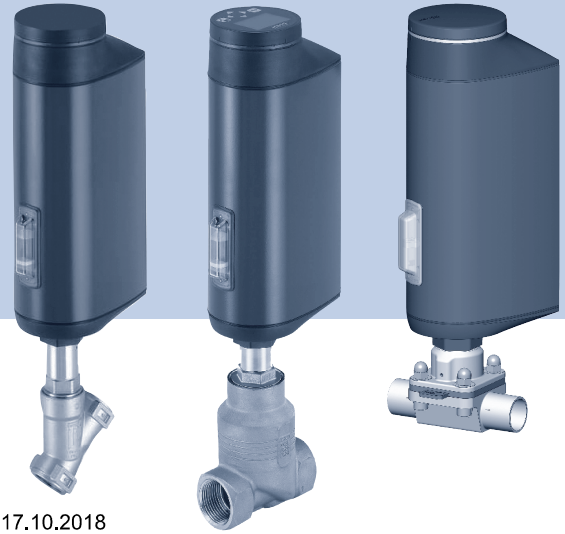
bürkert
FLUID CONTROL SYSTEMS

BVS 17 ATEX E 117 X / IECEx BVS 17.0100X

Types 3320, 3321, 3323, 3360, 3361, 3363
AE3320, AE3321, AE3323, AE3360, AE3361, AE3363

Electromotive control valve with ATEX approval and IECEx approval
Elektromotorisches Regelventil mit ATEX-Zulassung und IECEx-Zulassung
Vanne de régulation électromotorisée avec mode de protection ATEX et IECEx



Additional Instructions

Zusatzanleitung
Instruction supplémentaire

MAN 1000348174 EN Version: BStatus: RL (released | freigegeben) printed: 17.10.2018

Operating Instructions 1810/02_EU-ML_00810687 / Original DE

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1 ADDITIONAL INSTRUCTIONS

The additional instructions describe the special requirements and measures for operating the device in potentially explosive atmospheres. 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 the additional instructions carefully and thoroughly.
Observe in particular:
· the “Intended use”,
· all safety instructions,
· the “Special conditions of use”.

▸ The additional instructions must be read and understood.

These additional instructions contain the safety instructions as well as special specifications on operation in a potentially explosive atmosphere. All further instructions and descriptions about the device can be found in the respective operating instructions that must be observed just like the additional instructions.

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

1.1 Definition of terms / Abbreviation

In these instructions, the term “device” always refers to the electromotive control valves: Types 3320, 3321, 3323, 3360, 3361, 3363 and AE3320, AE3321, AE3323, AE3360, AE3361, AE3363.

In these instructions, the abbreviation “Ex” always refers to “potentially explosive”.

1.1 Symbols

The following symbols are used in these instructions.

DANGER!

Warns of an immediate danger.

- Failure to observe the warning will result in fatal or serious injury.

WARNING!

Warns of a potentially dangerous situation.

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

CAUTION!

Warns of a possible danger.

- Failure to observe this warning may result in 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.

- Indicates instructions for risk prevention.

→ Designates a procedure which you must carry out.

2 INTENDED USE

Incorrect use of the electromotive control valve can be dangerous to people, nearby equipment and the environment.

The electromotive control valve is designed for the controlled flow of liquid and gaseous media. The device is not suitable for use in highly charge-generating processes.

The device (with the variable code PX48) is designed for use in:
Explosion group II, category 3G Ex ec, T4 and
Explosion group II, category 3D Ex tc, T135°C
(see specifications on the approval label).

- During use, observe the permitted data, the operating conditions and conditions of use specified in the contract documents, operating instructions and on the type label of the device.
- Do not use alkaline cleaning agents to clean the device surface.
- If the valve position is relevant as regards safety in the event of a power failure: Use only those devices which have the SAFEPOS energy-pack (optional energy pack).
- Use the device only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- Use the device only when in perfect condition and always ensure proper storage, transportation, installation and operation.
- Use the device for its intended purpose only.

3 PARTICULAR SAFETY INSTRUCTIONS

To prevent the risk of explosion, observe not only the safety instructions in the operating instructions but also the following safety instructions:

DANGER!

Risk of explosion due to open electric connections.

- Connect all electric plugs and sockets to the respective counterpart.

Risk of explosion when removing the electric circular plug.

- Secure cable connections, which use circular plugs, with suitable locking clips.
  For example: EXCLIP, Phoenix Contact,
  Type SAC-M12-EXCLIP-M, art. no. 1558988,
  Type SAC-M12-EXCLIP-F, art. no. 1558991
  or locking clips, ESCHA
  locking clip M12 x 1, art. no. 8040501.
- Remove the electric circular plug only after the power supply has been disconnected.

Risk of explosion when opening the device.

- Do **not** open the device in a potentially explosive atmosphere.

Risk of explosion caused by electrostatic discharge.

In the event of a sudden discharge of electrostatically charged devices or individuals, there is a risk of explosion in the Ex area.

- Do not use the device in highly charge-generating processes.
- Take suitable measures to ensure that no electrostatic discharges can build up in the Ex area.
- Clean the device surface by gently wiping it with a damp or anti-static cloth only.

Grounding the device:

- 1. Ground the actuator housing.
  The functional earth (FE) at the actuator housing must be grounded using a short line (max. 1 m) with a minimum cross section of 1.5 mm^2. The metal casings of the circular plug-in connectors are grounded via the actuator housing to which they are connected.
- 2. Ground the valve body.
  To establish the potential equalization, ground the valve body via an electrically conductive connection to the pipe system.

DANGER!

Risk of explosion.

For work at the device and for operation in the Ex area, observe not only the safety instructions in the operating instructions but also the following:

- Observe information on temperature class, ambient temperature, degree of protection and voltage on the approval label.
- Do not use devices in areas where there is gas or dust with a lower ignition temperature than indicated on the approval label.

- Installation, operation and maintenance may be performed by qualified technicians only.
- Observe the applicable safety regulations (also national safety regulations) as well as the general rules of technology for construction and operation.
- Do not repair the device yourself, but replace it with an equivalent device.
- Repairs may be performed by the manufacturer only.
- Do not expose the device to any mechanical or thermal loads which will exceed the limits described in the operating instructions.
- Use only cable and line entry points which have been approved for the respective application area and which have been screwed into place according to the associated installation instructions.
- The cable glands may be used for the insertion of permanently installed cables and lines only.
- Use pre-assembled cable glands according to the installation instructions supplied by the gland manufacturer. Before start-up in the Ex area, check whether the cable gland has been installed as described in the associated installation instructions.
- Close all unnecessary cable glands with lock screws approved for the Ex area.
- To maintain the ignition protection type, all electric plug-in connections must be connected.

3.1 Special conditions of use

For operation in an Ex area zone 2 and 22, the following applies:

- Do not use the device in dust atmospheres in which intensive charging processes can be expected.
- Ensure that the transient protection has been set to a value which does not exceed 140% of the measured peak voltage value at the supply connections of the device.
- Use the device only in an area with at least degree of soiling 2, as defined in IEC 60994-1.
- If devices feature a circular plug connection (multipole), the mating plug will be provided by the end user and is not object of the approval. The mating plug must satisfy the relevant requirements of IEC 60079-0, IEC 60079-7 and IEC 60079-31 and must have at least housing degree of protection IP65 according to IEC 60529.
- If devices feature a circular plug connection (multipole), use a special locking clip which prevents the plug from being loosened without a tool.
- Cylindrical threads with less than five thread turns are fitted with a seal to ensure the housing protection. The seals must comply with the relevant requirements of EN 60079-0, EN 60079-7 and EN 60079-31.

3.1.1 Explosion protection approval

The explosion protection approval is only valid if you use the modules and components authorized by Bürkert, as described in these operating instructions.

The devices may only be used in combination with the valve types that have been approved by Bürkert. Otherwise, the explosion protection approval will be void.

If you make unauthorized changes to the system, the modules or components, the explosion protection approval will also be void.

The EC-Type Examination Certificates
BVS 17 ATEX E 117 X and
IECEx BVS 17.0100X

were issued by DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum,

Germany.

The PTB (CE0102) audits the manufacturing process.

3.1.2 Cleaning in the Ex area

DANGER!

Risk of explosion due to cleaning agents

- Only use cleaning agents that have been approved for cleaning in an explosive atmosphere.

3.2 Special instructions for assembly and installation in the Ex area

To prevent the risk of explosion, observe not only the operating instructions but also the following instructions for assembly and installation:

3.2.1 Instructions for electric installation in the Ex area

DANGER!

Risk of explosion when removing the electric circular plug.

- Secure cable connections, which use circular plugs, with suitable locking clips.
  For example: EXCLIP, Phoenix Contact,
  Type SAC-M12-EXCLIP-M, art. no. 1558988,
  Type SAC-M12-EXCLIP-F, art. no. 1558991
  or locking clips, ESCHA
  locking clip M12 x 1, art. no. 8040501.
- Remove the electric circular plug only after the power supply has been disconnected.

Risk of explosion when opening the device.

- Do **not** open the device in an explosive atmosphere.

Risk of explosion caused by electrostatic discharge.

In the event of a sudden discharge of electrostatically charged devices or individuals, there is a risk of explosion in the Ex area.

- Do not use the device in highly charge-generating processes.
- Take suitable measures to ensure that no electrostatic discharges can build up in the Ex area.

- Clean the device surface by gently wiping it with a damp or anti-static cloth only.

Grounding the device:

- 1. Ground the actuator housing.
  The functional earth (FE) at the actuator housing must be grounded using a short line (max. 1 m) with a minimum cross section of 1.5 mm². The metal casings of the circular plug-in connectors are grounded via the actuator housing to which they are connected.
- 2. Ground the valve body.
  To establish the potential equalization, ground the valve body via an electrically conductive connection to the pipe system.

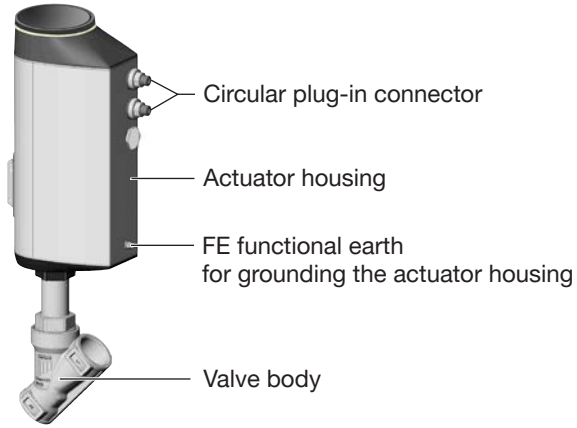

Fig. 1: Grounding, example of an angle seat valve

→ Ground the actuator housing.

→ Ground the valve body to the pipe system.

3.2.2 Removing display module or dummy cover

The dummy cover and display module are removed in the same way. The procedure is described using the dummy cover as an example.

DANGER!

Risk of explosion when opening the device.

- Do **not** open the device in a potentially explosive atmosphere.
- Carry out work that requires opening the device outside the potentially explosive atmosphere.

Unlocking:

The supplied magnetic key is required to unlock the dummy cover.

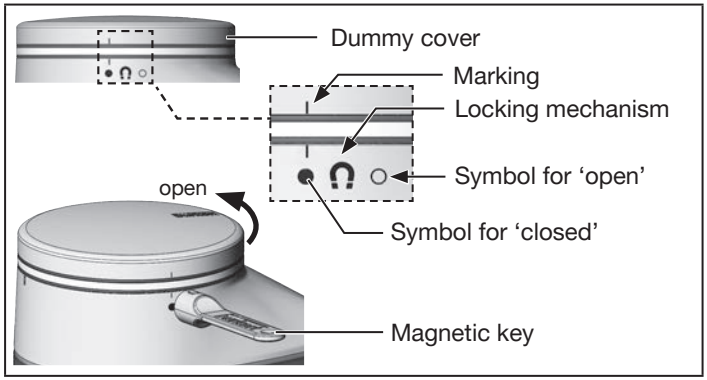

Fig. 2: Unlock the dummy cover or the display module

→ Hold the magnetic key against the locking mechanism. The locking mechanism unlocks with a slight click.

⚠ **Risk of explosion in the Ex area!**

Do not remove the dummy cover or display module in a potentially explosive atmosphere.

→ Continue holding the magnetic key on the locking mechanism and manually turn the dummy cover or the display module until the mark is over the symbol for ‘open’.

NOTE!

Carefully remove display module ensuring that the connection cable and the HMI interface are not damaged.

→ Remove the dummy cover or display module.

Closing the dummy cover or display module:

→ Align the mark until it is over the symbol for ‘open’ and put on the dummy cover or display module.

→ Turn the dummy cover or display module clockwise by hand until the marking is directly over the symbol for closed. To make sure that the device is correctly closed, ensure that the locking mechanism engages with a gentle click.

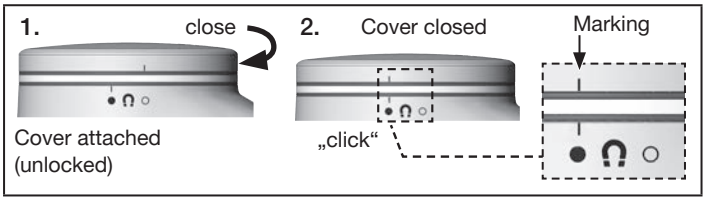

Fig. 3: Closing the dummy cover or display module

4 TECHNICAL DATA

To prevent the risk of explosion, observe not only the technical data in the operating instructions but also the following technical data.

4.1 Adhesive label for the Ex area

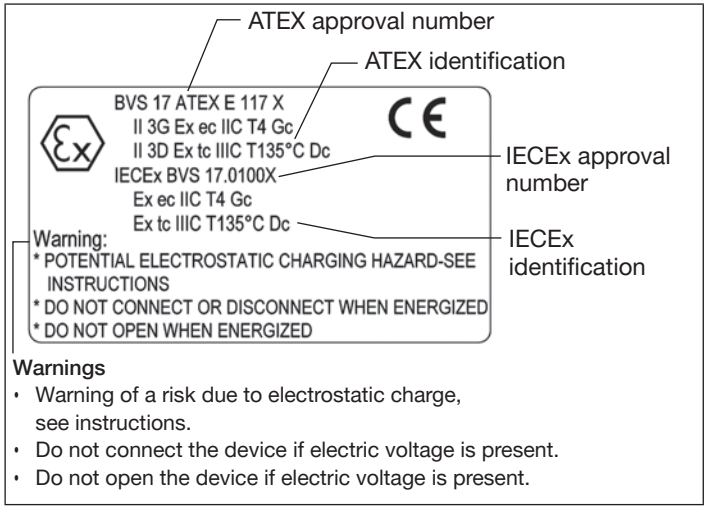

Fig. 4: Description: Adhesive label for the Ex area

ATEX identification

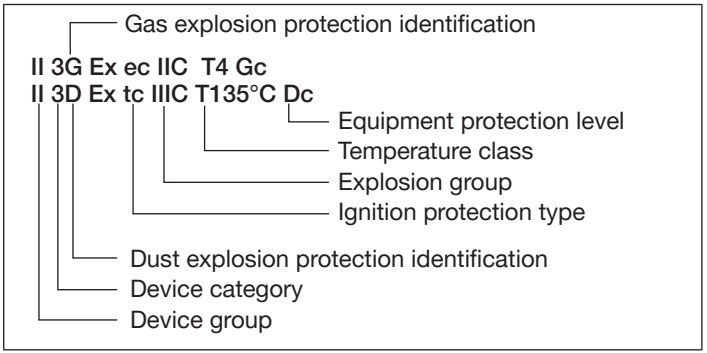

Fig. 5: Description: ATEX identification

4.2 Conformity

The electromotive control valve conforms to EC Directives as stated in the EC Declaration of Conformity.

4.3 Standards

The applied standards, which are used to demonstrate conformity to the EC Directives, are listed in the Type Examination Certificate and/or the EC Declaration of Conformity.

4.3.1 Temperature ranges in the Ex area

Ambient temperatures

Device without display: -25 °C...+65 °C

Device with display: -25 °C...+60 °C

Devices with SAFEPOS energy-pack: -25 °C...+55 °C

Maximum medium temperature: 130 °C (temperature class 4)

Temperature graph for seat valves: Types 3320, 3321, 3360, 3361

The values were determined under the following maximum operating conditions: Nominal diameter DN32 with 100% duty cycle at 16 bar medium pressure.

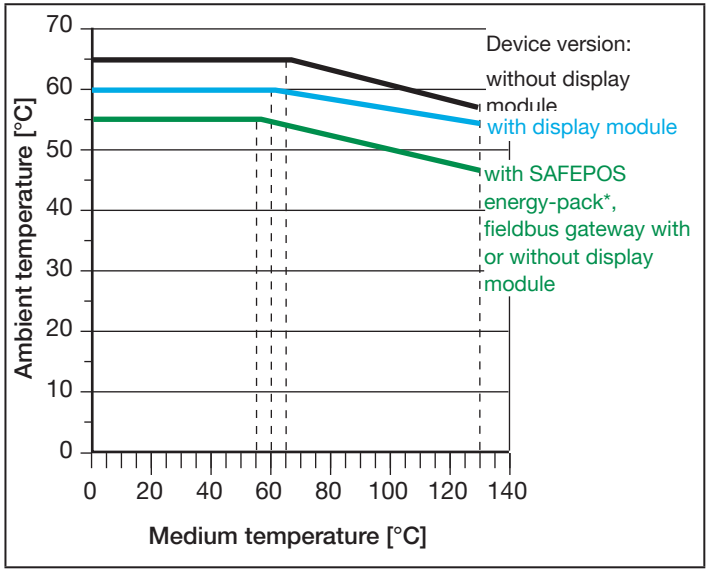

Fig. 6: Temperature graph

Temperature graph for diaphragm valves: Types 3323, 3363

The values were determined under the following maximum operating conditions: Diaphragm size 25 with 100% duty cycle at 10 bar medium pressure.

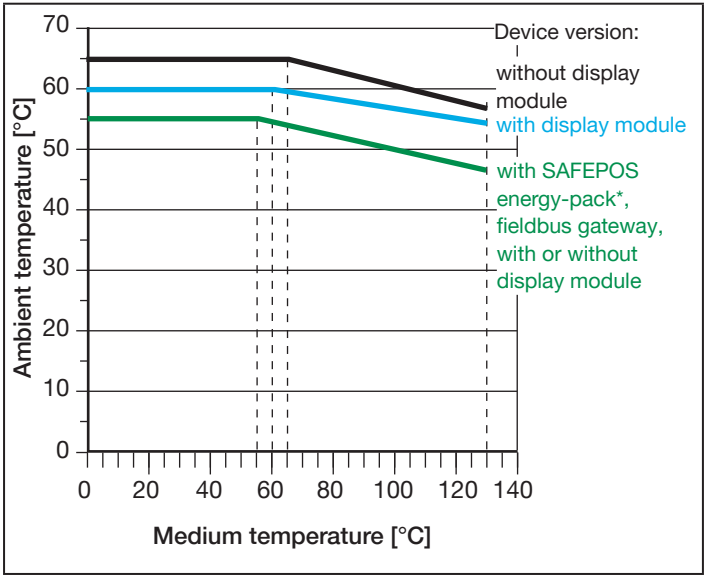

Fig. 7: Temperature graph

4.3.2 Electrical data

Explosion group	Gas: IIC Dust: IIIC
Category	Constructional safety Gas: ec (increased safety) Dust: tc (protection through housing)
Temperature class	Gas: T4 Dust: **T135°C** for permitted temperature ranges, see section “4.3.1 Temperature ranges in the Ex area”)

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