

Type 2101

2/2-way globe valve

2/2-Wege-Geradsitzventil

Vanne à siège droit 2/2 voies



Quickstart

English Deutsch Français

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

© Bürkert Werke GmbH & Co. KG, 2013 - 2017

Operating Instructions 1703/03_EU-ML_00810250 / Original DE

1	QUICKSTART.....	3
2	SYMBOLS.....	4
3	AUTHORIZED USE.....	4
4	BASIC SAFETY INSTRUCTIONS.....	5
5	GENERAL INFORMATION.....	6
6	TECHNICAL DATA.....	6
7	INSTALLATION.....	9
8	START-UP.....	14
9	MAINTENANCE WORK.....	15
10	REMOVAL.....	16
11	PACKAGING, TRANSPORT, STORAGE.....	16

1 QUICKSTART

The Quickstart describes the entire life cycle of the device. Keep these instructions in a location which is easily accessible to every user, and make these instructions available to every new owner of the device.

Important Safety Information!

Read Quickstart carefully and thoroughly. Study in particular the chapters entitled "[Basic safety instructions](#)" and "[Authorized use](#)".

► Quickstart must be read and understood.

Quickstart explains, for example, how to install and start-up the device. A detailed description of the device can be found in the operating instructions for Type 2101.



The operating instructions can be found on the Internet at:
www.burkert.com

1.1 Definition of term / abbreviation

The term "device" used in these instructions always stands for the globe valve Type 2101.

The abbreviation "Ex" used in these instructions always stands for "explosion-protected".

2 SYMBOLS



DANGER!

Warns of an immediate danger.

- ▶ Failure to observe the warning may result in a fatal or serious injury.



WARNING!

Warns of a potentially dangerous situation.

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



CAUTION!

Warns of a possible danger.

- ▶ Failure to observe this warning may result in a moderate or minor injury.

NOTE!

Warns of damage to property.



Important tips and recommendations.



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

- ▶ designates instructions for risk prevention.

→ Designates a procedure which you must carry out.

3 AUTHORIZED USE

Non-authorized use of the globe valve Type 2101 may be a hazard to people, nearby equipment and the environment.

- ▶ The device is designed for the controlled flow of liquid and gaseous media.
- ▶ In the potentially explosion-risk area the globe valve type 2101 may be used only according to the specification on the separate Ex type label. For use observe the additional information enclosed with the device together with safety instructions for the explosion-risk area.
- ▶ Devices without a separate Ex type label may not be used in a potentially explosive area.
- ▶ The admissible data, the operating conditions and conditions of use specified in the contract documents, operating instructions and on the type label are to be observed during use. These are described in the chapter entitled "[6 Technical data](#)".
- ▶ The device may be used only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- ▶ Correct transportation, correct storage and installation and careful use and maintenance are essential for reliable and faultless operation.
- ▶ Use the device only as intended.

3.1 Restrictions

If exporting the system or device, observe any existing restrictions.

4 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, whereby the operator is responsible for their compliance, by the installation personnel too.



DANGER!

Risk of injury from high pressure in the equipment or device!

- Before working on equipment or device, switch off the pressure and deaerate or drain lines.

Risk of injury due to electrical 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 burns!

The surface of the device may become hot during long-term operation.

- Do not touch the device with bare hands.

Risk of injury from moving parts in the device!

- Do not reach into openings.

Risk of injury caused by the spring jumping out when the actuator is opened.

- The actuator must not be opened.

Risk of injury caused by the lines and device rupturing.

- Due to the risk of water hammer, valves with a flow direction above the seat must not be used for liquid media.
- Consider the type of flow direction and the type of medium for operation of the device.

General hazardous situations.

To prevent injury, ensure:

- Secure system/equipment from unintentional activation.
- Only trained technicians may perform installation and maintenance work.
- 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.

To prevent damage to property of the device, ensure:

- Supply the media connections only with those media which are specified as flow media in the chapter entitled "[6 Technical data](#)".
- Do not put any loads on the valve (e.g. by placing objects on it or standing on it).
- Do not make any external modifications to the valves. Do not paint the body parts or screws.

5 GENERAL INFORMATION

5.1 Contact address

Germany

Bürkert Fluid Control Systems
Sales Center
Chr.-Bürkert-Str. 13-17
D-74653 Ingelfingen
Tel. : 07940 - 10 91 111
Fax: 07940 - 10 91 448
E-mail: info@buerkert.com

International

Contact addresses are found on the final pages of the printed operating manual.

You can also find information on the Internet under:

www.burkert.com

5.2 Warranty

The warranty is only valid if the device is used as authorized in accordance with the specified application conditions.

5.3 Information on the Internet

The operating instructions and data sheets for Type 2101 can be found on the Internet at: www.burkert.com

6 TECHNICAL DATA

6.1 Conformity

In accordance with the EC Declaration of conformity, globe valve type 2101 is compliant with the EC Directives.

6.2 Standards

The applied standards, which verify conformity with the EC Directives, can be found on the EC Type Examination Certificate and / or the EC Declaration of Conformity.

According to Pressure Equipment Directive the following operating conditions must be observed:

Line connection orifice	Maximum pressure for compressible fluids of Group 1 (hazardous gases and vapors according to Art. 3 No. 1.3 Letter a first dash)
DN65	15 bar

6.3 Type label



WARNING!

Risk of injury from high pressure!

Important device-specific technical specifications are indicated on the type label.

► Observe permitted pressure range on the type label of the device.

Type 2101

Technical data

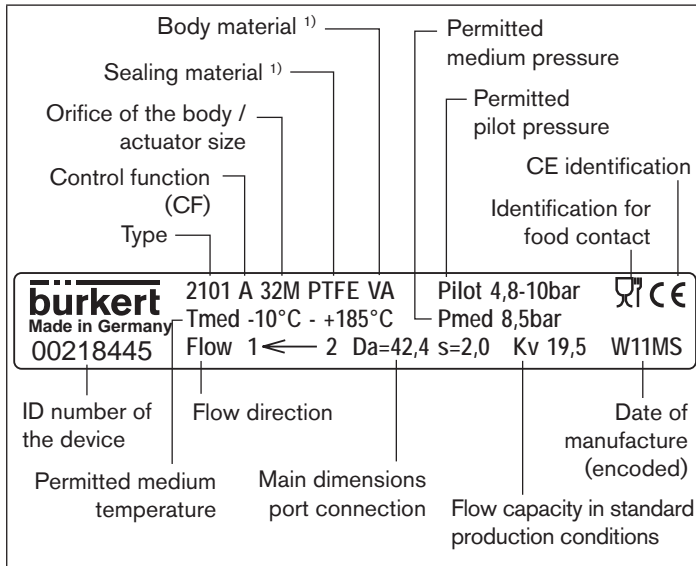


Fig. 1: Type label - example

6.4 Operating conditions



Observe permitted ranges on the type label of the device!

6.4.1 Temperature ranges



The globe valve is suitable for steam sterilization.

Actuator size	Actuator material	Medium (for PTFE seal)	Environment ¹⁾
ø 50 mm	PPS	-10 ... +185 °C	0 ... +60 °C ²⁾ 0 ... +100 °C ³⁾
ø 70 mm			
ø 90 mm			
ø 130 mm			

Tab. 1: Temperature ranges



¹⁾ If a pilot valve is used, the max. ambient temperature is +55 °C.

²⁾ Pilot air ports with push-in connector

³⁾ Pilot air ports with threaded bushing

6.4.2 Pressure ranges

Actuator size	Maximum pilot pressure ⁴⁾
ø 50 mm	10 bar
ø 70 mm	
ø 90 mm	
ø 130 mm	7 bar

Tab. 2: Pressure ranges



⁴⁾ For the device version ø 70 / Orifice 50 / MC 13 the max. permitted pilot pressure is limited to 7 bar.

Minimum pilot pressure: flow below the seat

(medium flow against the closing direction of the valve)

Required minimum pilot pressure P_{min} with control function A:

Actuator size [mm]	50	70	90	130 ≤ DN 50	130 ≥ DN 65
P_{min} [bar]	5,2	4,8	5,0	5,0	5,6

The required minimum pilot pressure P_{min} with control function B and I (flow below the seat) is dependent on the pressure of the medium ⁵⁾.

Minimum pilot pressure: flow above the seat

(medium flow with the closing direction of the valve)

The required minimum pilot pressure P_{min} with control function A (flow above the seat) is dependent on the pressure of the medium ⁵⁾.



⁵⁾ The pressure diagrams are in the operating instructions on the Internet: www.burkert.com

6.5 General technical data

Media

Control medium	Neutral gases, air
Flow media	Water, alcohol, fuel, hydraulic liquids, saline solutions, lye, organic solvents

Materials and connections

see data sheet or operating instructions

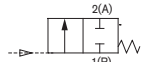
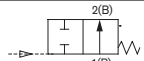
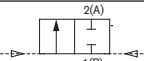
Installation

as required, preferably with actuator in upright position.

Protection class

IP67 in accordance with IEC 529 / EN 60529

6.6 Control functions (CF)

A		Normally closed by spring action.
B		Normally open by spring action.
I		Actuating function via reciprocal pressurization.

Tab. 3: Control functions

7 INSTALLATION

7.1 Safety instructions



DANGER!

Risk of injury from high pressure!

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



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.

For control function I – Danger if pilot pressure fails!

For control function I control and resetting occur pneumatically. If the pressure fails, no defined position is reached.

- ▶ To ensure a controlled restart, first pressurize the device with pilot pressure, then switch on the medium.

Risk of injury from moving parts in the device!

- ▶ Do not reach into openings.

7.2 Before installation

- The globe valve can be installed in any installation position, preferably with the actuator face up.
- Before connecting the valve, ensure the lines are flush.
- Observe direction of flow (see type label).

7.2.1 Preparatory work

→ Clean pipelines (sealing material, swarf, etc.).

Devices with welded body

NOTE!

For valves with installed control:

When welding the valve body into the pipeline, the control must not be installed.

- ▶ Remove control from the actuator (see installation chapter in the operating instructions for the corresponding control).

Remove the actuator from the valve body:

→ Clamp the valve body in a holding device.

NOTE!

Damage to the seat seal or the seat contour!

- ▶ When removing the actuator, ensure that the valve is in open position.

→ Control function A pressurize the pilot air port 1 with compressed air (5 bar): valve opens.

→ Using a suitable open-end wrench, place the wrench flat on the tube.

→ Unscrew the actuator from the valve body.

Other device versions

→ Do not remove actuator unless this is a customer-specific requirement.

→ Procedure see [“Devices with welded body”](#).

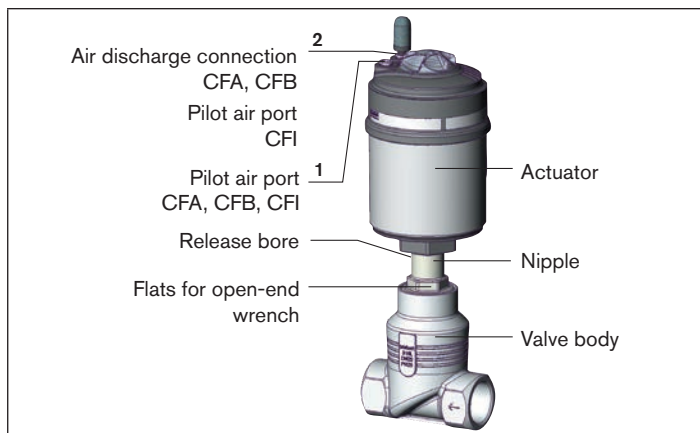


Fig. 2: Installation

7.3 Installation



WARNING!

Risk of injury from improper assembly!

Assembly with unsuitable tools or non-observance of the tightening torque is dangerous as the device may be damaged.

- ▶ For installation use an open-end wrench, never a pipe wrench.
- ▶ Observe the tightening torque (see [“Tab. 4: Tightening torque valve body / nipple”](#)).

Dirt trap for devices with authorization in accordance with DIN EN 161

In accordance with DIN EN 161 „Automatic shut-off valves for gas burners and gas appliances“ a dirt trap must be connected upstream of the valve and prevent the insertion of a 1 mm plug gauge.

→ If the authorisation also applies to stainless steel bodies, the same type of dirt trap must be attached in front of the globe valve.

7.3.1 Installation of the valve body

Welded bodies

→ Weld valve body in pipeline system.

Other body versions

→ Connect body to pipeline.

7.3.2 Install actuator (welded body)

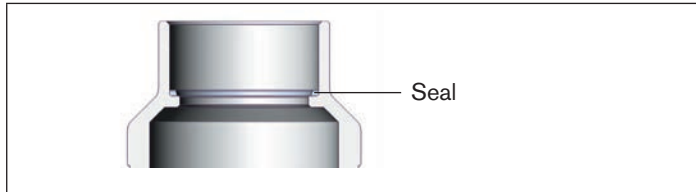


Fig. 3: Seal

→ Check the seal and if required, replace it.

WARNING!

Danger if incorrect lubricants used!

Unsuitable lubricant may contaminate the medium. In oxygen applications there is a risk of an explosion!

- ▶ In specific applications, e.g. oxygen or analysis applications, use appropriately authorised lubricants only.

→ Grease nipple thread before re-installing the actuator (e.g. with Klüber paste UH1 96-402 from Klüber).

NOTE!

Damage to the seat seal or the seat contour!

- ▶ When installing the actuator, ensure that the valve is in open position.

→ Control function A pressurize the pilot air port 1 with compressed air (5 bar): valve opens.

→ Screw actuator into the valve body.

Observe tightening torque "[Tab. 1: Temperature ranges Ex area](#)").

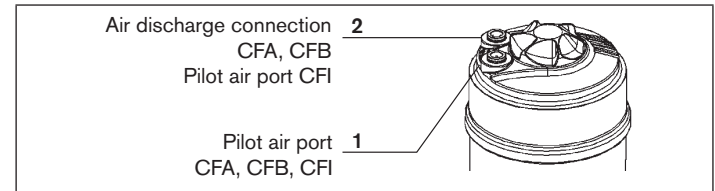


Fig. 4: Pneumatic connection

DN	Tightening torque [Nm]
15	45 ± 3
20	50 ± 3
25	60 ± 3
32	65 ± 3
40	
50	70 ± 3
65	100 ± 3
80	120 ± 5
100	150 ± 5

Tab. 4: Tightening torque valve body / nipple

7.3.3 Install control



Description see Installation chapter in the operating instructions for the corresponding control.

7.3.4 Rotating the actuator

The position of the connections can be aligned steplessly by rotating the actuator through 360°.

NOTE!

Damage to the seat seal or the seat contour.

- ▶ When rotating the actuator, ensure that the valve is in open position.

Procedure:

- Clamp the valve body in a holding device (applies only to valves which have not yet been installed).
- Control function A pressurize the pilot air port 1 with compressed air (5 bar): valve opens.
- Counter on the flats of the nipple with a suitable open-end wrench.
- Place suitable open-end wrench on the hexagon of the actuator.



WARNING!

Risk of injury from discharge of medium and pressure.

If the direction of rotation is wrong, the body interface may become detached.

- ▶ Rotate the actuator module in the specified direction only.

→ Actuator with hexagon:

Rotate counter-clockwise (as seen from below) to bring the actuator module into the required position.

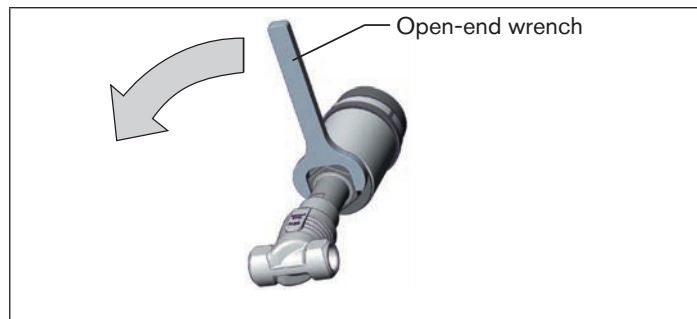


Fig. 5: Rotating with open-end wrench

7.4 Pneumatic connection



DANGER!

Danger – high pressure in the equipment.

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



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 authorised for the indicated pressure and temperature range.
- ▶ Observe the data sheet specifications from the hose manufacturers.

For control function I – Danger if pilot pressure fails.

For control function I control and resetting occur pneumatically. If the pressure fails, no defined position is reached.

- ▶ To ensure a controlled restart, first pressurize the device with pilot pressure, then switch on the medium.

7.4.1 Connection of the control medium



If the position of the pilot air ports for installation of the hoses is unfavorable, these can be aligned steplessly by rotating the actuator through 360°.

The procedure is described in the chapter entitled "[7.3.3 Install control](#)".

Control functions A and B:

→ Connect the control medium to the pilot air port 1 of the actuator.

Silencer

For the versions with a plug-in connection the silencer for reducing the exhaust air noise is supplied loose.

→ Plug the silencer into the free air discharge connection 2.



If used in an aggressive environment, we recommend conveying all free pneumatic connections into a neutral atmosphere with the aid of a pneumatic hose.

Control function I:

→ Connect the control medium to the pilot air port 1 and 2 of the actuator (see "[Fig. 6](#)")

Pressure on connection 1 opens the valve.

Pressure on connection 2 closes the valve.

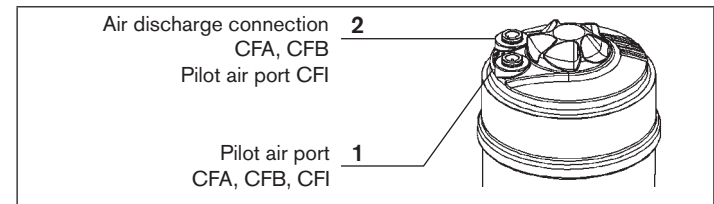


Fig. 6: Pneumatic connection

Control air hose:

6/4 mm or 1/4" control air hoses can be used.

Optionally a pilot air port is possible via a G 1/8 thread.

8 START-UP

8.1 Safety instructions



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 operating instructions.
- ▶ Observe the safety instructions and intended use.
- ▶ Only adequately trained personnel may operate the equipment/ the device.

8.2 Pilot pressure



WARNING!

For control function I – Danger if pilot pressure fails!

For control function I control and resetting occur pneumatically. If the pressure fails, no defined position is reached.

- ▶ To ensure a controlled restart, first pressurize the device with pilot pressure, then switch on the medium.

→ Set the pilot pressure according to the type label specifications, chapter ["5"](#) and flow (chapter ["8.3"](#)).

8.3 Flow

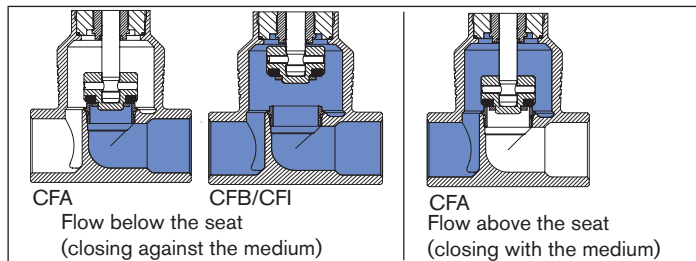


Fig. 7: Flow below and above the seat

8.3.1 Flow above the seat

Control function A, CFA: closes by spring force against the medium flow. Control function B, CFB: closes with the control pressure against the medium flow. The medium pressure supports the opening of the valve.



WARNING!

Risk of injury caused by the lines and device rupturing.

- ▶ Use valves with flow above the seat for gaseous media and steam only.



To ensure complete opening, the minimum pilot pressure must be used.

8.3.2 Flow below the seat

Control function A, CFA: closes by spring force against the medium flow. Control function B, CFB: closes with the control pressure against the medium flow. The medium pressure supports the opening of the valve.

 **WARNING!**

Seat leaks caused by the minimum pilot pressure being too low (on CFB and CFI) or the medium pressure being too high!

- ▶ Observe the minimum control pressure and medium pressure (see "6.4.2").

8.4 Start-up

After installing the device, run the teach function. This function presets the control parameters.



Description – see operating instructions for the control.

9 MAINTENANCE WORK

→ Complete a visual inspection of the equipment once a year. Shorter maintenance intervals may be recommended depending on the operating conditions.

9.1 Replacement parts



CAUTION!

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

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

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

Wearing parts: Seals and the swivel plate.

→ In the event of a leak, replace the relevant wear part.



The maintenance and repair instructions are available on the Internet: www.burkert.com

10 REMOVAL



DANGER!

Risk of injury from discharge of medium and pressure!

It is dangerous to remove a device which is under pressure due to the sudden release of pressure or discharge of medium.

- ▶ Before removing a device, switch off the pressure and vent the lines.

Procedure:

- Loosen the pneumatic connection.
- Remove the device.

11 PACKAGING, TRANSPORT, STORAGE

NOTE!

Transport and storage damage!

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

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

- Ensure the device and packaging are disposed of in an environmentally sound manner.
- Observe applicable regulations on disposal and the environment.

www.burkert.com