



Translation

EC-Type Examination Certificate

- (1)
- (2) **- Directive 94/9/EC -**
Equipment and protective systems intended for use
in potentially explosive atmospheres
- (3) **BVS 03 ATEX E 301 X**
- (4) **Equipment:** Sample Gas Cooler Type EGK 2-Ex fitted with control unit
- (5) **Manufacturer:** BÜHLER MESS- UND REGELTECHNIK GMBH
- (6) **Address:** D 40831 Ratingen
- (7) The design and construction of this equipment and any acceptable variation thereto are specified in the schedule to this type examination certificate.
- (8) The certification body of Deutsche Montan Technologie GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.
The examination and test results are recorded in the test and assessment report BVS PP 03.2291 EG.
- (9) The Essential Health and Safety Requirements are assured by compliance with:
- | | | | |
|---------------------|----------------------|---------------|---------------------------|
| EN 50014:1997+A1-A2 | General requirements | EN 50016:2002 | Pressurized apparatus 'p' |
| EN 50019:2000 | Increased safety 'e' | EN 50020:2002 | Intrinsic safety 'i' |
| EN 50028:1987 | Encapsulation 'm' | | |
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate
- (12) The marking of the equipment shall include the following:



II 2G EEx p e m [ia] IIC T4

Deutsche Montan Technologie GmbH

Bochum, dated December 18. 2003

Signed: Dr. Jockers

Certification body

Signed: Schumann

Special services unit

(13)

Appendix to

(14)

EC-Type Examination Certificate

BVS 03 ATEX E 301 X

(15) 15.1 Subject and type

Sample Gas Cooler Type EGK 2-Ex fitted with control unit

15.2 Description

The Sample Gas Cooler is designated for cooling purposes of gas and consists of a metal rack fitted with an electrically operated cooler-assembly, a mechanical heat exchanger and an electrical control unit.

The cooler assembly consists of a compressor (including cooling circuit) designed in type of protection "Pressurized Apparatus", fitted with connection facilities designed in type of protection "increased safety" for the permanently connected motor cable. A starting capacitor for the compressor motor is mounted additionally according to the associated EC Type Examination Certificate.

The control unit providing type of protection EEx e m [ia] IIC T4, consists of an enclosure designed in type of protection "increased safety" containing an electronic module embedded in casting compound and fitted with terminals for the interconnection of the intrinsically safe and non intrinsically safe circuits of the control unit.

Operation- and indicator-facilities are mounted in the cover of the control unit enclosure.

15.3 Parameters

15.3.1 Non intrinsically safe circuits

15.3.1.1 Mains interface

Nominal voltage	AC 115 / 230 V (60 / 50 Hz)
Nominal current	2,5 / 1 A
Nominal power consumption	170 / 110 W

Motor protective switch adjusted to rated value 2,9 / 1,1 A

15.3.1.2 Status relay contact

Alternating-/ Direct current	AC	DC	DC	DC	DC
Voltage	250 V	24 V	60 V	110 V	220 V
Current	5 A	5 A	1 A	0,4 A	0,3 A
Power	100 VA	100 W			

15.3.2 Intrinsically safe control circuit

Parameters of each part of the circuit	Circuit			
	PT100	Adjust-potentiometer	Light-emitting diode(s)	switching contact / Button Start 1 / 2 Test 1 / 2 Pressostat 1 / 2
Voltage U_o	7,9 V	7,9 V	7,9 V	7,9 V
Current I_o	5,5 mA	5,5 mA	25 mA	17 mA

Minimum-pressure above atmospheric conditions 0,2 bar

15.3.3 Ambient temperature range $-20^{\circ}\text{C} \leq T_a \leq +45^{\circ}\text{C}$

(16) Test and assessment report

BVS PP 03.2291 EG as of 18.12.2003

(17) Special conditions for safe use

- 17.1 Fuses providing a braking capacity of 4 kA and a suitable motor protection switch shall be inserted in the mains supply circuit of the Sample Gas Cooler.
- 17.2 A fuse (braking capacity 4 kA) providing a rated value adapted to the AC/DC switching parameters of the contact shall be inserted in the status-relay-contact circuit (see parameters).
- 17.3 The special conditions for safe use listed in the associated certificate of the optionally applied starting capacitor shall be taken into account.

We confirm the correctness of the translation from the German original.
 In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 03.05.2004
 BVS-Scha/Mi E 0743/04

EXAM BBG Prüf- und Zertifizier GmbH


 Certification body


 Special services unit



Translation

1st Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

**to the EC-Type Examination Certificate
BVS 03 ATEX E 301 X**

Equipment: Sample Gas Cooler Type EGK 2-Ex fitted with control unit
Manufacturer: BÜHLER MESS- UND REGELTECHNIK GMBH
Address: 40880 Ratingen, Germany

Description


The Sample Gas Cooler Type EGK 2-Ex fitted with control unit can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

The Sample Gas Cooler Type EGK 2-Ex fitted with control unit is subjected optionally to some small changes with regard to electric circuitry and parameters of the associated motor protective switch.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50014:1997+A1-A2	General requirements
EN 50016:2002	Pressurized apparatus 'p'
EN 50019:2000	Increased safety 'e'
EN 50020:2002	Intrinsic safety 'i'
EN 50028:1987	Encapsulation 'm'

The marking of the equipment shall include the following:

 **II 2G EEx p e m [ia] IIC T4**

Parameters

1. Non intrinsically safe circuits
 - 1.1 Mains interface
Nominal voltage AC 115 / 230 V (60 / 50 Hz)
Nominal current 2.5 / 1 A
Nominal power consumption 170 / 110 W

Motor protective switch adjusted to rated value 3.2 / 1.3 A

1.2 Status relay contact

No change

1.2 Intrinsically safe control circuit

No change

Special conditions for safe use

No change

Test and assessment report

BVS PP 03.2291 EG as of 05.10.2005

EXAM BBG Prüf- und Zertifizier GmbH

Bochum, dated 05.October 2005

Signed: Migenda

Signed: Dr.Eickhoff

Certification body

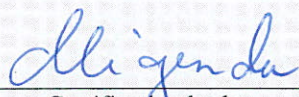
Special services unit

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

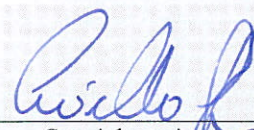
44809 Bochum, 05.10.2005

BVS-Scha/Mi A 20050529

EXAM BBG Prüf- und Zertifizier GmbH



Certification body



Special services unit

Translation

(1) 2. Supplement to the EC-Type Examination Certificate

- (2) Equipment and protective systems intended for use
in potentially explosive atmospheres - Directive 94/9/EC
Supplement accordant with Annex III number 6
- (3) No. of EC-Type Examination Certificate: **BVS 03 ATEX E 301 X**
- (4) Equipment: **Sample Gas Cooler Type EGK 2*-Ex fitted with control unit**
- (5) Manufacturer: **BÜHLER TECHNOLOGIES GMBH**
- (6) Address: **40880 Ratingen**
- (7) The design and construction of this equipment and any acceptable variation thereto are specified in
the appendix to this supplement.
- (8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of
the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this
equipment has been found to comply with the Essential Health and Safety Requirements relating to
the design and construction of equipment and protective systems intended for use in potentially
explosive atmospheres, given in Annex II to the Directive. The examination and test results are
recorded in the test and assessment report BVS PP 03.2291 EG.
- (9) The Essential Health and Safety Requirements are assured by compliance with:
- | | | |
|------------------|-----------------------|-----|
| EN 60079-0:2009 | General requirements | |
| EN 60079-2:2007 | Pressurized apparatus | 'p' |
| EN 60079-5:2007 | Powder filling | 'q' |
| EN 60079-7:2007 | Increased safety | 'e' |
| EN 60079-11:2007 | Intrinsic safety | 'i' |
| EN 60079-18:2009 | Encapsulation | 'm' |
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special
conditions for safe use specified in the appendix to this certificate.
- (11) This supplement to the EC-Type Examination Certificate relates only to the design, examination and
tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this
equipment. These are not covered by this certificate.
- (12) The marking of the equipment shall include the following:

 **II 2G Ex px e mb q [ia] IIC T4 Gb**

DEKRA EXAM GmbH
Bochum, dated 07.06.2011

Signed: Simanski

Certification body

Signed: Dr. Eickhoff

Special services unit

(13) Appendix to

(14) **2. Supplement to the EC-Type Examination Certificate
BVS 03 ATEX E 301 X**

(15) 15.1 Subject and type

Sample Gas Cooler type EGK 2*-Ex fitted with control unit

15.2 Description

The Sample Gas Cooler can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report and receives the marking:

Sample Gas Cooler type EGK 2-Ex fitted with control unit (prior models)
Sample Gas Cooler type EGK 2a-Ex fitted with control unit (modified models)

The internal circuitry of Sample Gas Cooler type EGK 2-Ex fitted with control unit is subjected to modification optionally.

The new models provide a display- and keyboard (4-digit LED-display and push buttons) replacing the prior status indicator.

Status of applied standards according to (9) and marking according to (12) apply to prior models as well as to new models.

15.3 Parameters

15.3.1 Non intrinsically safe circuits (Sample Gas Cooler type EGK 2a-Ex fitted with control unit)

15.3.1.1 Mains interface

Nominal voltage AC 115 / 230 V (60 / 50 Hz)
Nominal current 2.5 / 1 A
Nominal power consumption 170 / 110 W

Motor protective switch adjusted to rated value 3.2 / 1.3 A

15.3.1.2 Status relay contact

Alternating-/ Direct current	AC	DC	DC	DC	DC
Voltage	250 V	24 V	60 V	110 V	220 V
Current	5 A	5 A	1 A	0,4 A	0,3 A
Power	100 VA	100 W			

15.3.2 Intrinsically safe control circuit

Sample Gas Cooler type EGK 2-Ex fitted with control unit

Parameters of each part of the circuit	Circuit			
	PT100	Adjust- potentiometer	Light- emitting diode(s)	switching contact / Button Start 1 / 2 Test 1 / 2 Pressostat 1 / 2
Voltage U_o	7,9 V	7,9 V	7,9 V	7,9 V
Current I_o	5,5 mA	5,5 mA	25 mA	17 mA

Sample Gas Cooler type EGK 2a-Ex fitted with control unit

Circuit				
Parameters of each part of the circuit	PT100	Adjust-potentiometer	4-digit LED display	switching contact / Button Start 1 / 2 Test 1 / 2 Pressostat 1 / 2
Voltage U_o	7 V	not provided	7 V	7 V
Current I_o	$\leq 5,5$ mA	not provided	≤ 270 mA $\leq 1.4 A_s$	≤ 40 mA

15.3.3 Minimum-pressure above atmospheric conditions 0.2 bar

15.3.4 Ambient temperature range $-20\text{ °C} \leq T_a \leq +45\text{ °C}$

(16) Test and assessment report

BVS PP 03.2291 EG as of 07.06.2011

(17) Special conditions for safe use

- 17.1 Fuses providing a braking capacity of 1.5 kA and a suitable motor protection switch shall be inserted in the mains supply circuit of the Sample Gas Cooler.
- 17.2 A fuse (braking capacity 1.5 kA) providing a rated value adapted to the AC//DC switching parameters of the status relay contact shall be inserted in the status-relay-contact circuit (see parameters).
- 17.3 The special conditions for safe use listed in the associated certificate of the optionally applied starting capacitor shall be taken into account.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
44809 Bochum, 07.06.2011
BVS-Scha/Sch A 20110031



Certification body



Special services unit

Translation

EU-Type Examination Certificate Supplement 3

Change to Directive 2014/34/EU

Equipment intended for use in potentially explosive atmospheres
Directive 2014/34/EU

EU-Type Examination Certificate Number: **BVS 03 ATEX E 301 X**

Product: **Sample Gas Cooler type EGK 2A Ex**

Manufacturer: **Bühler Technologies GmbH**

Address: **Harkortstr. 29, 40880 Ratingen, Germany**

This supplementary certificate extends EC-Type Examination Certificate No. BVS 03 ATEX E 301 X to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

DEKRA Testing and Certification GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. BVS PP 03.2291 EU.

The Essential Health and Safety Requirements are assured in consideration of:

EN IEC 60079-0:2018	General requirements
EN 60079-2:2014	Pressurized enclosure "p"
EN 60079-5:2015	Powder filling "q"
EN IEC 60079-7:2015 + A1:2018	Increased Safety "e"
EN 60079-11:2012	Intrinsic Safety "i"
EN 60079-18:2015+A1:2017	Encapsulation "m"

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product shall include the following:

 **II 2G Ex pxb eb mb q [ia] IIC T4 Gb**

DEKRA Testing and Certification GmbH
Bochum, 2019-04-04

Signed: Jörg-Timm Kilisch

Managing Director

13 **Appendix**
14 **EU-Type Examination Certificate**

BVS 03 ATEX E 301 X
Supplement 3

15 **Product description**

15.1 **Subject and type**

Sample Gas Cooler type EGK 2A Ex

15.2 **Description**

With this supplement the certificate is changed to Directive 2014/34/EU.
(Annotation: In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.)

Reason for the supplement:

- Change to Directive 2014/34/EU
- Update of applied standards
- Designation changed from EGK 2a Ex to EGK 2A Ex

Description of the product

The Sample Gas Cooler is designated for cooling purposes of gas and consists of a metal rack fitted with an electrically operated cooler-assembly, a mechanical heat exchanger and an electrical control unit.

The cooler-assembly consists of a compressor (including cooling circuit) designed in type of protection "Pressurized Apparatus", fitted with connection facilities designed in type of protection "increased safety" for the permanently connected motor cable. A starting capacitor for the compressor motor is mounted additionally according to the associated EC Type Examination Certificate.

The control unit providing type of protection Ex eb mb [ia] IIC T4, consists of an enclosure designed in type of protection "increased safety" containing an electronic module embedded in casting compound and fitted with terminals for the interconnection of the intrinsically safe and non-intrinsically safe circuits of the control unit.

Operation- and indicator-facilities are mounted in the cover of the control unit enclosure and comprise of a display- and keyboard unit (4-digit LED-display and push buttons for programming purposes).

The starting capacitor for the compressor motor in type of protection Powder Filling „p“ and the compressor motor in type of protection Flameproof Enclosure „d“ are subject to other Ex-equipment certificates.

Listing of all components used referring to optionally older standards

Subject and type	Certificate	Standards
Housing of controller unit: Empty Enclosure type series 26.*****	PTB 01 ATEX 1061 U Edition 1	EN 60079-0:2012+A11:2013 EN 60079-7:2015
	IECEX PTB 08.0003U Issue No. 4	IEC 60079-0:2011 IEC 60079-7:2015
Alternate housing of controller unit: BPG Range of Enclosures	SIRA 99 ATEX 3172 U Edition 7	EN 60079-0:2012 EN 60079-7:2007
	IECEX SIR 06.0086U Issue No. 3	IEC 60079-0:2011 IEC 60079-7:2006
Ex motor capacitor type series 27-***-***-**	SEV 17 ATEX 0165 X Edition 0	EN 60079-0:2012+A11:2013 EN 60079-5:2015
	IECEX SEV 17.0021X Issue No. 0	IEC 60079-0:2011 IEC 60079-5:2015

Subject and type	Certificate	Standards
Terminal strips Wago type 236-501	PTB 06 ATEX 1061 U	EN 60079-0:2012+A11:2013 EN 60079-7:2015
	IECEX PTB 06.0042U Issue No. 2	IEC 60079-0:2011 IEC 60079-7:2015
Cable gland type series HSK-K-Ex 1.292. **** **	BVS 14 ATEX E 025 X 1. Nachtrag	EN 60079-0:2012+A11:2013 EN 60079-7:2015
	IECEX BVS 14 0020X Issue No. 1	IEC 60079-0:2011 IEC 60079-7:2015
Alternate cable gland: type series: SKINTOP® MS-M** ATEX ****	IBExU 01 ATEX 1041X 7 th Supplement	EN 60079-0:2011 EN 60079-7:2007
	IECEX IBE 13.0026X Issue No. 0	IEC 60079-0:2011 IEC 60079-7:2006

15.3 Parameters

15.3.1 Non intrinsically safe circuits

15.3.1.1 Mains interface

Nominal voltage	AC 115 / 230 V (60 / 50 Hz)
Nominal current	2.5 / 1 A
Nominal power consumption	170 / 110 W
Motor protective switch adjusted to rated value	3.2 / 1.3 A

15.3.1.2 Status relay contact

Parameters	AC	DC	DC	DC	DC
Voltage	250 V	24 V	60 V	110 V	220 V
Current	5 A	5 A	1 A	0.4 A	0.3 A
Power	100 VA	100 W			

15.3.2 Intrinsically safe control circuit

Circuit			
Parameters	PT100	4-digit LED display	switching contact / Button Start 1 / 2 Test 1 / 2 Pressostat 1 / 2
Voltage U ₀	7 V	7 V	7 V
Current I ₀	≤ 5.5 mA	≤ 270 mA ≤ 1.4 A _s	≤ 40 mA

15.3.2 Minimum-pressure above atmospheric conditions 0.2 bar

15.3.2 Ambient temperature range -20 °C ≤ T_a ≤ +45 °C

16 **Report Number**

BVS PP 03.2291 EU, as of 2019-04-04

17 **Special Conditions for Use**

- 17.1 Fuses providing a braking capacity of 1.5 kA and a suitable motor protection switch shall be inserted in the mains supply circuit of the Sample Gas Cooler.
- 17.2 A fuse (braking capacity 1.5 kA) providing a rated value adapted to the AC / DC switching parameters of the status relay contact shall be inserted in the status-relay-contact circuit (see parameters).
- 17.3 The special conditions for safe use listed in the associated certificate of the optionally applied starting capacitor shall be taken into account.

18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are covered by the standards listed under item 9.


For this product the standard EN IEC 60079-0:2018 is equivalent to the harmonized standard EN 60079-0:2012 + A11:2013 in terms of safety.

19 **Drawings and Documents**

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH
Bochum, 2019-04-04
BVS-Scha/VKA A20180938


Managing Director