



Translation

(1) **EC TYPE-EXAMINATION CERTIFICATE**

(2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(3) EC-Type Examination Certificate Number



TÜV 99 ATEX 1509

(4) Equipment: Gas flow measuring system sensor type VAPORIX FLOW

(5) Manufacturer: FAFNIR GmbH

(6) Address: D-22765 Hamburg, Bahrenfelder Str. 19

(7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system 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 confidential report N° 99/PX13490.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50 014: 1997

EN 50 020: 1994

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system 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 the 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 or protective system must include the following:

 **II (1) 2 G EEx ia IIB T3**

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TÜV CERT-Certification Body
Am TÜV 1
D-30519 Hannover
Tel.: 0511 986-1470
Fax: 0511 986-2555

Hanover, 2002-06-06


Head of the
Certification Body



TÜV NORD CERT

TÜV NORD CERT GmbH & Co. KG
legal successor of the notified body of
TUV Hannover/Sachsen-Anhalt e.V.
German original certificate
issued on 2000-01-31



(13)

SCHEDULE

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 99 ATEX 1509**

(15) Description of equipment

The gas flow measuring system type VAPORIX is used for the measurement of the gaseous flow in vapour recovery systems of petrol stations. The sensor type VAPORIX FLOW may be erected inside of the hazardous location.

The permissible ambient temperature is -30°C to 50°C.

Electrical data

Sensor circuit
(pre-fabricated cable) in type of protection „Intrinsic Safety“ EEx ia IIB
only for the connection to a certified intrinsically safe circuit
with the following maximum values:

$$U_i = 24.3 \text{ V}$$

$$I_i = 345 \text{ mA}$$

The effective internal inductance and capacitance are negligibly small.

(16) Test documents are listed in the test report No.: 99/PPX134980.

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones



Translation

1. SUPPLEMENT to

EC TYPE-EXAMINATION CERTIFICATE No. TÜV 99 ATEX 1509

of the company: FAFNIR GmbH
D-22765 Hamburg

The gas flow measuring system type VAPORIX is used for the measurement of the gaseous flow in vapour recovery systems of petrol stations.

In the future, the sensor type VAPORIX Flow may also be manufactured according to the test documents listed in the test report and be erected in hazardous locations, as well.

The amendments concern the internal design and the electrical data.

Electrical data

Sensor circuit (pre-fabricated cable) in type of protection „Intrinsic Safety“ EEx ia IIB only for the connection to a certified intrinsically safe circuit with the following maximum values:

$$U_i = 23.9 \text{ V}$$

$$I_i = 345 \text{ mA}$$

$$P_i = 2.06 \text{ W}$$

The effective internal inductance and capacitance are negligibly small

All other data apply unchanged for this supplement.

(16) Test documents are listed in the test report N° 02 YEX 164826.

(17) Special conditions for safe use
none

(18) Essential Health and Safety Requirements
no additional ones

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Hannover, 2002-05-30

Head of the
Certification Body



Translation

EC-TYPE EXAMINATION CERTIFICATE

- (1)
- (2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 94/9/EC**
- (3) EC-Type Examination Certificate Number



TÜV 99 ATEX 1508 X

- (4) Equipment: Gas flow measuring system evaluation unit
type VAPORIX CONTROL
- (5) Manufacturer: FAFNIR GmbH
- (6) Address: D-22765 Hamburg, Bahrenfelder Str. 19
- (7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system 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 confidential report N° 99/PX14590.

- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50 014: 1997

EN 50 020: 1994

- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system 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 the 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 or protective system must include the following:

 **II (2) G [EEx ia] IIB**

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Head of the
Certification Body



TÜV NORD CERT

Hanover, 2003-05-06

TÜV NORD CERT GmbH & Co. KG legal
successor of the notified body of
TÜV Hannover/Sachsen-Anhalt e.V.

German original certificate
issued on 2000-01-31



SCHEDULE

(13)

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 99 ATEX 1508 X**

(15) Description of equipment

The gas flow measuring system type VAPORIX is used for the measurement of the gaseous flow in vapour recovery systems of petrol stations. The measuring system evaluation unit type VAPORIX CONTROL must only be installed outside of the explosion hazardous area.

The maximum permissible ambient temperature is 50 °C.

Electrical data

Supply circuit
(terminals PE, N, L)

$U = 230 \text{ V a.c. } \pm 10\%$
 $U_m = 253 \text{ V}$

Clock input
(terminals A1, A2; B1, B2)

$U = 24 \text{ V}$
 $U_m = 24 \text{ V}$

Data output
(Sub D socket)

for the connection to a data interface (RS232)
 $U_m = 253 \text{ V}$

Sensor circuits
(terminals 1A...8A
and 1B...8B)

in type of protection Intrinsic Safety EEx ia IIB
maximum values per circuit:
 $U_o = 24.3 \text{ V}$
 $I_o = 345 \text{ mA}$
Characteristic line: linear

max. permissible outer inductance 1.4 mH
max. permissible outer capacitance 0.9 μF

(16) Test documents are listed in the test report No.: 99/PX14590.

(17) Special conditions for safe use

1.

The PA connection has to be connected to equipotential bonding system of the explosion hazardous area.

2.

Since the intrinsically safe circuits are galvanically connected with the earth potential, potential equalisation has to exist in the complete course of the erection of the intrinsically safe circuits

(18) Essential Health and Safety Requirements

no additional ones



Translation

1. SUPPLEMENT to

EC TYPE-EXAMINATION CERTIFICATE No. TÜV 99 ATEX 1508 X

of the company: FAFNIR GmbH
Bahrenfelder Str. 19
D-22765 Hamburg

In the future, the gas flow measuring system evaluation unit type VAPORIX CONTROL may also be manufactured according to the test documents listed in the test report.

The amendments concern the internal design.

Electrical data

Supply circuit
(terminals PE, N, L) $U = 230 \text{ V a.c. } \pm 10\%$, 50-60 Hz, about 18 VA
 $U_m = 253 \text{ V}$

Clock input
(terminals -B+, -A+)
(Pulse) $U = 5 \dots 24 \text{ V}$
 $U_m = 30 \text{ V}$

Control outputs
(terminals -2+, -1+)
(Out B) $U \leq 24 \text{ V}$, $I \leq 100 \text{ mA}$
(-2+, -1+) $U_m = 30 \text{ V}$
(Out A)

Voltage output
(terminals - +)
(5 V) $U = 5 \text{ V}$, $I \leq 50 \text{ mA}$

RS 485 (two-wire)
(terminals B A) $U < 12 \text{ V}$
(RS 485) $U_m = 30 \text{ V}$

RS 485 (four-wire)
(plug connector)
(RS 485-4) $U < 12 \text{ V}$
 $U_m = 30 \text{ V}$

RS 232 Schnittstelle
(Sub D socket)
(Service) $U < 12 \text{ V}$
 $U_m = 30 \text{ V}$

1. Supplement to EC Type-Examination Certificate No. TÜV 99 ATEX 1508 X



Sensor circuits
(terminals 1...8B)
(1...8A)

in type of protection Intrinsic Safety EEx ia IIB
Maximum values per circuit:
 $U_o = 23.9 \text{ V}$
 $I_o = 325 \text{ mA}$
characteristic line: linear

max. permissible outer inductance 1.4 mH
max. permissible outer capacitance 0.9 μF

All other details and special conditions for safe use apply unchanged for this supplement.

(16) Test documents are listed in the test report N° 02 YEX 164917.

(17) Special conditions for safe use
unchanged

(18) Essential Health and Safety Requirements
no additional ones

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Hanover, 2003-05-06

German original certificate
issued on 2002-07-15

A handwritten signature in black ink, appearing to be 'St. W. H.' or similar, written in a cursive style.

Head of the
Certification Body



Translation

2. SUPPLEMENT to

EC TYPE-EXAMINATION CERTIFICATE No. TÜV 99 ATEX 1508 X

of the company: FAFNIR GmbH
Bahrenfelder Str. 19
D-22765 Hamburg

In the future, the gas flow measuring system evaluation unit type VAPORIX Control may also be manufactured according to the test documents listed in the test report.

The amendments concern the canceling of the special conditions for safe use and the amendment of the marking.

The marking in the future is: II (1) G [EEx ia] IIB.

The electrical data and all other data apply unchanged for this supplement.

(16) Test documents are listed in the test report N° 03 YEX 550419.

(17) Special conditions for safe use

Due to the galvanic insulation of the sensor circuits from the PA resp. PE connection the special conditions for safe use do not apply any longer.

(18) Essential Health and Safety Requirements

no additional ones

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Hannover, 2003-08-14

Head of the
Certification Body