



## (1) EC-Type Examination Certificate

- (2) Equipment or Protective Systems intended for use in potentially hazardous atmospheres - **Directive 94/9/EC**



- (3) **TÜV 99 ATEX 1465**

- (4) Equipment: Flowmeter TRIO-WIRL Types VT41.; ST41.; VR41.; SR41.  
(5) Manufacturer: ABB Automation Products GmbH  
(6) Address: D-37079 Göttingen, Dransfelder Straße 2, Germany

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

- (8) The TÜV Hannover/Sachsen Anhalt e.V., TÜV Certification Body No. 0032 in accordance with the Article 9 of the Council Directive of 23 March 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 of the Directive.

The examination and test results are recorded in the confidential Report No. 99/PX19790.

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

**EN 50 014:1997**

**EN 50 020:1994**

- (10) If the symbol "X" is placed after the certification 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 and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

- (12) The markings for the equipment or protective system shall include the following:



**II 2 G EEx ib IIC T4**

TÜV Hannover/Sachsen-Anhalt e.V.  
TÜV CERT-Zertifizierungsstelle  
Am TÜV 1  
D-30519 Hannover, Germany

Hannover, 08.09.1999

Head of the  
Certification Body

This EC-Type Examination Certificate may only be reproduced without any changes.  
Excerpts or changes require approval from the TÜV Hannover/Sachsen-Anhalt e.V.

(13)

## SCHEDULE

(14) **EC-Type Examination Certificate No. TÜV 99 ATEX 1465**

(15) Description of the Equipment

The flowmeter TRIO-WIRL Types VT41.; ST41.; VR41.; SR41. are utilized to meter the flowrate or the actual volume flow of steam, gases or liquids.

The allowable temperature range is  $-55^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ .

### Electrical Specifications

Supply Power Circuit  
(Terminals 31, 32)

Ignition Class Intrinsically Safe EEx ib IIC  
Only for connection to a certified Intrinsically Safe circuit  
with the following maximum values:

$$U_i = 28 \text{ V}$$

$$I_i = 110 \text{ mA}$$

$$P_i = 770 \text{ mW}$$

Effective internal capacitance

$$C_i = 12.8 \text{ nF}$$

Effective internal capacitance to PA

$$C_i = 24 \text{ nF}$$

Effective internal inductance

$$L_i = 0.27 \text{ mH}$$

Contact Output  
(Terminals 41, 42)

Ignition Class Intrinsically Safe EEx ib IIC  
Only for connection to a certified Intrinsically Safe circuit  
with the following maximum values:

$$U_i = 15 \text{ V}$$

$$I_i = 30 \text{ mA}$$

$$P_i = 115 \text{ mW}$$

Effective internal capacitance

$$C_i = 11.6 \text{ nF}$$

Effective internal capacitance to PA

$$C_i = 19.6 \text{ nF}$$

Effective internal inductance

$$L_i = 0.137 \text{ mH}$$

### Types VR41. and SR41.

Sensor Circuit  
Piezo Sensor  
(Terminals 85, 86, 87)  
and  
PT100 Circuit  
(Terminals 81, 82, 83, 84)

Ignition Class Intrinsically Safe EEx ib IIC  
Maximum values:

$$U_o = 7.2 \text{ V}$$

$$I_o = 965 \text{ mA}$$

## **Schedule to EC-Type Examination Certificate No. TÜV 99 ATEX 1465**

### **Types VT41. and ST41.**

In these types the sensor circuits are internally Intrinsically Safe circuits.

(16) Test documentation are listed in Test Report No.: 99/PX19790.

(17) Special Conditions

None

(18) Basic Safety and Health requirements

None additionally

# 1<sup>st</sup> SUPPLEMENT

## to EC-Type Examination Certificate No. TÜV 99 ATEX 1465

of the Company: ABB Automation Products GmbH  
 Dransfelder Straße 2  
 D-37079 Göttingen, Germany

The flowmeters TRIO-WIRL Models VT41.; ST41.; VR41.; SR41. may now be manufactured and sold in accordance with the documentation listed in the Test Report. The revisions affect the internal construction and installations in Category 3. The symbol for this installation category is:

### II 3 G EEx n [L] IIC T4 , Test Basis: pr EN 50 021:1996

The relationships between the instrument design, Temperature Class, maximum allowable ambient and fluid temperatures are listed in the following table:

Designed for	Allowable Ambient Temperature Range	Maximum Fluid Temperature	Temperature Class
EEx ib IIC or EEx n [L] IIC	-55°C .. +70°C	130°C	T4
		195°C	T3
		290°C	T2
		400°C	T1

#### Electrical Specifications

Model	Circuit	Eex ib IIC						EEx n[L] IIC
		U <sub>i</sub> [V]	I <sub>i</sub> [mA]	P <sub>i</sub> [mW]	C <sub>i</sub> [nF]	C <sub>i</sub> to PA [nF]	L <sub>i</sub> [mH]	
VT41./ST41. VR41./SR41.	Supply power circuit Terminals 31, 32	28	110	770	14.6	24.4	0.27	60
	Contact output Terminals 41, 42	15	30	115	11	19.6	0.14	60
Model	Circuit	U <sub>o</sub> [V]	I <sub>o</sub> [mA]	P <sub>o</sub> [W]				
VR41./SR41.	Piezo-Sensor Terminals 85, 86, 87	7.2	965	1.74				
	PT100-Circuit Terminals 81, 82, 83, 84							

- (16) Test documentation are listed in Test Report No.: 00/PX02400.
- (17) Special conditions : none
- (18) Basic Safety and Health Requirements : none additionally

TÜV Hannover/Sachsen-Anhalt e.V.  
 TÜV CERT-Certification Body  
 Am TÜV 1  
 D-30519 Hannover, Germany

Hannover, 15 Feb 2000

Stürwold

Head of the Certification Body



**2nd S U P P L E M E N T**  
**to**  
**EC-Type Examination Certificate No. TÜV 99 ATEX 1465**

Manufacturer:           ABB Automation Products GmbH  
                              Dransfelder Straße 2  
                              D-37079 Göttingen, Germany

The TRIO WIRL flowmeters Types VT41., ST41., VR41. and SR41. may now also be manufactured in accordance with the test documents listed in the test report. The revisions affect the circuit boards, the use of the flowmeter in explosion hazardous areas containing flammable dust and the identification of and markings for the flowmeters.

The identification of the flowmeters will now be as follows:

Flowmeters FV4000 Types VT41. / VR41. and FS4000 Types ST41. / SR41.

The allowable ambient temperature range for use of the flowmeter in explosion hazardous areas containing flammable dust is -20°C ... + 60°C.

For use of the flowmeter in explosion hazardous areas containing flammable dust, connections of intrinsically safe circuits in accordance with the electrical specifications in EC-Type Examination Certificate TÜV 99 ATEX 1465 or non-intrinsically safe circuits with  $U_m = 60$  V is allowed.

The markings for the flowmeter used in explosion hazardous areas containing flammable dust

Flowmeters TRIO WIRL Types VT41. / ST41. / VR41. / SR41 and  
Flowmeters FV4000 Types VT41. / VR41. and FS4000 Types ST41. / SR41. :

 II 2 D T85°C ... T<sub>Medium</sub> IP67

Only converters for flowmeters TRIO WIRL Types VR41. / SR41. and  
converters for flowmeters FV4000 Types VR41. / FS4000 SR41. :

 II 2 D T85°C IP67

Use in explosion hazardous areas with gases, steam or vapors

The markings for the flowmeters TRIO WIRL Types VT41. / ST41. / VR41. / SR41 and  
flowmeters FV4000 Types VT41. / VR41. and FS4000 Types ST41. / SR41. in areas, which  
require equipment for Category 3:

 II 3 G EEx n A [L] IIC T1 ... T4

The remaining specifications remain unchanged.



2nd Supplement to EU-Test Examination Certificate TÜV 99 ATEX 1465

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Installation Information:

When the protection earth conductor (PE) is connected in the connection box of the flowmeter, assure that no dangerous potential differences can exist between the protection earth (PE) and the potential equalization in the explosion hazardous area.

The test documents are listed in Test Report No. 03YEX550599.

TÜV NORD CERT GmbH & Co. KG  
2003  
TÜV CERT-Certification Body  
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Tel.: 0511 986-1470  
Fax: 0511 986-2555

Hannover, 20 October

The Director

## 3<sup>rd</sup> SUPPLEMENT

**to Certificate Number:** **TUV 99 ATEX 1465**  
**Instrument:** Flowmeter  
TRIO WIRL Type VT41. / ST41. / VR41. / SR41. or  
Flowmeter  
FV4000 Type VT41 / VR41  
FS4000 Type ST41 / SR41

**Manufacturer:** ABB Automation Products GmbH

**Address** Dransfelder Straße 2  
D-37079 Göttingen, Germany

**Order Number:** **8000553844**

**Issue Date:** 03 Sept. 2007

The flowmeters TRIO WIRL Type VT41. / ST41. / VR41. / SR41. or FV4000 Type VT41 / VR41 or FS4000 Type ST41 / SR41 may now be manufactured in accordance with the test documents listed below. The changes affect the boards „Digital-Board" and „HART-I/O-Board" and the identifications.

Identifications for the flowmeters TRIO WIRL Type VT41. / ST41. / VR41. / SR41. or flowmeters FV4000 Type VT41 / VR41 or FS4000 Type ST41 / SR41 for equipment in areas with Category 3 or Category 2 requirements:

 II 3 G Ex nA [L] IIC T1 ... T4

 II 2 G Ex ib IIC T1 ... T4

The instrument according to this Supplement meet the requirements of the following Standards:

EN 60079-0:2004                      EN 60079-11:2007

All other specifications remain unchanged.

(16) The test documents are listed in the Test Report No. 07203553844.

(17) Special Conditions

None

3<sup>rd</sup> Supplement to Certificate Number TÜV 99 ATEX 1465

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(18) Basic Safety and Health Requirements

None additionally

TUV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, Germany, is accredited by the Central Office of the German States for Safety Engineering (ZLS), Ident. No. 0044, Legal successor to TUV NORD CERT GmbH & Co. KG Ident. No. 0032

The Director of the Certification Agency

A handwritten signature in black ink, appearing to read "Schwedt".

Schwedt

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