

FM Approvals  
1151 Boston Providence Turnpike  
P.O. Box 9102 Norwood, MA 02062 USA  
T: 781 762 4300 F: 781-762-9375 [www.fmapprovals.com](http://www.fmapprovals.com)

# CERTIFICATE OF COMPLIANCE

## HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

**4230abc1def00. P1.3 Sample Gas Pump.**

NI/I/2/ABCD/T4...T3 Ta = 0°C to +50°C;

a = Motor voltage: 1, 2, 3 or 4.

b = Pump head position: 1 or 2.

c = Pump head material: 1, 2, 3 or 4.

d = Screw-in connections / pipe fitting: 0, 1, 2, 3, 5 or 6.

e = Mounting accessories: 0, 1 or 2.

f = Housing: 0 or 1.

**Special Conditions of Use:**

1. The apparatus is to be installed in a tool-secured enclosure in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
2. To maintain a T4 to T3 temperature class care shall be taken to ensure the enclosure temperature does not exceed 50°C.
3. Temperature class are defined by the following table:

Type of Gas used in Pump	Maximum Gas Temperature	Temperature Class
Non-flammable	70°C	T4
Flammable	50°C	T4
Flammable	70°C	T3

**Equipment Ratings:**

Nonincendive for use in Class I, Division 2, Groups A, B, C and D, Temperature Class T4...T3 hazardous (Classified) locations.

**FM Approved for:**

Bühler Technologies GmbH  
Ratingen, Germany

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

Class 3600	2011
Class 3611	2004
Class 3810	2005

Original Project ID: 3057155

Approval Granted: April 11, 2016

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
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FM Approvals LLC



J.E. Marquedant  
Manager, Electrical Systems

11 April 2016

Date

# CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** FM16US0414X
3. **Equipment:** P1.3 Sample Gas Pumps  
**(Type Reference and Name)**
4. **Name of Listing Company:** Bühler Technologies GmbH
5. **Address of Listing Company:** Harkortstraße 29  
40880, Ratingen, Germany
6. The examination and test results are recorded in confidential report number:  
  
3057155 dated 11<sup>th</sup> April 2016
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:  
  
FM Class 3600:2011, FM Class 3611:2004, FM Class 3810:2005
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
10. **Equipment Ratings:**  
  
Nonincendive for use in Class I, Division 2, Groups A, B, C and D, Temperature Class T4...T3 hazardous (Classified) locations

## Certificate issued by:



J.E. Marquedant  
Manager, Electrical Systems

9 December 2016

Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

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# SCHEDULE

US Certificate Of Conformity No: FM16US0414X

11. The marking of the equipment shall include:

Class I Division 2, Groups A, B, C, D; T4...T3 Ta = 0°C to +50°C

12. **Description of Equipment:**

The P1 sample gas pumps carry gases from various processes to analyzers. The gas circuit typically has additional analysis components such as sample gas probe, filter, flow meter, cooler, etc. The sample gas pump P1 consists of the main components, the pump head and motor. An eccentric converts the rotation of the motor into an up and down motion using a connecting rod, thus producing the pump mechanism. Inside the so-called pump body, above the bellows, which facilitates the pump motion, are inlet and outlet valves. The user connects the gas circuits to the sample gas pump through screw-in connections.

The P1 sample gas pumps are available as 12Vdc, 24Vdc, 115Vac, 60Hz or 230Vac, 50Hz. The 115Vac and 230Vac sample gas pumps are available with or without a cover over the electronics and motor. The 115Vac and 230Vac sample gas pumps have internal self resetting thermal protection built into the motor. The P1.3 sample gas pump is for hazardous locations.

Model Code Structure:

4230abc1def00. P1.3 Sample Gas Pump.

a = Motor voltage: 1, 2, 3 or 4.

b = Pump head position: 1 or 2.

c = Pump head material: 1, 2, 3 or 4.

d = Screw-in connections / pipe fitting: 0, 1, 2, 3, 5 or 6.

e = Mounting accessories: 0, 1 or 2.

f = Housing: 0 or 1

13. **Specific Conditions of Use:**

1. The apparatus is to be installed in a tool-secured enclosure in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.
2. To maintain a T4 to T3 temperature class care shall be taken to ensure the ambient temperature does not exceed 50°C.
3. Temperature class are defined by the following table:

Type of Gas used in Pump	Maximum Gas Temperature	Temperature Class	
		at installation site	in gas path
Non-Flammable	50°C	T4	---
Non-Flammable	70°C	T3	---
Flammable	50°C	T4	T3

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# **SCHEDULE**

US Certificate Of Conformity No: FM16US0414X

**14. Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

**15. Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

**16. Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
11 <sup>th</sup> April 2016	Original Issue.
9 <sup>th</sup> December 2016	<b>Supplement 1:</b> Report Reference: – RR207245 dated 9 <sup>th</sup> December 2016 Description of the Change: In the certificate, under Specific Conditions of Use, Reformatting and changes to the Temperature Class Table for maximum gas temperature and Temperature class values. Several drawings were updated for this change. The Name Plate drawing was updated to correct the nonincendive marking.

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# CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** FM16US0414X
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**(Type Reference and Name)**
4. **Name of Listing Company:** Bühler Technologies GmbH
5. **Address of Listing Company:** Harkortstraße 29  
40880, Ratingen, Germany
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3057155 dated 11<sup>th</sup> April 2016
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:  
  
FM Class 3600:2011, FM Class 3611:2004, FM Class 3810:2005
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
10. **Equipment Ratings:**  
  
Nonincendive for use in Class I, Division 2, Groups A, B, C and D, Temperature Class T4...T3 hazardous (Classified) locations

## Certificate issued by:

J.E. Marquedant  
VP, Manager - Electrical Systems

2 April 2020

Date

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The P1 sample gas pumps are available as 12Vdc, 24Vdc, 115Vac, 60Hz or 230Vac, 50Hz. The 115Vac and 230Vac sample gas pumps have internal self resetting thermal protection built into the motor. The P1.3 sample gas pump is for hazardous locations.

Model Code Structure:

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3. Temperature class are defined by the following table:

Type of Gas used in Pump	Maximum Gas Temperature	Temperature Class	
		at installation site	in gas path
Non-Flammable	50°C	T4	---
Non-Flammable	70°C	T3	---
Flammable	50°C	T4	T3

14. **Test and Assessment Procedure and Conditions:**

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# **SCHEDULE**



US Certificate Of Conformity No: FM16US0414X

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

**15. Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

**16. Certificate History**

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9 <sup>th</sup> December 2016	<u>Supplement 1:</u> Report Reference: – RR207245 dated 9 <sup>th</sup> December 2016. Description of the Change: In the certificate, under Specific Conditions of Use, Reformatting and changes to the Temperature Class Table for maximum gas temperature and Temperature class values. Several drawings were updated for this change. The Name Plate drawing was updated to correct the nonincendive marking.
2 <sup>nd</sup> April 2020	<u>Supplement 2:</u> Report Reference: – PR455937 dated 2 <sup>nd</sup> April 2020. Description of the Change: Add option for gas pump cover DC motors.

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