

# (1) TYPE EXAMINATION CERTIFICATE

## (2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC

(3) Type Examination Certificate Number: **KEMA 08ATEX0151 X** Issue Number: 1

(4) Equipment: **Coriolis Flowmeters series FCM2000  
Separate Primary type MC21  
Compact Transmitter type MC23  
Separate Transmitter type ME21**

(5) Manufacturer: **ABB Automation Products GmbH**

(6) Address: **Dransfelder Straße 2, 37079 Göttingen, Germany**

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

(8) KEMA Quality B.V. 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 confidential test report no. 210415700.

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

**EN 60079-0 : 2006**

**EN 60079-15 : 2005**

**EN 60079-27 : 2006**

(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 Type Examination Certificate relates only to the design, examination and tests of the specified equipment and not to the manufacturing process and supply of this equipment.

(12) The marking of the equipment shall include the following:



as listed at (15)

This certificate is issued on December 5, 2008 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

KEMA Quality B.V.

H.J.G. de Wild  
Certification Manager



(13) **SCHEDULE**

(14) **to Type Examination Certificate KEMA 08ATEX0151 X**

Issue No. 1

(15) **Description**

The Coriolis Flowmeters series FCM2000 convert the mass flow of a process medium, the fluid, into electrical signals.

The mass flow system consists of a primary that is installed in the process pipe line and a transmitter that processes the measurement signals.

The transmitter can be combined with the primary in a compact version or can be separately mounted.

The several versions have the following model codes:

Separate Primary type           MC21 M, N,  
 Compact Tranitter type        MC23 M, N and  
 Separate Transmitter type    ME21 M, N

Ambient temperature range: -20 °C to +60 °C for type MC2. M and ME21 M,  
 -40 °C to +60 °C for type MC2. N and ME21 N.


Process temperature range: -50 °C to +200 °C for type MC2...

The relation between the type, the temperature class, the maximum ambient temperature and the maximum fluid temperature is given in the table below.

type	Temperature class	maximum fluid temperature in °C		
		Ta ≤ 40 °C	Ta ≤ 50 °C	Ta ≤ 60 °C
MC21 M, N	T2	200	200	-
MC23 M, N	T3	180	180	180
	T4	115	115	115
	T5	80	80	75
	T6	60	60	60

**Marking**

The equipment marking shall include the information as listed in the following table:

Type		Code	note	
MC21 M, N		II 3 G	Ex nA II T6 ... T2	
MC23 M, N		II 3 G	Ex nA nR II T6...T2	No PA/FF FNICO, no PA/FF connector PA/FF FNICO, no PA/FF connector PA/FF FNICO
		II 3 G	Ex nA nR [nL] IIC T6...T2 FNICO field device	
ME21 M,N	II 3 G	Ex nR II T6	No PA/FF FNICO, no PA/FF connector PA/FF FNICO, no PA/FF connector PA/FF FNICO	
	II 3 G	Ex nR [nL] IIC T6 FNICO field device		

**Electrical data**

All transmitters

Supply (connection terminals 1+ and 2-) : 24 V ... 60 Vdc, max. 25 W, U<sub>m</sub> = 250 V or  
 (connection terminals L and N) : 85 ... 253 V, max. 25 W, U<sub>m</sub> = 265 V

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Instrumentation circuits

The electrical data of the circuits depend on the version and the options

Current output 1, active (terminals 31 and 32):	$U_N = 30 \text{ V}, I \leq 30 \text{ mA}$
Current output 1, passive (terminals 31 and 32):	$U_N = 30 \text{ V}, I \leq 30 \text{ mA}$
Current output 2, passive (terminals 33 and 34):	$U_N = 30 \text{ V}, I \leq 30 \text{ mA}$
Contact output (terminals 41 and 42):	$U_N = 30 \text{ V}, I \leq 220 \text{ mA}$
Pulse output (terminals 51 and 52):	$U_N = 30 \text{ V}, I \leq 220 \text{ mA}$
Contact input (terminals 81 and 82):	$U_N = 30 \text{ V}, I \leq 10 \text{ mA}$
Fieldbus (PA or FF) (terminals 97 and 98):	$U_N = 32 \text{ V}, I_N = 10 \text{ mA}$

The fieldbus interface complies with the requirements of a FNICO field device per EN 60079-27.

Transmitters and Primaries

Sensor circuits

The sensor circuits are internal circuits or the Primary is connected to the Transmitter via an interconnecting cable.

**Installation instructions**

The installation instructions as provided with the equipment shall be followed in detail in order to assure safe operation.

(16) **Test Report**

KEMA No. 210415700.

(17) **Special conditions for safe use**

For ambient temperature range and electrical parameters see (15).

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. 210415700.