KEMA

(1) EC-TYPE EXAMINATION CERTIFICATE

(2) Equipment or protective system intended for use in potentially explosive atmospheres – Directive 94/9/EC

(3) EC-Type Examination Certificate Number: **KEMA 01ATEX2263 X**

(4) Equipment or protective system: **Electromagnetic flowmeter primary head, types IFS 4000 F/...-EEx and MGS 4000 F/...-EEx**

(5) Manufacturer: **Krohne Altometer**

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

(7) This equipment or protective system 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 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 to the Directive.

The examination and test results are recorded in confidential report no. 2016360.

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

EN 50014 : 1997 **EN 50018 : 2000** **EN 50019 : 2000**
EN 50020 : 1994 **EN 50281-1-1 : 1998**

(10) If the sign "X" is placed after the certificate 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, examination and tests of the specified equipment or protective system in accordance with the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

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

Ex **II 2 GD** **EEx e ib IIC T6...T3** or **EEx de ib IIC T6...T3**
T 85...180 °C

Arnhem, 25 March 2002
KEMA Quality B.V.

T. Pijpker
Certification Manager

KEMA Quality B.V.
Utrechtseweg 310, 6812 AR Arnhem, The Netherlands
P.O. Box 5185, 6802 ED Arnhem, The Netherlands
Telephone +31 26 3 56 20 08, Telefax +31 26 3 52 58 00

ACCREDITED BY THE DUTCH COUNCIL FOR ACCREDITATION

(13) # SCHEDULE

(14) **to EC-Type Examination Certificate KEMA 01ATEX2263 X**

(15) **Description**

The Electromagnetic flowmeter primary head, types IFS 4000 F/...-EEx and MGS 4000 F/...-EEx is used to convert the flow of a conducting fluid into an electrical signal. An associated flowmeter transmitter is used to supply the field coils of the primary head and to convert the measured electrode signal into an output signal.

The field coils of the primary heads are in type of explosion protection flameproof enclosure "d" (sizes DN25 - DN150) or increased safety "e" (sizes DN200 - DN3000), the electrodes are in type of explosion protection intrinsic safety "i" and the terminal compartment is in type of explosion protection increased safety "e".

The maximum surface temperature T 85 ... 180 °C is based on a maximum ambient temperature of 60 °C.

Electrical data

Field coil circuit ..... $U \leq 40$ V (pulsed)
$I \leq 125$ mA (fuse protected)

The field coils circuit is protected by two 160 mA fuses in the coil excitation circuit of the associated transmitter.

Electrodes circuit ..... in type of explosion protection intrinsic safety EEx ib IIC, only for connection to a certified intrinsically safe circuit, with the following maximum values:

$U_i = 20$ V
$I_i = 175$ mA

The effective internal capacitance and inductance are negligibly small.

The signal circuit is operationally grounded.

Installation instructions

For use in potentially explosive atmospheres of flammable gases, fluids or vapours:
The cable entry device shall be in type of explosion protection increased safety "e", suitable for the conditions of use and correctly installed.

For use in the presence of combustible dust:
The cable entry device shall be in type of equipment Category II 2 D, suitable for the conditions of use and correctly installed.

Unused openings shall be closed with suitable certified closing elements.

Routine tests

Each welded primary head in type of explosion protection flameproof enclosure "d" must be submitted to the routine overpressure test according to EN 50018, Clause 16, at a test pressure of 13,5 bar during one minute.

(13) # SCHEDULE

(14) **to EC-Type Examination Certificate KEMA 01ATEX2263 X**

Routine tests (continued)

Each primary head shall withstand a test voltage of 1500 V during one minute without breakdown between the field coils circuit and the intrinsically safe sensor circuit. Each primary head in type of explosion protection increased safety "e" shall additionally withstand a test voltage of 1500 V during one minute without breakdown between the field coils circuit and the enclosure.

(16) **Report**

KEMA No. 2016360.

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

Ambient temperature range -40 °C ... +60 °C.

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

a) Meter size DN25 - DN150:

Temperature class	Max. surface temperature	Max. process temperature		
		Ta ≤ 40 °C	Ta ≤ 50 °C	Ta ≤ 60 °C
T6	T 85 °C	70 °C	70 °C	70 °C
T5	T 100 °C	85 °C	85 °C	85 °C
T4	T 135 °C	120 °C	120 °C	120 °C
T3	T 180 °C	180 °C	180 °C	180 °C

A heat resistant cable with a continuous operating temperature of at least 120 °C must be used for conditions as specified below.
- Ta ≤ 50 °C and process temperature ≥ 155 °C, or
- Ta ≤ 60 °C and process temperature ≥ 105 °C.

b) Meter size DN200 - DN3000:

Temperature class	Max. surface temperature	Max. process temperature		
		Ta ≤ 40 °C	Ta ≤ 50 °C	Ta ≤ 60 °C
T6	T 85 °C	60 °C	60 °C	60 °C
T5	T 100 °C	80 °C	75 °C	75 °C
T4	T 135 °C	115 °C	115 °C	115 °C
T3	T 180 °C	160 °C	150 °C	140 °C

A heat resistant cable with a continuous operating temperature of at least 120 °C must be used for conditions as specified below.
- Ta ≤ 50 °C and process temperature ≥ 145 °C, or
- Ta ≤ 60 °C and process temperature ≥ 110 °C.

(13) # SCHEDULE

(14) **to EC-Type Examination Certificate KEMA 01ATEX2263 X**

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

Covered by the standards listed at (9).

(19) **Test documentation**

1. EC-Type Examination Certificate KEMA 01ATEX2228 U
   Certificate of Conformity PTB No. Ex-90.C.2003 X

		dated
2.	Description (14 pages)	06.03.2002
3.	Drawings index sheet	06.03.2002