OIML Certificate of Conformity

OIML Member State
The Netherlands

Number R49/2013-NL1-15.01 revision 2
Project number 16200718

Issuing authority Person responsible:	NMi Certin B.V. C. Oosterman
Applicant and Manufacturer	Badger Meter Europa GmbH Nürtinger Straße 76 72639 Neuffen Germany
Identification of the certified type	An ultrasonic **water meter** Type: E-Series
Characteristics	See page 2 and further

This Certificate attests the conformity of the above identified type (represented by the sample(s) identified in the OIML Type Evaluation Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

R 49-1 (2013) "Water meters intended for the metering of cold potable water and hot water"

Accuracy class 2

This Certificate relates only to the metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML International Recommendation identified above. This Certificate does not bestow any form of legal international approval.

Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate was issued, partial quotation of the Certificate and of the associated OIML Type Evaluation Report(s) is not permitted, although either may be reproduced in full.

Issuing Authority **NMi Certin B.V., OIML Issuing Authority NL1**
11 October 2017

C. Oosterman
Head Certification Board

NMi Certin B.V.
Hugo de Grootplein 1
3314 EG Dordrecht
the Netherlands
T +31 78 6332332
certin@nmi.nl
www.nmi.nl

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The conformity was established by the results of tests and examinations provided in the associated report(s):

- No. NMi-13200116-01 dated 30 October 2015 that includes 39 pages;
- No. 130601023 dated 23 October 2015 that includes 74 pages;
- No. NMi-13200116-03 dated 18 July 2016 that includes 35 pages;
- No. 151001958-R1 – E-series DN 50 - R400 dated 25 May 2016 that includes 18 pages;
- No. 160401704/ DN 15 dated 20 June 2016 that includes 21 pages;
- No. 161200273/ DN 15 & DN 25 dated 10 October 2017 that includes 32 pages.
- No. 161200273-aanvullend/ DN 15 dated 10 October 2017 that includes 18 pages.

Characteristics of the measuring instrument
In Table 1 the general characteristics of the measuring instrument are presented.
Table 2 gives an overview of the general characteristics of the family of instruments.
The construction of the measuring instrument is recorded in the Documentation folder no. T10555-3.
The flow sensor tube can be made polymer or stainless steel.

Table 1 General characteristics

Measuring principle	Ultrasonic flow metering
Accuracy class	2
Environmental class	M1 / O (installed outdoors)
Electromagnetic environment	E2
Temperature range ambient	-25 °C / +55 °C
Water temperature class	T50 (+0,1 °C / +50 °C)
Maximum admissible pressure (MAP)	1,6 MPa (16 bar)
Reverse flow	The sensor is not intended to measure reverse flow
Orientation	All positions (Horizontal, vertical or diagonal)
Flow profile sensitivity class	U0 and D0 (0 x DN upstream and 0 x DN downstream)
Pressure loss class	Δp 63 (0,63 bar) for size DN15 Δp 40 (0,40 bar) for size DN20 and larger
Power supply	Non-replaceable battery (2,7 – 3,7 V)
Software identification	Version no.: 1.33 1.35 1.36 Checksum: 2995 12233 44123

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Table 2 General characteristics of the family of instruments

Meter size	Ø in- and outlet [mm]	Flow rates [m³/h]				Ratio Q3/Q1
		Minimum Q1	Transitional Q2	Permanent Q3	Overload Q4	
DN15 (1/2")	19	0,00625	0,01	2,5	3,125	400
DN15 (5/8")	19	0,01	0,016	4	5	400
DN20 (3/4")	25	0,01	0,016	4	5	400
DN25 (1")	32	0,025	0,04	10	12,5	400
DN32 (1 ¼")	32	0,025	0,04	10	12,5	400
DN40 (1,5")	40	0,04	0,064	16	20	400
DN50 (2")	50	0,0625	0,1	25	31,25	400

Meter size	Indicating range [m³]	Verification scale interval [m³]
DN15; DN20; DN25; DN32	99999,9999	0,000001
DN40; DN50	999999,999	0,00001

Certificate history:
This revision replaces the previous version.

Revision	Date	Description of the modification
Initial	29 October 2015	-
1	19 July 2016	Addition of size DN15, increased ratio Q3/Q1 for several sizes and new software version.
2	11 October 2017	Addition of size DN15 (5/8"), increased ratio Q3/Q1 for DN15 (1/2") and polymer version of the flow sensor tube.