



Member state  
Czech Republic

OIML Certificate No.  
R49/2013-CZ-16.04

## 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: MAGX2**

For further characteristics see page 2 to 7

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-P3021-16 from 17<sup>th</sup> August 2016 that includes 240 pages including annexes, Test report No. 8551-PT-E0122-16 from 30<sup>th</sup> May 2016 that includes 42 pages including annexes and Test report No. 8551-PT-E0142-16 from 10<sup>th</sup> July 2016 that includes 48 pages including annexes.

**Measuring system description:**

The water meter type MAGX2 is electromagnetic water meter. There are two modifications: compact and remote version.

The water meters type MAGX2 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 passwords (user, service and factory) secure access to the metrological parameters.

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 with, and is equipped by 6 buttons. The display can show up to 9 digits in two lines. 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 buttons or factory tool (software would be attached).

The water meters type MAGX2 can be equipped by frequency output which can be used for remote reading. The maximum cable length for frequency output is 3 meters.



  
**The OIML Issuing Authority**  
Pavel Klenovský

18 August 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 **MAGX2** DN25 TO DN 150

<b>Manufacturer:</b>	Arkon Flow Systems, s.r.o. Berkova 534/92, 612 00 Brno, Czech Republic									
<b>Model number:</b>	MAGX2									
<b>Type details:</b>										
Nominal diameter(DN)[mm]	25	32	40	50	65	80	100	125	150	
Overload flowrate(Q <sub>4</sub> )[m <sup>3</sup> /h]	flowrates are shown in Table flowrates (page 5)									
Permanent flowrate(Q <sub>3</sub> )[m <sup>3</sup> /h]										
Transitional flowrate(Q <sub>2</sub> )[m <sup>3</sup> /h]										
Minimum flowrate(Q <sub>1</sub> )[m <sup>3</sup> /h]										
Ratio Q <sub>3</sub> /Q <sub>1</sub> :	400 or 250 or 200 or 160 or 100 or 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					250		300		
Connection type-screw thread size	flange									
Climatic environment class:	B									
Electromagnetic environment class:	E2									
Software version	Version 2.0.0.19									
Firmware version	Version 21.18									
Power supply	(90 – 250) VAC / 50 Hz									
Low flow cut off	1 % from nominal flowrate									

Basic technical data of water meters type **MAGX2** DN200 TO DN 300

<b>Manufacturer:</b>	Arkon Flow Systems, s.r.o. Berkova 534/92, 612 00 Brno, Czech Republic		
<b>Model number:</b>	MAGX2		
<b>Type details:</b>			
Nominal diameter(DN)[mm]	200	250	300
Overload flowrate(Q <sub>4</sub> )[m <sup>3</sup> /h]	flowrates are shown in Table flowrates (page 5)		
Permanent flowrate(Q <sub>3</sub> )[m <sup>3</sup> /h]			
Transitional flowrate(Q <sub>2</sub> )[m <sup>3</sup> /h]			
Minimum flowrate(Q <sub>1</sub> )[m <sup>3</sup> /h]			
Ratio Q <sub>3</sub> /Q <sub>1</sub> :	400 or 250 or 200 or 160 or 100 or 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> ]	9 999 999		
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]	350	400	500
Connection type-screw thread size	flange		
Climatic environment class:	B		
Electromagnetic environment class:	E2		
Software version	Version 2.0.0.19		
Firmware version	Version 21.18		
Power supply	(90 – 250) VAC / 50 Hz		
Low flow cut off	1 % from nominal flowrate		

Basic technical data of water meters type **MAGX2** flowrates

Manufacturer:	Arkon Flow Systems, s.r.o.											
Model number:	MAX2											
Nominal diameter:	25	32	40	50	65	80	100	125	150	200	250	300
Type details:												
$Q_1$ [m <sup>3</sup> /h]:	0.04	0.06	0.10	0.16	0.25	0.40	0.63	1.00	1.58	2.50	2.50	4.00
$Q_2$ [m <sup>3</sup> /h]:	0.06	0.10	0.16	0.25	0.40	0.64	1.00	1.60	2.52	4.00	4.00	6.40
$Q_3$ [m <sup>3</sup> /h]:	16.0	25.0	40.0	63.0	100.0	160.0	250.0	400.0	630.0	1000.0	1000.0	1600.0
$Q_4$ [m <sup>3</sup> /h]:	20.0	31.3	50.0	78.8	125.0	200.0	312.5	500.0	787.5	1250.0	1250.0	2000.0
$Q_3/Q_1$ :	400											
$Q_1$ [m <sup>3</sup> /h]:	0.06	0.10	0.16	0.25	0.40	0.64	1.00	1.60	2.52	4.00	4.00	6.40
$Q_2$ [m <sup>3</sup> /h]:	0.10	0.16	0.26	0.40	0.64	1.02	1.60	2.56	4.03	6.40	6.40	10.24
$Q_3$ [m <sup>3</sup> /h]:	16.0	25.0	40.0	63.0	100.0	160.0	250.0	400.0	630.0	1000.0	1000.0	1600.0
$Q_4$ [m <sup>3</sup> /h]:	20.0	31.3	50.0	78.8	125.0	200.0	312.5	500.0	787.5	1250.0	1250.0	2000.0
$Q_3/Q_1$ :	250											
$Q_1$ [m <sup>3</sup> /h]:	0.08	0.13	0.20	0.32	0.50	0.80	1.25	2.00	3.15	5.00	5.00	8.00
$Q_2$ [m <sup>3</sup> /h]:	0.13	0.20	0.32	0.50	0.80	1.28	2.00	3.20	5.04	8.00	8.00	12.80
$Q_3$ [m <sup>3</sup> /h]:	16.0	25.0	40.0	63.0	100.0	160.0	250.0	400.0	630.0	1000.0	1000.0	1600.0
$Q_4$ [m <sup>3</sup> /h]:	20.0	31.3	50.0	78.8	125.0	200.0	312.5	500.0	787.5	1250.0	1250.0	2000.0
$Q_3/Q_1$ :	200											
$Q_1$ [m <sup>3</sup> /h]:	0.10	0.16	0.25	0.39	0.63	1.00	1.56	2.50	3.94	6.25	6.25	10.00
$Q_2$ [m <sup>3</sup> /h]:	0.16	0.25	0.40	0.63	1.00	1.60	2.50	4.00	6.30	10.00	10.00	16.00
$Q_3$ [m <sup>3</sup> /h]:	16.0	25.0	40.0	63.0	100.0	160.0	250.0	400.0	630.0	1000.0	1000.0	1600.0
$Q_4$ [m <sup>3</sup> /h]:	20.0	31.3	50.0	78.8	125.0	200.0	312.5	500.0	787.5	1250.0	1250.0	2000.0
$Q_3/Q_1$ :	160											
$Q_1$ [m <sup>3</sup> /h]:	0.16	0.25	0.40	0.63	1.00	1.60	2.50	4.00	6.30	10.00	10.00	16.00
$Q_2$ [m <sup>3</sup> /h]:	0.26	0.40	0.64	1.01	1.60	2.56	4.00	6.40	10.08	16.00	16.00	25.60
$Q_3$ [m <sup>3</sup> /h]:	16.0	25.0	40.0	63.0	100.0	160.0	250.0	400.0	630.0	1000.0	1000.0	1600.0
$Q_4$ [m <sup>3</sup> /h]:	20.0	31.3	50.0	78.8	125.0	200.0	312.5	500.0	787.5	1250.0	1250.0	2000.0
$Q_3/Q_1$ :	100											
$Q_1$ [m <sup>3</sup> /h]:	0.32	0.50	0.80	1.26	2.00	3.20	5.00	8.00	12.60	20.00	20.00	32.00
$Q_2$ [m <sup>3</sup> /h]:	0.51	0.80	1.28	2.02	3.20	5.12	8.00	12.80	20.16	32.00	32.00	51.20
$Q_3$ [m <sup>3</sup> /h]:	16.0	25.0	40.0	63.0	100.0	160.0	250.0	400.0	630.0	1000.0	1000.0	1600.0
$Q_4$ [m <sup>3</sup> /h]:	20.0	31.3	50.0	78.8	125.0	200.0	312.5	500.0	787.5	1250.0	1250.0	2000.0
$Q_3/Q_1$ :	50											

### **Marking and inscriptions**

The water meters type **MAGX2** shall be clearly and indelibly marked with the following information:

- Unit of measurement ( $\text{m}^3$ )
- Numerical value  $Q_3$  in  $\text{m}^3/\text{h}$  ( $Q_3 \times \times$ ) and the ratio  $Q_3 / Q_1$ , (R400 or R250 or R200 or 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 ( $\Delta p$  10)
- The installation sensitivity class (U5D3)
- Climatic and electromagnetic environmental classes (B; E2)

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);
- connect flow sensor and indicating device (Figure 2).

Figure 1:



Figure 2:

