

Type 2121

2/2-way pressure controlled valve



Operating Instructions

We reserve the right to make technical changes without notice.

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Operating Instructions 2407/00 00815476 / 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 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.

Layout attributes of the danger notes



DANGER

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



WARNING

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



CAUTION

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

Layout attributes of notes on material and environmental damage

ATTENTION

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

Description of the valve

These Operating and Installation Instructions apply to the valve of the type 2121.

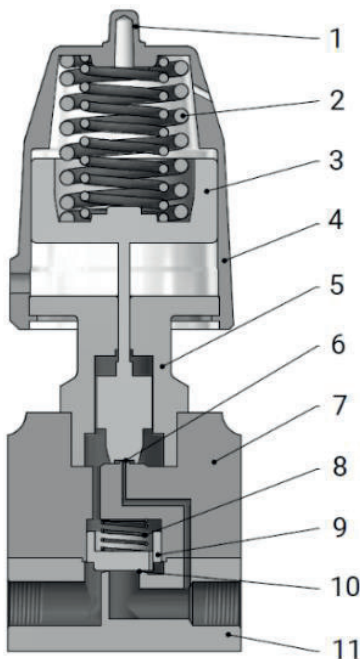
Functional description

The piloted valves are not controlled by the operating medium, but its own control medium instead. Air or neutral gaseous media can be used as control medium.

i If you want to use liquid media for control purposes, please consult the manufacturer about suitable liquids.

Type NC

In the NC (Normally Closed) version, the valve is closed when depressurised. The valve disc is pressed into the valve seat by a spring. An external valve regulates the supply of the control medium into the actuator chamber of the valve. When the control medium is fed into the actuator chamber, the piston in the actuator chamber lifts against the spring and the valve opens.



Description

1	Position indicator
2	Spring
3	Piston
4	Cylinder
5	Screw joint
6	Pilot seat
7	Valve body
8	Spring
9	Piston
10	Valve seat
11	Valve body

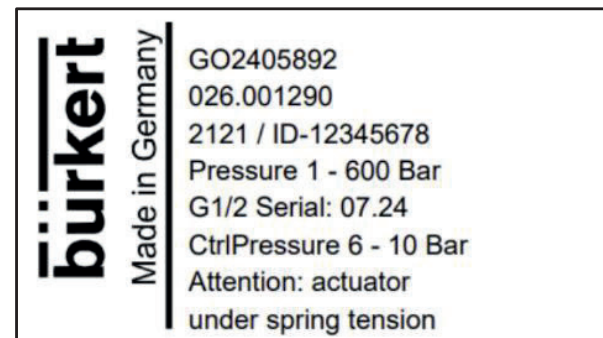
Valve structure

The valve consists of the actuator chamber and the media chamber. The actuator chamber (4) with its cylinder can be separated from the media chamber (7).

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]
- Control pressure
- Hazard warning



Installing the valve

Qualification of the personnel

Make sure that the installation work may only be performed by suitably trained persons. Those persons must be trained in the following areas:

- Connecting the valves to the pipelines
- Welding of pipelines
- Connecting the valves to the control media supply
- Safety regulations applied 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.

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.

ATTENTION

Damage to race gasket and/or to groove ring in drive chamber caused by disassembly and assembly of drive chamber in the NC version.

- Ensure that there is sufficient control air in the drive chamber.
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Connecting the control medium

In order to open and close the valve, you should connect it to the supply line of the control medium. For this you must install an additional valve for the control system.

- Select a suitable 3/2-way valve from the technical data sheet.
- Install a 3/2-way valve in the supply line of the control medium.
- Connect the supply line of the control medium to the connector of the drive compartment which is designed for this purpose.

CAUTION

Unsuitable control medium will cause damage to the valve.

- Make sure that the pressure of the control medium stays between 4 and 10 bar.
 - Make sure that only control media which comply with the technical data can be used.
 - Make sure that it is dry when using air, and it will not result in freezing of condensate.
-

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.

Troubleshooting

Malfunction	Possible cause	Remedy
Valve does not close	The spindle is blocked.	Remove blockages, e.g. foreign objects.
	The operating pressure of the medium is too high. (This applies only to the version "closing against the flow direction" and NO version).	Set the operating pressure according to the specification on the type label.
		Install a valve which is suitable for the operating pressure.
	NC version: The control pressure is too high or is still active. NO version: The control pressure is too low or is not active.	Adjust the control pressure.
	The spring in the drive compartment is defective. (This applies only to NC version).	Replace the spring in the drive compartment.
The valve is not installed in the specified flow direction. (This applies only to NC version).	Make sure that the flow direction of the medium complies with the flow direction indicated on the housing.	
Valve does not open.	The control pressure is too low. (This applies only to NC version).	Set the control pressure according to the specification on the type label.
		Check the supply line of the control medium for leaks. Seal the leaking supply line.
	The operating pressure of the medium is too high. (This applies only to the version "closing with the flow direction" and NC version).	Set the operating pressure according to the specification on the type label.
		Install a valve which is suitable for the operating pressure.
The spring in the drive compartment is defective. (This applies only to NO version).	Replace the spring.	
Valve is leaking.	The seals in the valve are worn or defective.	Replace the worn-out or defective seals.

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



CAUTION

Risk of burns from cold or hot surfaces. The valve and other system parts can become cold or hot due to the media temperature.

- Wear protective gloves.
 - Allow the valve to warm up before starting work.
 - Allow the valve to cool down before starting work.
-

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

Disassembling and storing the valve

Disassembling the valve



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.



CAUTION

Risk of burns from cold or hot surfaces. The valve and other system parts can become cold or hot due to the media temperature.

- Wear protective gloves.
- Allow the valve to warm up before starting work.
- Allow the valve to cool down before starting work.

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- Separate the valve from the supply line of the control medium.
 - Depressurize the pipeline.
 - Use a suitable container to collect medium that runs out.

Storing the valve

- Store the valves in a clean dry place.

We recommend you keep the valves out of direct sunlight.

Proceed as follows to remove the valve:

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

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.

- 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	Pilot-pressure operated
Design	Piston design
Connection	Sleeve connection G1/2 – G2 DIN ISO 228/1 (BSP)
Installation	Preferable with actuator upright
Pressure	0 - 600 bar (s. data sheet)
Medium	Clean, neutral gaseous and liquid media
Max. viscosity	22 mm ² /s
Temperature range	Medium: -40 °C bis +80 °C Ambient: -20 °C bis +60 °C
Body material	Stainless steel 1.4404
Metallic inner parts	Stainless steel
Sealing	PEEK, static PTFE
Pilot pressure	4 – 10 bar
Pilot medium	Clean, neutral gaseous