

1 EC-TYPE EXAMINATION CERTIFICATE



2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 94/9/EC**

3 EC-Type Examination Certificate No: **FM08ATEX0052**
4 Equipment or protective system: **4000 M-Series Magnetic Flowmeter, Magnetic Flowmeter Amplifier and Magnetic Flowmeter Detector**
(Type Reference and Name)
5 Name of Applicant: **Badger Meter, Inc.**
6 Address of Applicant: **4545 W. Brown Deer Road
Milwaukee, WI 53223
USA**

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

8 FM Approvals Ltd, notified body number 1725 in accordance with Article 9 of 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 intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report number 3033898EC dated 6 July 2009

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents: EN 60079-0:2006, EN 60079-1: 2004, EN 60079-7:2007, EN60079-11:2007, and EN 60529:1991 + A1:2000

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 or protective system in accordance to 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:



Magnetic Flowmeter

II 2 G Ex d e ia IIC T3 Ta = -20°C to +50°C; IP66

Magnetic Flowmeter Amplifier.

II 2(2) G Ex d [ia] IIC T4 Ta = -20°C to +50°C; IP66

Magnetic Flowmeter Detector.

II 2 G Ex d e ia IIC T3 Ta = -20°C to +50°C; IP66

Andrew Was
Certification Manager, FM Approvals Ltd.

Issue date: 7 July, 2009



THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

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SCHEDULE



to EC-Type Examination Certificate No. FM08ATEX0052

13 Description of Equipment or Protective System:

The model 4000 M-series are flowmeters used for the measurement of the flow of conductive fluid in pipes. A magnetic field is generated by coils and a voltage proportional to the flow is induced across two electrodes. A third electrode is used to detect an empty pipe. The 4000 M-Series flowmeters each come in two different configurations; with the sensor mounted integral to the transmitter (meter mount) and with the sensor mounted remotely from the transmitter (remote mount). The M4000 flow meters are designed as Category 2 apparatus with intrinsically safe electrodes. The operating ambient temperature range is -20°C to +50°C.

The flow-tube detectors are available in sizes from ¼" (DN6) through 12" (DN300). Different liner and electrode materials are available depending upon the option code specified.

The electrodes in contact with the process media are intrinsically safe "ia" and have been evaluated as simple apparatus. The power to these electrodes is provided from a barrier circuit located in the transmitter enclosure.

Electrical Ratings:

U = 85 to 240Vac, 50 to 60 Hz. power consumption 15 VA or 24Vdc, power consumption 4.7VA.

4000-MbcdMfgh. M-Series Magnetic Flowmeter

- b = Liner material R, T, P, H, or S.
- c = Electrodes H, S, G, T, or R.
- d = End flange D or S.
- f = Number of electrodes T or F.
- g = Detector size 6, 8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200, 250, or 300.
- h = Input Voltage H (85 – 240Vac) or L (24Vdc)

4000-RbcdMfgh. M-Series Magnetic Flowmeter Amplifier.

- b = Liner material R, T, P, H, or S.
- c = Electrodes H, S, G, T, or R.
- d = End flange D or S.
- f = Number of electrodes T or F.
- g = Detector size 6, 8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200, 250, or 300.
- h = Input Voltage H (85 – 240Vac) or L (24Vdc)

4000-RbcdMfgh. M-Series Magnetic Flowmeter Detector.

- b = Liner material R, T, P, H, or S.
- c = Electrodes H, S, G, T, or R.
- d = End flange D or S.
- f = Number of electrodes T or F.
- g = Detector size 6, 8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200, 250, or 300.
- h = Input Voltage H (85 – 240Vac) or L (24Vdc)

14 Special Conditions for Safe Use:

None

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