OIML Member State SLOVAKIA	**OIML Certificate No.** **R49/2013-B-SK1-2018.02**

OIML CERTIFICATE ISSUED UNDER SCHEME B

OIML Issuing Authority

Name: **Slovak Legal Metrology (SLM)**
Address: Hviezdoslavova 1124/31, 974 01 Banská Bystrica, Slovakia
Person responsible: Jaromír Markovič, Director General

Applicant

Name: **Ningbo Aimei Meter Manufacture Co., Ltd.**
Address: 68, West Town Road, Shangtian Town, Fenghua City, Zhejiang, 315511. China

Manufacturer

Name: **Ningbo Aimei Meter Manufacture Co., Ltd.**
Address: 68, West Town Road, Shangtian Town, Fenghua City, Zhejiang, 315511, China

Identification of the certified type *(the detailed characteristics are defined in the additional pages)*

Type **MD-K, MD-K1, MD-KP, MD-KP1**

Designation of the module *(if applicable)*

Multi jet water meter intended for the metering of cold potable water

This OIML 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):

OIML R 49, Edition (year): 2013

For accuracy class (if applicable): 2

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OIML Certificate No.
R49/2013-B-SK1-2018.02

This OIML Certificate relates only to metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML Recommendation identified above.

This OIML 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 OIML type evaluation report:

No. 2018/CV008 dated 14 December 2018 that includes 18 pages.

The technical documentation relating to the identified type is contained in documentation file:

No. Ningbo_MD-K_00 to 02 dated 14 December 2018 that includes 120 pages.

OIML Certificate History

Revision No.	Date	Description of the modification
0	14 December 2018	Certificate first issued
-	-	-

Identification, signature and stamp

The OIML Issuing Authority

.....
Jaromír Markovič

Date: 14 December 2018

The CIML Member

.....
Pavol Pavlis

Date: 14 December 2018

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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 type evaluation report(s) is not permitted, although either may be reproduced in full.

DESCRIPTIVE ANNEX

1. Designation

The mechanical multi-jet water meters type *MD-K, MD-K1, MD-KP* and *MD-KP1* are designed to measure, memorise and display the volume of water passing through the measurement transducer at metering conditions. The water meters are intended for the measurement of volumes of clean water in residential use.
The mechanical water meters type *MD-K, MD-K1, MD-KP* and *MD-KP1* are multi-jet rotary vane wheel water meters with dry mechanical indication device.
The water meters types *MD-K* and *MD-K1* consist of a brass body. The water meters types *MD-KP* and *MD-KP1* consist of a plastic body. The difference between *MD-K* and *MD-K1* (between *MD-KP* and *MD-KP1)* is a shape and composition of the register.
The water meters *type MD-K, MD-K1, MD-KP* and *MD-KP1* shall be installed to operate in the horizontal position only with the indication device positioned at the top and are not designed to measure the reverse flow.

2. Description

Essential parts of the water meters type *MD-K, MD-K1, MD-KP* and *MD-KP1*:

- measuring mechanism - consisting of a chamber and the rotary vane wheel (impeller) with an axle perpendicular to the flow direction;
- dry type mechanical register and indication device with 6 numbered drums or 7 numbered drums (least significant drum moves continuously) and 2 continuously moving rotating pointers;
- housing of water meter with inlet and outlet connections;
- magnetic coupling for the connection of the register with the measuring part (impeller);
- adjustment device – an adjustment screw regulates the internal by-pass flow of the meter;
- magnetic shield protection.

Non-essential parts of the water meter:

- strainer in the inlet of the water meter (optional);
- non - return valve in the outlet of the water meter (optional).

3. Metrological functions

Metrological functions of water meters type *MD-K, MD-K1, MD-KP* and *MD-KP1*:

- measuring, memorizing and displaying the volume of the cold water passing through the water meter

4. Integrated equipment and functions

Integrated equipment and functions of water meters type *MD-K, MD-K1, MD-KP* and *MD-KP1*:

- pulse output module (optional).

5. Technical and metrological data

Table 1

Type	-	***MD-K / MD-K1 / MD-KP / MD-KP1***							
Nominal diameter DN	mm	15							
Permanent flowrate Q_3	m^3/h	1,6				2,5			
Minimum flowrate Q_1	m^3/h	0,032	0,0254	0,02	0,016	0,03125	0,025	0,02	0,015625
Transitional flowrate Q_2	m^3/h	0,051	0,0406	0,032	0,0256	0,05	0,04	0,032	0,025
Overload flowrate Q_4	m^3/h	2				3,125			
Ratio Q_3/Q_1	R	50	63	80	100	80	100	125	160
Ratio Q_2/Q_1	-	1,6							
Connection thread	-	G ¾ B							
Construction length *L*	mm	110/115/130/165/170/190							
Installation orientation	-	H							
Water temperature range Θ	°C	0,1 to 50 (T30, T50)							
Maximum working pressure P_{max}	bar	16							
Pressure loss class Δ P	kPa	63							
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\Theta \leq 30°C$) ± 3 (at $\Theta > 30°C$)							
Maximum permissible error in lower flowrates range $Q_1 \leq Q < Q_2$	%	± 5							
Scale interval	m^3	0,00005 / 0,00002							
Capacity of calculator	m^3	9999 or 99999							
Mechanical class	-	M1							
Climatic class	°C	- 10 to + 55							
Electromagnetic class	-	E1							
Flow profile sensitivity class	-	U0D0							

Table 2

Type	-	***MD-K / MD-K1 / MD-KP / MD-KP1***							
Nominal diameter DN	mm	20							
Permanent flowrate Q_3	m^3/h	2,5				4			
Minimum flowrate Q_1	m^3/h	0,05	0,0397	0,03125	0,025	0,05	0,04	0,032	0,025
Transitional flowrate Q_2	m^3/h	0,08	0,0635	0,05	0,04	0,08	0,064	0,0512	0,04
Overload flowrate Q_4	m^3/h	3,125				5			
Ratio Q_3/Q_1	R	50	63	80	100	80	100	125	160
Ratio Q_2/Q_1	-	1,6							
Connection thread	-	G 1 B							
Construction length L	mm	130/170/190							
Installation orientation	-	H							
Water temperature range Θ	°C	0,1 to 50 (T30, T50)							
Maximum working pressure P_{max}	bar	16							
Pressure loss class Δ P	kPa	63							
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\Theta \leq 30°C$) ± 3 (at $\Theta > 30°C$)							
Maximum permissible error in lower flowrates range $Q_1 \leq Q < Q_2$	%	± 5							
Scale interval	m^3	0,00005 / 0,00002							
Capacity of calculator	m^3	9999 or 99999							
Mechanical class	-	M1							
Climatic class	°C	- 10 to + 55							
Electromagnetic class	-	E1							
Flow profile sensitivity class	-	U0D0							

6. Marking and inscriptions

The following data shall be marked on the water meter:

a) name or trademark of the manufacturer;
b) type name of the water meter;
c) unit of measurement m^3;
d) year of manufacture, the last two digits of the year of manufacture, or the month and year of manufacture;
e) serial number (as near as possible to the indicating device);
f) 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);
g) flowrate Q_3 and ratio Q_3/Q_1 indicated as *(R)* followed by the ratio;
h) maximum working pressure, indicated as MAP 16;
i) the temperature class where it differs from T30;
j) operating position (letter H according to tables in the point 5 of this certificate);
k) type approval sign according to national regulations.

6.1 Manufacturer uses following trademarks on the water meters:

AIMEI ASM

7. Security measures

The water meter shall be protected against unauthorised manipulation by:

- one seal securing the water meter head with the screw cap of adjustment device

or alternative

- one seal securing the tail of burglar ring with the screw cap of adjustment device.

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