



(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 09ATEX0046 X** Issue Number: 1

(4) Equipment: **Compact Electro Magnetic Flowmeter Series VersaFlow Mag 3000 C**

(5) Manufacturer: **Honeywell International, HFS**

(6) Address: **512 Virginia Drive, Fort Washington, PA 19034, USA**

(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 212419200/3.

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

EN 50014 : 1997 + A1, A2
EN 50020 : 2002
EN 60079-18 : 2004

EN 50018 : 2000 +A1
EN 50281-1-1 : 1998 + A1

EN 50019 : 2000
EN 60079-0 : 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(1) GD or II 2 GD EEx d mb e [ia] IIC T6...T3
T150 °C

This certificate is issued on June 23, 2009 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



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(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 09ATEX0046 X** Issue No. 1

(15) **Description**

The Compact Electro Magnetic Flowmeter, series VersaFlow Mag 3000 C is used for measuring, counting and displaying the linear flow of an electrically conductive liquid. The flowmeter consists of a primary head and a signal converter housing, with an electronics unit and a terminal compartment.

Depending on the electronics boards 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 intrinsically safe or non-intrinsically safe.

The electronics compartment is in type of protection flameproof enclosure "d". The terminal compartment for connection of the supply and signal circuits is in type of protection flameproof enclosure "d" or increased safety "e", depending on the type of protection of the installed cable entry device.

The primary heads sizes DN25-DN80 are in type of protection encapsulation "mb" and increased safety "e". The electrodes are in type of protection intrinsic safety "i".

Ambient temperature range -40 °C to +60 °C.
Process temperature range -40 °C to +150 °C.

The relation between temperature class, maximum process temperature and ambient temperature is shown in the following table:

Temperature class	Max. process temperature		
	Ta ≤ 40 °C	40 °C < Ta ≤ 50 °C	50 °C < Ta ≤ 60 °C
T6	75 °C	70 °C	65 °C
T5	95 °C	95 °C	85 °C
T4	130 °C	130 °C	85 °C
T3	150 °C	150 °C	85 °C

The maximum surface temperature of the enclosure T 150 °C is based on a process temperature of 150 °C.

The degree of protection of the apparatus enclosure is at least IP64 according to EN 60529.

Electrical data

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



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Intrinsically safe I/O signal circuits

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

Type of PCB	Type of I/O circuit (terminals)	U _o [V]	I _o [mA]	P _o [W]	C _o [nF]	L _o [mH]
Ex i IO	4 - 20 mA with HART active (C and C-)	21	90	0,5 note 1	90	2,0
					110	0,5
Ex i Option	4 - 20 mA active (A and A-)	21	90	0,5 note 1	90	2,0
					110	0,5

Type of PCB	Type of I/O circuit (terminals)	U _i [V]	I _i [mA]	P _i [W]	C _i [nF]	L _i [μH]
Ex i IO	4 - 20 mA with HART passive (C and C-)	30	100	1,0	10	0
	pulse/status output (D and D-)					
Ex i Option	4 - 20 mA passive (A and A-)	30	100	1,0	10	0
	pulse/status output / control input (B and B-)					
Fieldbus IO note 2	Profibus-PA (C, C-, D and D-)	24	380	5,32	5	10
	Foundation Fieldbus (C, C-, D and D-)					

note 1: linear characteristic

note 2: the fieldbus circuit complies with the FISCO model according to IEC 60079-27.

Non-intrinsically safe I/O signal circuits

(terminals A, A-, A+, B, B-, C, C-, D and D-)... U_n ≤ 32 Vdc, I_n ≤ 100 mA

Electrode circuits
(internal circuits)

In type of protection intrinsic safety EEx ia IIC

Installation instructions

When used in a potentially explosive atmosphere, requiring the use of apparatus of equipment category 2G, certified cable entry devices shall be used that are suitable for the application and correctly installed.

When used in a potentially explosive atmosphere, requiring the use of apparatus of equipment category 2D, certified cable entry devices with a degree of protection of at least IP64 according to EN 60529 shall be used that are suitable for the application and correctly installed.



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Unused openings shall be closed with suitable certified closing elements.

With the use of conduit, a suitable certified sealing device such as a stopping box with setting compound shall be provided immediately at the entrance to the flameproof enclosure.

To avoid voltage and current addition the intrinsically safe circuits shall be separated and wired according to EN 60079-14.

Routine tests

Routine tests according to EN 50018 are not required for the signal converter housing since the overpressure test has been carried out at four times the reference pressure.

An electric strength test according to EN 50019 Clause 7.1 shall be applied without breakdown on each terminal compartment in type of protection increased safety "e" with 1500 V between the power supply circuit and the enclosure and with 500 V between the signal in- and output circuits and the enclosure during one minute, without breakdown.

Routine tests according to EN 60079-18 must be carried out on the field coils as follows:

- Clause 9.1: Visual check;
- Clause 9.2: Each primary head shall withstand a test voltage of 500 V during at least one second without breakdown between the field coils circuit and the enclosure and between the field coils circuit and the intrinsically safe sensor circuit.

(16) **Test Report**

KEMA No. 212419200/3.

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

The relation between temperature class, maximum surface temperature, maximum process temperature and ambient temperature is as shown above in description (15).

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

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. 212419200/3.