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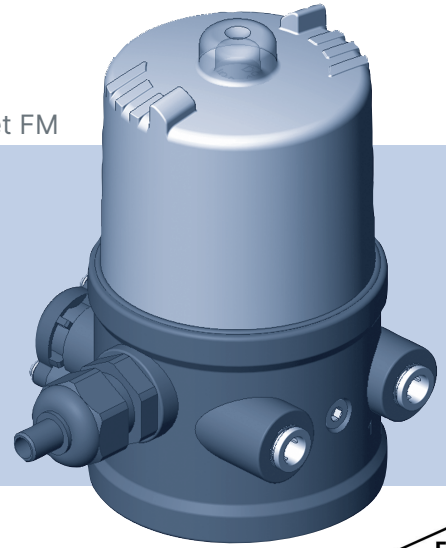
bürkert
FLUID CONTROL SYSTEMS

BVS 13 ATEX E104X, BVS 13 ATEX E087X
FM24US0217X / FM24CA0058X
FM26US0108X / FM26CA0024X
Type 8697

Pneumatic Control Unit with ATEX approval and FM approval
Pneumatische Ansteuerung mit ATEX- und FM-Zulassung
Unité de commande pneumatique avec mode de protection ATEX et FM



FM C US APPROVED

Ex

Operating Instructions

Bedienungsanleitung
Manuel d'utilisation

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

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Operating Instructions 2609/10_EU-ml_00810359 / Original DE

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1 ADDITIONAL INSTRUCTIONS

The additional instructions for the use in potentially explosive environments describe 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 the additional instructions carefully and thoroughly. Study in particular the chapters entitled Particular safety instructions and Authorized use.

- The additional instructions must be read and understood.

The additional instructions describe safety instructions and information for the use of the pneumatic control unit in a potentially explosive environment.

All other descriptions and information can be found in the operating instructions of the device for the Type 8697.

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

1.1 Definition of terms and abbreviation

In these instructions, the term "device" always refers to the pneumatic control unit Type 8697.

In these instructions, the abbreviation "Ex" always refers to "potentially explosive atmosphere".

2 SYMBOLS

The following symbols are used in these instructions.

DANGER!

Warns of an immediate danger.

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

WARNING!

Warns of a potentially dangerous situation.

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

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 instructions or in other documentation.

- Designates instructions for risk prevention.

→ Designates a procedure which you must carry out.

3 AUTHORIZED USE

Incorrect use of the pneumatic control unit Type 8697 can be dangerous to people, nearby equipment and the environment.

- The device is designed to be mounted on pneumatic actuators of process valves for the control of media. The device was designed for the use in
  - **Type 8697 PX03, PR08**:
    Explosion group II, category 3G Ex ec, T4 and
    explosion group II, category 3D Ex tc, T135°C
  - **Type 8697 PE99**:
    Explosion group II, category 2G Ex ia, T4 and
    explosion group II, category 2D Ex ia, T135°C
  - **Type 8697 PE51**:
    Explosion group II, category 2G Ex ia, T4
  - **Type 8697 PR03**
    CL I, Zone 0, AEx/Ex ia IIC T4 Ga
    CL I, Div 1, Gr A,B,C,D T4

  (see information listed on the sticker for the approval).
- The device is mounted onto a pneumatic actuator of a process valve. The process valve and the actuator must have at least the Ex approval of the pneumatic control unit.
- During use observe the admissible data, the operating conditions and conditions of use specified in the contract documents, operating instructions and on the type label
  - of the pneumatic control unit Type 8697 and
  - the process valve.
- Use the device only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- Correct transportation, storage and installation, as well as careful use and maintenance are essential for reliable and faultless operation.
- Use the device only for its intended purpose.

3.1 Restrictions

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

3.2 Identification (V code) Pxxx

The identification (V code) PX03, PE99 or PE51 is on the type label of the device.

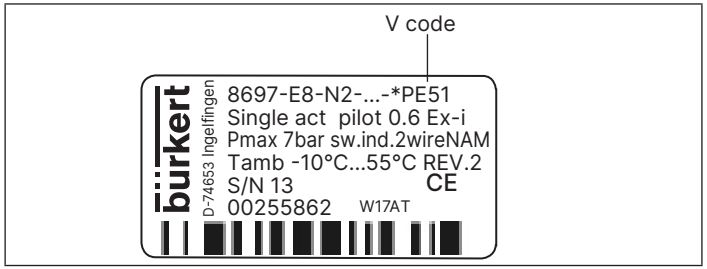

Fig. 1: Example of type label

4 PARTICULAR SAFETY INSTRUCTIONS

DANGER!

Risk of explosion when removing the electric circular plug.

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

Risk of explosion when opening the device.

- Open device only when no Ex atmosphere is present.
- During the installation and setting of the micro switches, no Ex atmosphere may be present.
- Prior to start-up, secure the transparent cap against being opened without tools by using the enclosed locking wire.

Risk of explosion due to electrostatic discharge.

In the event of a sudden discharge from electrostatically charged devices or individuals, there is a risk of an explosion in a potentially explosive atmosphere.

- Take suitable measures to ensure that no electrostatic discharges can build up in a potentially explosive atmosphere.
- Clean the device surface by gently wiping it with a damp or anti-static cloth only.

DANGER!

To prevent the risk of explosion, observe not only the safety instructions in the operating instructions for operation in a potentially explosive atmosphere, but also the following:

- Observe information on temperature class, ambient temperature, degree of protection and voltage on the approval sticker.
- Do not use devices in areas where there is gas or dust with a lower ignition temperature than indicated on the approval sticker.
- 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 and/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 shall only be used for fixed installations.
- Close all unnecessary cable glands with lock screws approved for the explosions area.

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▸ The required degree of protection (min. degree of protection see chapter "4.1") is only guaranteed in connection with suitable adapter kits. All pneumatic and electrical connections must be equipped with suitable connectors.

4.1 Specific conditions of use in potentially explosive atmosphere

Type 8697 PX03

- For the variant with cable plug M12 the plug is provided by the end user in the end use application. This plug is no part of this Type Examination Certificate and shall be in accordance with all applicable clauses of IEC 60079-0, IEC 60079-7 and IEC 60079-31. A minimum degree of protection IP54 according to IEC 60529 shall be ensured.
- The connection to the control valve shall only be realized by special adapter kits. They shall be in accordance with all applicable clauses of IEC 60079-0, IEC 60079-7 and IEC 60079-31. A minimum degree of protection IP54 according to IEC 60529 shall be ensured.
- The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1.
- Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage at the supply terminals to the equipment.

Type 8697 PE99, PE51, PR03

- The pneumatic control units have to be installed in such a way that electrostatic charges/discharges are avoided.
- The pneumatic control units shall be installed in combination with the adapter kits FA03 resp. FA05 only. The combination of control units and adapter kits has to ensure a minimum degree of protection IP64 according to EN 60529 for type 8697 PE99. For type 8697 PE51 and PR03, the combination has to ensure a minimum degree of protection IP20 according to EN 60529.
- The pneumatic connections have to be fitted with suitable connection elements.
- For type 8697 PE99 only suitable and separately certified cable glands or blanking elements shall be used.

Type 8697 PR08

- For the variant with cable plug M12, the plug is provided by the end user in the end use application. This plug shall be installed in accordance with all applicable clauses from ANSI/UL 60079-0, ANSI/UL 60079-7 and ANSI/UL 60079-31. A minimum degree of protection of IP54 according to ANSI/IEC 60529 shall be ensured.
- The cable gland shall be positioned in such a way as to minimize the risk of mechanical impact.
- The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1.

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- Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the supply terminals to the equipment.
- The circuits shall be limited to overvoltage Category II as defined in IEC 60664-1.
- The surface of the equipment may cause risk of electrostatic discharge. Avoid installation that could cause electrostatic build-up and clean with a damp cloth.

4.2 Instructions on operation in an explosion-risk (Ex) area

4.2.1 Safety instructions

For operation in a potentially explosive atmosphere zone (gas) 1 and 2, the following applies:

DANGER!

Risk of explosion caused by electrostatic charge.

In the event of a sudden discharge from electrostatically charged devices or individuals, there is a risk of an explosion in a potentially explosive atmosphere.

- ▸ Take suitable measures to ensure that no electrostatic discharges can build up in a potentially explosive atmosphere.
- ▸ Clean the device surface by gently wiping it with a damp or anti-static cloth only.

4.2.2 Media in potentially explosive atmospheres

If explosive media are used, this can result in additional explosion risks.

4.2.3 Actuators / valves in potentially explosive atmospheres

Use in an explosive atmosphere may be restricted by the actuators / valves. Observe the operating instructions of the actuators / valves.

4.2.4 Cleaning in potentially explosive atmospheres

Check that any cleaning agents are approved for use in explosive atmospheres.

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4.2.5 Adhesive label for potentially explosive atmospheres

Approval adhesive label PX03

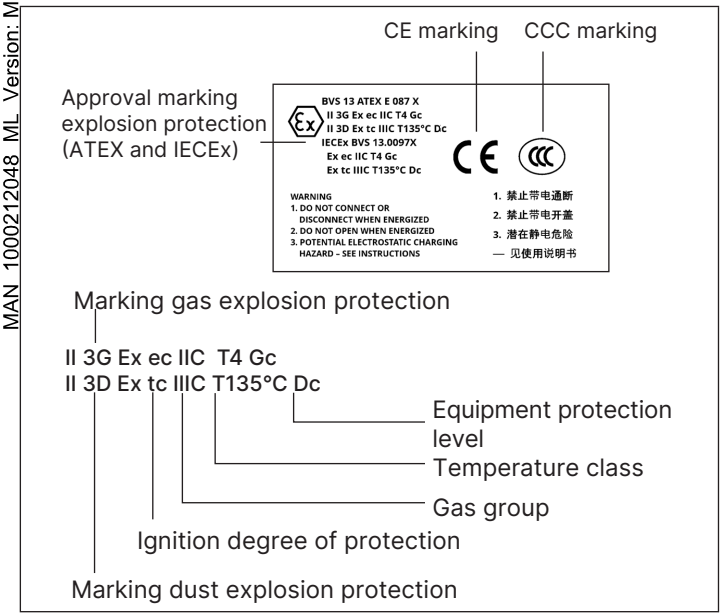

Fig. 2: Example approval adhesive label PX03

Approval adhesive label PE99

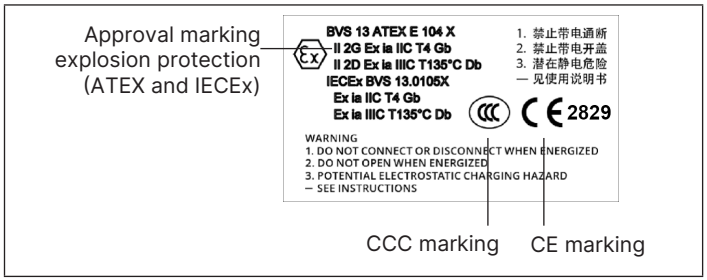

Fig. 3: Example approval adhesive label PE99

Approval adhesive label PE51

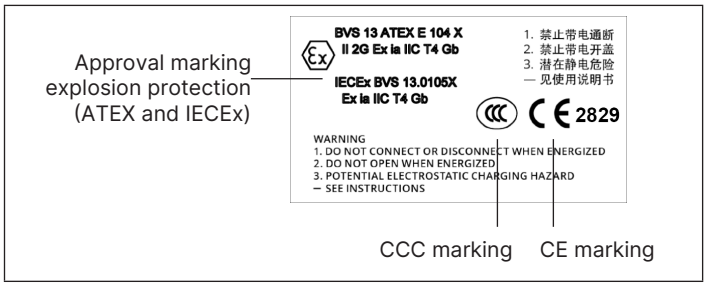

Fig. 4: Example approval adhesive label PE51

Approval adhesive label PR08

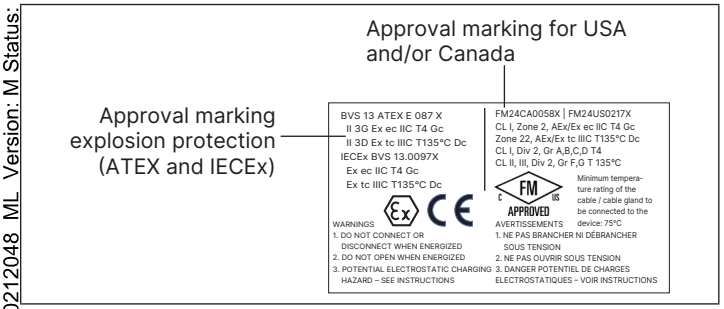

Fig. 5: Example approval adhesive label PR08

Approval adhesive label PR03

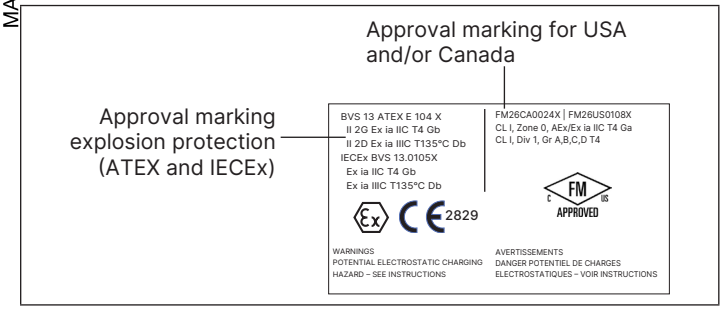

Fig. 6: Example approval adhesive label PR03

Adhesive label for PY31 approval

Fig. 7: Example of an adhesive label for PY31 approval. Valid only in conjunction with ATEX/IECEx (PX03, PE51, PE99)

4.2.6 Temperature ranges in potentially explosive atmospheres

Ambient temperature

Type 8697 PX03, PR08 (3 GD (ec tc))	0...+ 55 °C
Type 8697 PE99 (2 GD)	0...+ 55 °C[1)]
Type 8697 PE51 (2 G with pilot valve)[2)]	–10...+55 °C[1)]
Type 8697 PE51 (2 G without pilot valve)[2)]	–20...+60 °C

4.2.7 Electrical data PE99 and PE51[2)]

The device in ignition degree of protection intrinsic safety Ex ia IIC/IIIC (PE99 and PE51) may be connected only to intrinsically safe electric circuits.

Explosion group	IIC/IIIC
Category	ia
Temperature class	T4 / 135 °C

The electric circuits have the following parameter:

Electric circuit limit switch

Upper end position: Terminals INI Top 1 +/-

Lower end position: Terminals INI BTM 1 +/-

Each:

Max. allowable input voltage (Ui)	20 V
Max. allowable input current (Ii)	60 mA
Max. allowable input power (Pi)	200 mW
Max. inner capacitance (Ci)	178 nF
Max. inner inductance (Li)	66 µH

Electric circuit pilot valve

Pilot valve 1: Terminals VALVE +/GND

Max. allowable input voltage Ui and input current Ii
(use only value pairs that are displayed one below the other)

Voltage value [V] = Ui	15	18	20	22	25	28	30	35
Current value [A] = Ii	0.9	0.44	0.309	0.224	0.158	0.120	0.101	0.073

Tab. 1: Value pairs input voltage - input current

1) The maximum ambient temperature may be restricted by the maximum allowable input power Pi of the pilot valve (see "Tab. 1: Value pairs input voltage - input current" on page 11).

2) For variants with PR03 (FM26US0108X/ FM26CA0024X) see "Fig. 8: Control drawing 8697" in this manual.

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Max. allowable input power Pi

Number of pilot valves	Max. allowable input Pi	Max. ambient temperature Type 8697	
		PE99	PE51
0	-	+55 °C	+60 °C
1	0.7 W	+55 °C	+55 °C
1	1.1 W	+50 °C	+50 °C

Tab. 2: Max. allowable input power

Max. inner capacitance (Ci) negligible
Max. inner inductance (Li) negligible

An dieser Zeichnung bezeichnen wir Eigentums- und Urheberrechte und behalten uns vor. Sie darf sie vervielfältigt, anderen mitgeteilt oder anderweitig verwertet werden.

Parameters

FM26US0108X/ FM26CA0024X

1 Electrical parameters

1.1 Intrinsically safe circuits TOP and BTM
Terminals + (TOP), - (INI) resp. + (BTM), - (INI)
For each circuit:

Max. input voltage	U_i	DC	20	V
Max. input current	I_i		60	mA
Max. input power	P_i		200	mW
Internal capacitance	C_i		178	nF
Internal inductance	L_i		66	µH

1.2 **Only for variant „single act Pilot 0.6“**
Intrinsically safe power supply circuit for pilot valve
Max. input voltage and max. input current in accordance with the following table:

U_i [V]	15	18	20	22	25	28	30	35
I_i [mA]	900	440	309	224	158	120	101	73

Internal capacitance	C_i	negligible
Internal inductance	L_i	negligible

Max. input power depending on the ambient temperature:

For ambient temperatures up to 55 °C, the valve can be supplied with maximum input power
P_i = 0.7 W.
For ambient temperatures up to 50 °C, the valve can be supplied with an increased input power
P_i = 1.1 W.

2 Ambient temperature range T_a

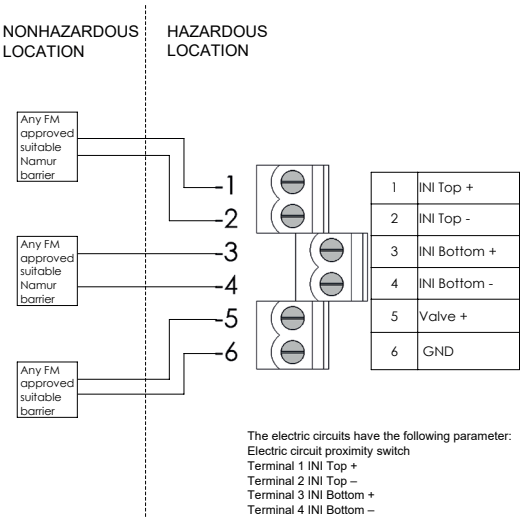
Type 8697 PR03
- Variant without valve -20 °C … 60 °C
- Variant with valve: “single act Pilot 0.6”
  - o P_i = 0.7 W -10 °C … 55 °C
  - o P_i = 1.1 W -10 °C … 50 °C

“Specific Conditions of Use”:

1 The pneumatic control units have to be installed in such a way that electrostatic charges / discharges are avoided.

2 The pneumatic control units shall be installed in combination with the assembly kits FA03 resp. FA05 only. For type 8697 PR03, the combination has to ensure a minimum degree of protection IP20 according to IEC 60529.

3 The pneumatic connections have to be fitted with suitable connection elements.



The electric circuits have the following parameter:
Electric circuit proximity switch
Terminal 1 INI Top +
Terminal 2 INI Top –
Terminal 3 INI Bottom +
Terminal 4 INI Bottom –

Version	Revision	Revision-No.	Revision Note	Date (yyyy-mm-dd)
B	01		designation terminal 5+6 correctet	2026-07-30
A	01		Parameter 2: PE99 deleted, PR03 added, Spec.Con.ofUse: 4 deleted	2026-07-14
-	01		Initial Release	2026-06-18

Bürkert
Fluid Control Systems
D-74653 Ingelfingen

Material

dimensions wihout tolerances

	Name	Date (yyyy-mm-dd)
Drawn	CSP	2026-06-18
Revised	TVO	2026-07-30
Status	Freigabe	
Draw-No.		
Project-No.	Model 8697	

Description: Control Drawing 8697

Document	Material-No.	Dok.type	Lang.	Sheet	format
SK04		DRZ	EN	1/1	A3

SW

Scale: | Repl.for: | Document-Id. 9000703821 | Var.BOM: | Mass: 0.00 g

Fig. 8: Control drawing 8697

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4.3 Installation locking wire for PE99, PX03 and PR08

DANGER!

Risk of explosion when opening the device.

- ▸ Open device only when no Ex atmosphere is present.
- ▸ Prior to start-up, secure the transparent cap against being opened without tools by using the enclosed locking wire.

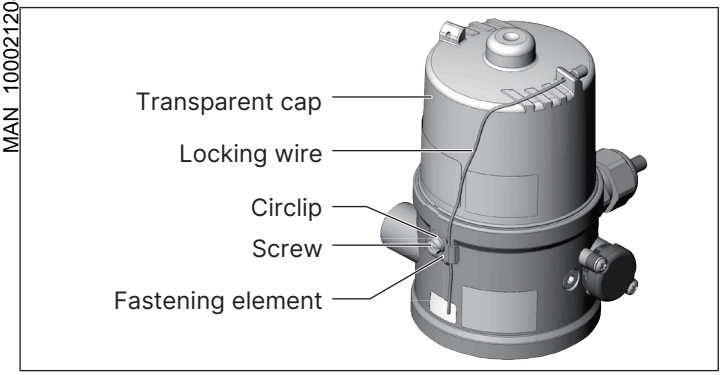

Fig. 9: Installation locking wire

Procedure:

→ Push locking wire through the bore of the transparent cap.

→ Push locking wire through fastening element and pull it tight.

→ Tighten the screw on the fastening element.

4.4 Adapter kit - installation note

DANGER!

Risk of explosion if incorrect adapter kit is used.

- ▸ Only use a suitable adapter kit.

The degree of protection required for ignition degree of protection intrinsic safety "i", is only guaranteed in connection with suitable adapter kits.

Attachment	Adapter kit series
FA03	ELEMENT
FA05	CLASSIC

Tab. 3: Attachment and adapter kit

The order designations for the adapter kits can be found in the "Order table adapter kits" in the data sheet for Type 8697.

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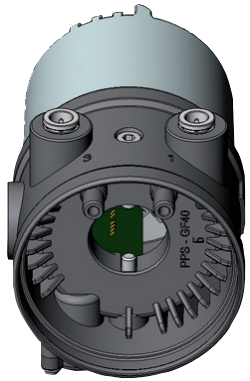
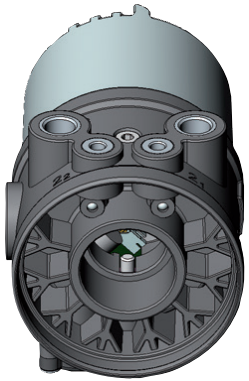
Attachment FA03



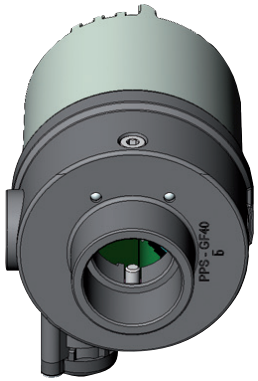
Attachment FA03
for adaption set of the ELEMENT series

Fig. 10: Attachment FA03

Attachment FA05



Attachment FA05
for adaption set of the CLASSIC series with pilot valve



Attachment FA05
for adaption set of the CLASSIC series without pilot valve

Fig. 11: Attachment FA05

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4.5 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.

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

This product is subject to review by the Shanghai Inspection and Testing Institute of Instruments and Automation Systems Co., Ltd. (SITIIAS), has been CCC certified to comply with requirements of national explosion-proof series standard (GB/T 3836.2021-Explosive Atmospheres).

Type examination certificates for PX03 and PE99, PE51

BVS 13 ATEX E104X and
IECEx BVS 13.0105X,

BVS 13 ATEX E087X and
IECEx BVS 13.0097X were issued by

DEKRA EXAM GmbH
Dinnendahlstraße 9
D-44809 Bochum

Production is audited by: Fiditas CE 2829
Ulica Slavka Tomerlina 44
10361 Zagreb-Sesvete
Hrvatska/Croatia

For PR03 and PR08

The Hazardous Locations certificates
FM24US0217X / FM24CA0058X
FM26US0108X / FM26CA0024X

were issued by

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

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