



(1) **EC-Type Examination Certificate**

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



- (3) **TÜV 00 ATEX 1636 X**

(4) Instrument: Variable area flowmeter Model AM5423.. und AM5427..

(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 documents therein referred to.

(8) The TÜV Hannover/Sachsen-Anhalt e.V., TÜV Certification Body No. 0032 in accordance with Article 9 of the Council Directive of the European Community 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.. 00 PX 23100.

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

EN 50 014:1997 EN 50 018:1995 EN 50 020:1994 EN 50 021:1999

(10) If the sign "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 Test 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 these equipment or protective system.

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



II 2 G EEx d IIC T6 or II 2 G EEx ib IIC T6 or II 3 G EEx n [L] IIC T6

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

Hannover, 21. Nov. 2000

Stürwold

Head of the
Certification Body

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

(13)

SCHEDULE

(14) **EC-Type Examination Certificate No. TÜV 00 ATEX 1636 X**

(15) Description of the Equipment

The Variable Area Flowmeter Models AM5423.. and AM5427.. are used to measure the flowrates of gases and liquids.

The relationship between the Model Numbers, Ignition Protection, Temperature Classes, allowable ambient temperatures and the maximum fluid temperature is listed in the Table below:

II 2 G EEx d IIC T6			
Model	Ambient Temperature Range	Max. Fluid Temperature	Temperature Class
AM5423	-40°C .. +60°C	+440°C	T1
		+290°C	T2
		+195°C	T3
		+130°C	T4
		+95°C	T5
		+80°C	T6

II 2 G EEx ib IIC T4 and II 3 G EEx n [L] IIC T4			
Model	Ambient Temperature Range	Max. Fluid Temperature	Temperature Class
AM5423	-40°C .. +60°C	+440°C	T1
		+290°C	T2
		+195°C	T3
		+130°C	T4

AM5427.: II 2G EEx d IIC II 3G EEx n [L] IIC Alarm Contacts Terminals 41/42, 51/52 (41/51 → +)			Maximum Fluid Temperature						
			Ambient Temperature -40°C ...+ 60°C						
Insulated Instrument			Yes	No	Yes	Yes	Yes	Yes	Yes
U_m	I_m	P_m	T1	T1	T2	T3	T4	T5	T6
16V	25mA	34mW	420°C	440°C	290°C	195°C	130°C	95°C	80°C
	25mA	64mW	420°C	440°C	290°C	195°C	130°C	95°C	80°C
	52mA	169mW	320°C	440°C	240°C	195°C	130°C	60°C	45°C ¹⁾
	76mA	242mW	180°C	240°C	100°C	100°C	100°C	45°C ¹⁾	30°C ²⁾

¹⁾ Max. ambient temperature +45°C

²⁾ Max. ambient temperature +30°C

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Variable Area Flowmeters which were operated under guaranteed compliance with the maximum values in Category 3 (Zone 2), can subsequently be used in Category 2 (Zone 1) without modification provided that the maximum values for this category are observed. The same requirements apply to instruments with ignition protection types EEX d or EEx ib.

(16) Test documents are listed in the Test Report No. 00 PX 23100.

(17) Special Conditions

The supply power and contact output circuits mentioned may be operated only as intrinsically safe or as non-intrinsically safe. A combination is not permissible.

(18) Essential Health and Safety Requirements

none additionally

Schedule to EC-Type Examination Certificate No. TÜV 00 ATEX 1636 X

AM5427.: II 2G EEx ib IIC Alarm Contacts Terminals 41/42, 51/52 (41/51 → +)					Maximum Fluid Temperature						
					Ambient Temperature -40°C ...+ 60°C						
Insulated Instrument					Yes	No	Yes	Yes	Yes	Yes	Yes
U _i	I _i	P _i	L _i	C _i	T1	T1	T2	T3	T4	T5	T6
16V	25mA	34mW	250µH	50nF	420°C	440°C	290°C	195°C	130°C	95°C	80°C
	25mA	64mW			420°C	440°C	290°C	195°C	130°C	95°C	80°C
	52mA	169mW			320°C	440°C	240°C	195°C	130°C	60°C	45°C ¹⁾
	76mA	242mW			180°C	240°C	100°C	100°C	100°C	45°C ¹⁾	30°C ²⁾

1) Max. ambient temperature +45°C

2) Max. ambient temperature +30°C

Electrical Specification

The maximum allowable values as a function of the Model and the Design are listed in the table:

Model	II 2 G EEx ib IIC	U _i	I _i	P _i	C _i	C _{i/PA}	L _i
AM5423	Supply Power Circuit Terminals 31/32 (Terminal 31→+)	28 V	110 mA	770 mW	4,2 nF	6 nF	270 µH
	Contact Output-switch Terminals 41/42 (Terminals 41→+)	15 V	30 mA	115 mW	3,6 nF	3,6 nF	133 µH
AM5427	Alarm Contacts Terminals 41/42, 51/52 (Terminal 41, 51→+)	16 V	25 mA	34 mW	50 nF	-----	250 µH
			25 mA	64 mW			
			52 mA	169 mW			
			76 mA	242 mW			
Model	II 2 G EEx d IIC II 3 G EEx n [L] IIC	U _m	I _m	P _m			
AM5423	Supply Power Circuit Terminals 31/32 (Terminal 31→+)	60 V	35 A				
	Contact Output-switch Terminals 41/42 (Terminals 41→+)	60 V	35A				
AM5427	Alarm Contacts Terminals 41/42, 51/52 (Terminal 41, 51→+)	16V	25 mA	34 mW			
			25 mA	64 mW			
			52 mA	169 mW			
			76 mA	242 mW			

1st SUPPLEMENT
to
EC-Type Examination Certificate No. TÜV 00 ATEX 1636 X

of: ABB Automation Products GmbH
 Dransfelder Strasse 2
 D-37079 Göttingen

The Variable Area Flowmeter Models AM5423.. and AM5427.., may in future also be manufactured according to the documents listed in the test certificate. The modifications are related to the outside structure of the DN15 .. DN80 nominal diameters. Both models are complemented by a meter tube version with a heating jacket.

The relationship between type, temperature classification, permissible ambient temperature range and the maximum temperatures of the measured medium/the heating medium is shown in the tables.

Model	Maximum Temperatures of Measured Medium/Heating Medium						
	Ambient temperature	Temperature Classifications					
		T1	T2	T3	T4	T5	T6
AM5423 with heating jacket	-40°C..+40°C	290°C	290°C	195°C	130°C	95°C	80°C
II 2G EEx d IIC	-40°C..+50°C	255°C	255°C	195°C	130°C	95°C	80°C
	-40°C..+60°C	220°C	220°C	195°C	130°C	95°C	80°C

Model	Maximum Temperatures of Measured Medium/Heating Medium				
	Ambient temperature	Temperature Classifications			
		T1	T2	T3	T4
AM5423 with heating jacket	-40°C..+40°C	290°C	290°C	195°C	130°C
II 2G EEx ib IIC or II 3G EEx n[L] IIC	-40°C..+50°C	255°C	255°C	195°C	130°C
	-40°C..+60°C	220°C	220°C	195°C	130°C

The relationship between type, electrical data, temperature classification, permissible ambient temperature range and the maximum temperatures of the measured medium/the heating medium is shown in the tables.

Model AM5427 with heating jacket II 2G EEx d IIC II 3G EEx n[L] IIC			Maximum Temperatures of Measured Medium/Heating Medium						
Contact Output terminals 41/42, 51/52 (41/51? +)			Ambient temperature	T1	T2	T3	T4	T5	T6
U _m	I _m	P _m							
16 V	25 mA	34 mW	-40°C..+40°C	290°C	290°C	195°C	130°C	95°C	80°C
			-40°C..+60°C	220°C	220°C	195°C	130°C	95°C	80°C
	25 mA	64 mW	-40°C..+40°C	290°C	290°C	195°C	130°C	95°C	80°C
			-40°C..+60°C	220°C	220°C	195°C	130°C	95°C	80°C
	52 mA	169 mW	-40°C..+40°C	255°C	255°C	195°C	130°C	95°C	50°C
			-40°C..+60°C	185°C	185°C	185°C	130°C	50°C	45°C ¹⁾
	76 mA	242 mW	-40°C..+40°C	185°C	185°C	185°C	130°C	55°C	30°C ²⁾
			-40°C..+60°C	115°C	115°C	115°C	115°C	45°C ¹⁾	30°C ²⁾

¹⁾ Max. ambient temperature +45°C

²⁾ Max. ambient temperature +30°C

Translation of German Original
1st Supplement to EC-Type Examination Certificate No. TÜV 00 ATEX 1636 X

Model AM5427 with heating jacket II 2G EEx ib IIC					Maximum Temperatures of Measured Medium/Heating Medium						
Contact Output terminals 41/42, 51/52 (41/51? +)					Ambient temperature	T1	T2	T3	T4	T5	T6
U _i	I _i	P _i	L _i	C _i							
16V	25 mA	34 mW	250 μH	50 nF	-40°C..+40°C	290°C	290°C	195°C	130°C	95°C	80°C
		-40°C..+60°C			220°C	220°C	195°C	130°C	95°C	80°C	
	25 mA	64 mW			-40°C..+40°C	290°C	290°C	195°C	130°C	95°C	80°C
					-40°C..+60°C	220°C	220°C	195°C	130°C	95°C	80°C
	52 mA	169 mW			-40°C..+40°C	255°C	255°C	195°C	130°C	95°C	50°C
					-40°C..+60°C	185°C	185°C	185°C	130°C	50°C	45°C ¹⁾
	76 mA	242 mW			-40°C..+40°C	185°C	185°C	185°C	130°C	55°C	30°C ²⁾
					-40°C..+60°C	115°C	115°C	115°C	115°C	45°C ¹⁾	30°C ²⁾

¹⁾ Max. ambient temperature +45°C

²⁾ Max. ambient temperature +30°C

All other details and the special condition apply unchanged to this supplement.

(16) Test documentation are listed in Test Report No. 02 YEX 180440.

(17) Special conditions

Unchanged

(18) Essential Health and Safety Requirements

No supplements

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