenoid sleeve, as levers.
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- Disconnect the valve from the power supply connection.
- Depressurise the pipe.
- Collect the medium that runs out in a suitable vessel

#### Proceed as follows to remove the valve:

- Detach the fitted valve from the pipe using a suitable tool.
- Remove the valve.

## Storing the valve

- Store the valves in a clean dry place.

We recommend you keep the valves out of direct sunlight.



# Disposing the valve

**Make sure that the disposal of the valve does not result in an unnecessary environmental pollution or negative effects on health. In addition, promote the sustainable reuse of material resources.**

**If the valve has to be disposed of, please send it to a special waste disposal company. Only such companies have the experience to separate different materials.**

- Remove the electrical connection.
- Release the pressure from the valve. Compressed air can be released into the atmosphere.
- Drain off the possible existing medium and dispose of it according to the environmental regulations.
- Remove the rubber and plastic parts on the valve.
- For disposal or recycling the separated parts, please deliver them to a waste disposal company.

Adhere to the local laws on disposal. If in doubt, please contact the responsible authorities.

### Technische Daten

Type of control	Servogesteuert, benötigt Druckdifferenz
Design	Piston design
Connection	Muffenanschluss G3/8 – G2 DIN ISO 228 (BSP)
Installation	Preferable with actuator upright
Pressure	1 – 450 bar (s. data sheet)
Medium	Clean, neutral gaseous and liquid media
Max. viscosity	22 mm <sup>2</sup> /s
Temperature range	–27°C up to +80°C –27°C up to +50°C <i>Taking into account other influencing parameters</i>
Body material	Stainless steel 1.4404
Metallic inner parts	Stainless steel 1.4104
Sealing	PCTFE / PEEK, Static PTFE
Supply voltage	AC~ 24V, 230V DC= 24V
Voltage tolerance	+10 % up to –10 %
Power consumption	Standard: 46 Watt ATEX: 30 Watt
Protection class	IP65 nach DIN 60529
Duty factor	100% ED-VDE 0580
Connection type	Terminal box
Ex-proof	acc. to 2014/34/EU (ATEX)