

(1) EC-TYPE EXAMINATION CERTIFICATE

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

(3) EC-Type Examination Certificate Number: **KEMA 10ATEX0105 X** Issue Number: **1**

(4) Equipment: **Compact Electromagnetic Flowmeter type OPTIFLUX 7300 SW/C and type OPTIFLUX 7300 FL/C**

(5) Manufacturer: **Krohne Altometer**

(6) Address: **Kerkeplaat 12, 3313 LC Dordrecht, The Netherlands**

(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., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, 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 number 213408100.

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

**EN 60079-0 : 2006
EN 60079-11 : 2007
EN 60079-27 : 2008**

**EN 60079-1 : 2007
EN 60079-18 : 2004
EN 61241-0 : 2006**

**EN 60079-7 : 2007
EN 60079-26 : 2007
EN 61241-1 : 2004**

(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 EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment according 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 shall include the following:



**II 2 G Ex d IIC T6...T4 or Ex d e IIC T6...T4 or
Ex d mb IIC T6...T4 or Ex d e mb IIC T6...T4 or
II 2 (1) G Ex d [ia] IIC T6...T4 or Ex d e [ia] IIC T6...T4 or
Ex d mb [ia] IIC T6...T4 or Ex d e mb [ia] IIC T6...T4
II 2 D Ex tD A21 IP67 T 115 °C**

This certificate is issued on July 21, 2010 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.

C.G. van Es
Certification Manager



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(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 10ATEX0105 X** Issue No. 1

(15) **Description**

The Compact Electromagnetic Flowmeter Types OPTIFLUX 7300 SW/C and OPTIFLUX 7300 FL/C is used for measuring, counting and displaying the linear flow of an electrical conductive liquid.

The flowmeter consists of a signal converter housing with an electronics unit and a primary head. The signal converter housing is in type of protection flameproof enclosures "d" with terminal compartment in type of protection flameproof enclosures "d" or increased safety "e", depending on the type of protection of the installed cable entry device. The primary head is in type of protection flameproof enclosures "d" (sandwich version) or encapsulation "mb" (flange version).

Depending on the electronics unit used, several signal output options like a 4 - 20 mA current signal, a fieldbus connection, pulse and status signals are available. The output signals are either non-intrinsically safe or intrinsically safe.

Ambient temperature range -20 °C to +60 °C
 Process temperature range -20 °C to +115 °C

The relation between temperature class, maximum process temperature and ambient temperature for the aluminium version is shown in the following tables:

Ex d primary head (SW/C)

Temperature class	Max. process temperature		
	Ta ≤ 40 °C	40 °C < Ta ≤ 50 °C	50 °C < Ta ≤ 60 °C
T6	60 °C	55 °C	not possible
T5	75 °C	75 °C	70 °C
T4	115 °C	115 °C	75 °C

Ex mb primary head (FL/C)

Temperature class	Max. process temperature		
	Ta ≤ 40 °C	40 °C < Ta ≤ 50 °C	50 °C < Ta ≤ 60 °C
T6	80 °C	80 °C	60 °C
T5	95 °C	95 °C	60 °C
T4	115 °C	115 °C	60 °C

Electrical data

Power supply 100 - 230 Vac -15 %/+10 %, 22 VA
 (terminals L, N or L+, L-) 12 - 24 Vdc -10 % (short-time -25 %)/+30 %, 12 W
 24 Vac -15 %/+10 %, 22 VA.
 24 Vdc -25 %/+30 %, 12 W
 U_m = 253 V

Non-intrinsically safe I/O signal circuits ... Un ≤ 32 V, In ≤ 100 mA
 (terminals A, A-, A+, B, B-, C, C-, D, D-)

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Intrinsically safe I/O signal circuits
(terminals A, A-, A+, B, B-, C, C-, D, D-)

In type of protection intrinsic safety Ex ia IIC, only for connection to a certified intrinsically safe circuit, with the maximum values per circuit per table below:

Type of PCB	Type of I/O circuit	U_o [V]	I_o [mA]	P_o [W]	C_o [nF]	L_o [mH]
Ex i IO Ex i Option	4 - 20 mA, active with HART	21	90	0,5 note 1	90	2,0
	4 - 20 mA, active				110	0,5
Ex i Option 2	4 - 20 mA, active	24,1	99	0,6 note 1	75	0,5
		U_i [V]	I_i [mA]	P_i [W]	C_i [nF]	L_i [mH]
Ex i IO Ex i Option Ex i Option 2	4 - 20 mA, passive with HART	30	100	1,0	10	0
	4 - 20 mA, passive					
	4 - 20 mA, passive					
Ex i IO Ex i Option Ex i Option 2	Pulse/status output, passive	30	100	1,0	10	0
	Pulse/status output, Control input, passive					
	Puls/status output, passive					
Fieldbus IO	Profibus-PA / Foundation Fieldbus, passive note 2	24	380	5,32	5	0,01

Note 1: linear characteristic

Note 2: FISCO field device according to EN 60079-27

Installation instructions

The installation instructions as provided by the manufacturer shall be followed in detail in order to assure safe functioning of the equipment, taking into account the local installation rules.

Routine tests

- EN 60079-1

An overpressure test according to clause 16 shall be applied out on each welded primary head in type of protection flameproof enclosures "d" in accordance with Krohne instruction, reference W0128.

- EN 60079-7

A dielectric strength test according to clause 6.1 shall be applied on each terminal compartment in type of protection increased safety "e" in accordance with Krohne instruction, reference W0163.

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- EN 60079-18

A dielectric strength test according to clause 9.2 shall be applied on each primary head in type of protection encapsulation "m" in accordance with Krohne instruction, reference JK01.

(16) **Test Report**

KEMA No. 213408100.

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

- For ambient and process temperatures and electrical data see (15) above.
- The breaking capacity of the fuse for the field coils in type of explosion protection "m" must be in accordance with the prospective short circuit current of the supply.
- For information on details of the flameproof joints the manufacturer shall be contacted.
- The property class of the special fasteners is at least A2-70.

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

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. 213408100.