



Member state  
**Czech Republic**

OIML Certificate No.  
**R49/2013-CZ-16.03**

## OIML BASIC CERTIFICATE OF CONFORMITY

### Issuing Authority

Name: Czech Metrology Institute  
Address: Okružní 31,  
638 00 Brno, CZ  
Person responsible: Jan Kalandra

### Applicant

Name: Arkon Flow Systems, s.r.o.  
Address: Berkova 534/92, 612 00 Brno  
Czech Republic

Manufacturer of the certified type  
Name: Arkon Flow Systems, s.r.o.  
Address: Berkova 534/92, 612 00 Brno  
Czech Republic

Identification of the certified type

**Water meter**  
**Type: MAGB1**

For further characteristics see page 2 to 6

This certificate attests the conformity of above identified type (represented by the sample or samples identified in the associated test report) with the requirements of the following Recommendation(s) of the International Organization of Legal Metrology (OIML):

**R 49, edition 2013, for accuracy class 2**

This certificate relates only to the metrological and technical characteristics of the type of instrument covered by the relevant OIML Recommendation(s) identified above.

This certificate does not bestow any form of legal international approval.

The conformity was established by the results of tests and examinations provided in the associated Test report No. 6015-PT-P3014-16 from 26<sup>th</sup> May 2016 that includes 184 pages including annexes, Test report No. 8551-PT-E0096-16 from 23<sup>rd</sup> May 2016 that includes 26 pages including annexes and Test report No. 8551-PT-E0097-16 from 23<sup>rd</sup> May 2016 that includes 35 pages including annexes.

### **Measuring system description:**

The water meter type MAGB1 is electromagnetic water meter. There are two modifications: compact and remote version.

The water meters type MAGB1 are intended for metering cold potable water and hot water, based on an inductive principle, PTFE and hard rubber lining, with straight inlet (5 times the diameter) and outlet (3 times the diameter) length, without flow conditioner and there are equipped with an electronic calculating/indicating device. The maximum cable length for remote version is 6 meters. The display shows the measurements in cubic meter volume (positive, negative, total and auxiliary) and cubic meter per hour flow rate. The meter is not designed to measure reverse flow. The meter does not require any extra-mechanical housing or adjustments.

The meter is intended for mount to the connecting any pipework with the flow axis in the horizontal and vertical (from bottom to top and from top to bottom) plane and with the indicating device positioned at the top and at the side.

The meter is equipped with the electronic indicating device. The display is a digital type, and can show up to 9 digits. The normal resolution mode is used during normal operation. The water meter displays in the normal resolution mode up to 000000.001 m<sup>3</sup>/h flow rate and 000.001 m<sup>3</sup> volume on the digital display. The water meter displays the volume resolution of 0.001 L on the digital display in the high resolution mode which would be used during the calibration process. This mode is set up by factory tool (software had to be attached).

The water meters type MAGB1 can be equipped by frequency output which can be used for remote reading.



  
**The OIML Issuing Authority**  
Pavel Klenovský

27 May 2016

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

**Characteristics:**

Basic technical data of water meters type **MAGB1 DN25 TO DN 40**

<b>Manufacturer:</b>	Arkon Flow Systems, s.r.o. Berkova 534/92, 612 00 Brno, Czech Republic								
<b>Model number:</b>	MAGB1								
<b>Type details:</b>									
Nominal diameter(DN)[mm]	25			32			40		
Overload flowrate(Q <sub>4</sub> )[m <sup>3</sup> /h]	20			31.3			50		
Permanent flowrate(Q <sub>3</sub> )[m <sup>3</sup> /h]	16			25			40		
Transitional flowrate(Q <sub>2</sub> )[m <sup>3</sup> /h]	0.16	0.26	0.51	0.25	0.40	0.80	0.40	0.64	1.28
Minimum flowrate(Q <sub>1</sub> )[m <sup>3</sup> /h]	0.10	0.16	0.32	0.16	0.25	0.50	0.25	0.40	0.80
Ratio Q <sub>3</sub> /Q <sub>1</sub> :	160	100	50	160	100	50	160	100	50
Ratio Q <sub>2</sub> /Q <sub>1</sub> :	1.6								
Ratio Q <sub>4</sub> /Q <sub>3</sub> :	1.25								
Accuracy class	2								
Maximum permissible error for the lower flowrate zone (MPE <sub>l</sub> )	±5%								
Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> )	±2% for water having a temperature ≤ 30°C ±3% for water having a temperature > 30°C								
Temperature class:	T50								
Pressure-loss classes	ΔP 10								
Indicating range[m <sup>3</sup> ]	99 999								
Resolution of the indicating device[m <sup>3</sup> ]	0.001 (normal mode) 0.000001 (calibration mode)								
Flow profile sensitivity classes	U5 D3								
Orientation limitation	any								
Length of horizontal water meter L [mm]	200								
Connection type-screw thread size	flange								
Climatic environment class:	B								
Electromagnetic environment class:	E1 (compact version) E2 (remote version)								
Software version	Version 1.0.0.25								
Firmware version	Version 10.28								
Battery	3.6 V								
Minimum battery life time:	5 years								
Low flow cut off	1 % from nominal flowrate								

Basic technical data of water meters type **MAGB1** DN50 TO DN 80

<b>Manufacturer:</b>	Arkon Flow Systems, s.r.o. Berkova 534/92, 612 00 Brno, Czech Republic								
<b>Model number:</b>	MAGB1								
<b>Type details:</b>									
Nominal diameter(DN)[mm]	50			65			80		
Overload flowrate(Q <sub>4</sub> )[m <sup>3</sup> /h]	78.8			125			200		
Permanent flowrate(Q <sub>3</sub> )[m <sup>3</sup> /h]	63			100			160		
Transitional flowrate(Q <sub>2</sub> )[m <sup>3</sup> /h]	0.63	1.01	2.02	1.00	1.60	3.20	1.60	2.56	5.12
Minimum flowrate(Q <sub>1</sub> )[m <sup>3</sup> /h]	0.40	0.63	1.26	0.63	1.00	2.00	1.00	1.60	3.20
Ratio Q <sub>3</sub> /Q <sub>1</sub> :	160	100	50	160	100	50	160	100	50
Ratio Q <sub>2</sub> /Q <sub>1</sub> :	1.6								
Ratio Q <sub>4</sub> /Q <sub>3</sub> :	1.25								
Accuracy class	2								
Maximum permissible error for the lower flowrate zone (MPE <sub>l</sub> )	±5%								
Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> )	±2% for water having a temperature ≤ 30°C ±3% for water having a temperature > 30°C								
Temperature class:	T50								
Pressure-loss classes	ΔP 10								
Indicating range[m <sup>3</sup> ]	99 999				999 999				
Resolution of the indicating device[m <sup>3</sup> ]	0.001 (normal mode) 0.000001 (calibration mode)								
Flow profile sensitivity classes	U5 D3								
Orientation limitation	any								
Length of horizontal water meter L [mm]	200								
Connection type-screw thread size	flange								
Climatic environment class:	B								
Electromagnetic environment class:	E1 (compact version) E2 (remote version)								
Software version	Version 1.0.0.25								
Firmware version	Version 10.28								
Battery	3.6 V								
Minimum battery life time:	5 years								
Low flow cut off	1 % from nominal flowrate								

Basic technical data of water meters type **MAGB1** DN100 TO DN 150

<b>Manufacturer:</b>	Arkon Flow Systems, s.r.o. Berkova 534/92, 612 00 Brno, Czech Republic									
<b>Model number:</b>	MAGB1									
<b>Type details:</b>										
Nominal diameter(DN)[mm]	100			125			150			
Overload flowrate(Q <sub>4</sub> )[m <sup>3</sup> /h]	312.5			500			788			
Permanent flowrate(Q <sub>3</sub> )[m <sup>3</sup> /h]	250			400			630			
Transitional flowrate(Q <sub>2</sub> )[m <sup>3</sup> /h]	2.50	4.00	8.00	4.00	6.40	12.80	6.30	10.08	20.16	
Minimum flowrate(Q <sub>1</sub> )[m <sup>3</sup> /h]	1.56	2.50	5.00	2.50	4.00	8.00	3.94	6.30	12.60	
Ratio Q <sub>3</sub> /Q <sub>1</sub> :	160	100	50	160	100	50	160	100	50	
Ratio Q <sub>2</sub> /Q <sub>1</sub> :	1.6									
Ratio Q <sub>4</sub> /Q <sub>3</sub> :	1.25									
Accuracy class	2									
Maximum permissible error for the lower flowrate zone (MPE <sub>l</sub> )	±5%									
Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> )	±2% for water having a temperature ≤ 30°C ±3% for water having a temperature > 30°C									
Temperature class:	T50									
Pressure-loss classes	ΔP 10									
Indicating range[m <sup>3</sup> ]	999 999									
Resolution of the indicating device[m <sup>3</sup> ]	0.001 (normal mode) 0.000001 (calibration mode)									
Flow profile sensitivity classes	U5 D3									
Orientation limitation	any									
Length of horizontal water meter L [mm]	250			250			300			
Connection type-screw thread size	flange									
Climatic environment class:	B									
Electromagnetic environment class:	E1 (compact version) E2 (remote version)									
Software version	Version 1.0.0.25									
Firmware version	Version 10.28									
Battery	3.6 V									
Minimum battery life time:	5 years									
Low flow cut off	1 % from nominal flowrate									

**Marking and inscriptions**

The water meters type **MAGB1** shall be clearly and indelibly marked with the following information:

- Unit of measurement (m<sup>3</sup>)
- Numerical value Q<sub>3</sub> in m<sup>3</sup>/h (Q<sub>3</sub> ×.×) and the ratio Q<sub>3</sub> / Q<sub>1</sub>, (R160 or R100 or R50)
- OIML certificate of conformity number
- Name of trademark of the manufacturer
- Year of manufacture, two last digits of the year of manufacture, or the month and year of manufacture and serial number (as near as possible to the indicating device)
- Direction of flow, by means of an arrow (shown on both sides of the body or on one side only provided the direction of flow arrow is easily visible under all circumstances)
- Maximum admissible pressure (MAP10)
- The temperature class (T50)
- The pressure loss class (Δp 10)
- The installation sensitivity class (U5D3)
- Climatic and electromagnetic environmental classes (B; E1 or E2)
- The latest date that the battery is to be replaced

These markings shall comply with the requirements of OIML R 49 and shall be visible without dismantling the water meter after the instrument has been placed on the market or put into use.

**Security measures**

To prevent tampering with the water meter and its electronics, seals are put on following places:

- screw connect cover plate inside the electronic (Figure 1);
- screw covering the USB (Figure 2).

Figure 1:



Figure 2:

