OIML Member State
Slovakia

OIML Certificate N°
R49/2013-SK1-16.03
Revision 1

OIML CERTIFICATE OF CONFORMITY

Issuing Authority

Name	Slovak Legal Metrology
Address	Hviezdoslavova 31 974 01 Banská Bystrica, Slovakia
Person responsible	Jaromír Markovič

Applicant

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

Manufacturer of the certified type

The applicant

Identification of the certified type

Mechanical single - jet dry dial water meter type for metering of cold and hot water

Type **SD-A, SD-AP**

For further characteristics see pages 2 to 7

This Certificate attests the conformity of the above identified type (represented by the sample or samples identified in the associated Test Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

R 49-1, edition 2013
Accuracy class 2

This Certificate relates only to the metrological and technical characteristics of the type of instrument covered by the relevant OIML Recommendation 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 OIML Test Reports No: 2015/CV009/312.03 having 59 pages and 2016/MI-001/B033/312.03 having 67 pages.

The Issuing Authority
assoc. prof. Ing. Jaromír Markovič, PhD.

13 July 2017

SLOVAK LEGAL METROLOGY SLM

The CIML Member
Ing. Pavol Pavlis

13 July 2017

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 Test Report is not permitted, although either may be reproduced in full.

1. Designation

The mechanical single-jet dry dial water meters types *SD-A, SD-AP:*

- are designed to measure, memorise and display the volume of water passing through the measurement transducer at metering conditions;
- are intended for the measurement of volumes (consumption) of clean cold and hot water in household and commercial use;
- are single-jet rotary vane wheel water meters with the mechanical indication device;
- the water meter type *SD-A* consists of a brass body;
- the water meters type *SD-AP* consists of a plastic body;
- shall be installed to operate in the horizontal position with the indication device positioned at the top or in the vertical position;
- are not designed to measure the reverse flow.

2. Description

Essential parts of water meter:

- measuring mechanism (in the lower part of the meter body) - consisting of a measuring chamber and the rotary vane wheel with an axle perpendicular to the flow direction, lower and upper tightening plates with bearing hubs;
- dry type mechanical register (the register chamber casing can be made from the plastic material) with 8 numbered drums and 1 continuously moving rotating pointers;
- housing of the water meter with inlet and outlet thread connections;
- adjustment device – the adjustment of the water meter is enabled by the angular orientation of the seal plate or adjustment is enabled by hinge plug screw optionally – to regulate flow;
- magnetic coupling for the connection of the measuring mechanism with the mechanical register.

Non-essential parts of the water meter:

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

2.1 Metrological functions

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

2.2 Software

- not applicable

2.3 Integrated equipment and functions

- pulse output module (optional).

3. Technical and metrological data

3.1 Technical and metrological parameters of the water meters types ***SD-A*** and ***SD-AP,*** DN15, H

Type		***SD-A / SD-AP***							
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	0,0512	0,04064	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	-	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							
Installation position	-	H (indicating device positioned on top)							
Water temperature range	°C	0,1 to 50 (*SD-A / SD-AP*) 0,1 to 90 (*SD-A)*							
Meter temperature class	-	T30, T50, T90 / *SD-A* T30, T50 / *SD-AP*							
Maximum working pressure	bar	16							
Pressure loss ΔP	bar	0,63							
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 ranges $Q_1 \leq Q < Q_2$	%	± 5							
Scale interval	m^3	0,00005							
Capacity of calculator	m^3	99999,99995							
Mechanical class	-	M1							
Climatic class	°C	-10 to +55							
Electromagnetic class	-	E1							
Flow profile sensitivity class	-	U0D0							

3.2 Technical and metrological parameters of the water meters types ***SD-A*** and ***SD-AP,*** DN15, V

Type		***SD-A / SD-AP***	
Nominal diameter DN	mm	15	
Permanent flowrate Q_3	m^3/h	1,6	2,5

Minimum flowrate Q_1	m^3/h	0,040	0,0625
Transitional flowrate Q_2	m^3/h	0,064	0,100
Overload flowrate Q_4	m^3/h	2	3,125
Ratio Q_3/Q_1	-	40	
Ratio Q_2/Q_1	-	1,6	
Connection thread	-	G ¾ B	
Construction length L	mm	110 / 115 / 130 / 165	
Installation position	-	V	
Water temperature range	°C	0,1 to 50 (*SD-A / SD-AP*) 0,1 to 90 (*SD-A*)	
Meter temperature class	-	T30, T50, T90 / *SD-A* T30, T50 / *SD-AP*	
Maximum working pressure	bar	16	
Pressure loss ΔP	bar	0,63	
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 ranges $Q_1 \leq Q < Q_2$	%	± 5	
Scale interval	m^3	0,00005	
Capacity of calculator	m^3	99999,99995	
Mechanical class	-	M1	
Climatic class	°C	-10 to +55	
Electromagnetic class	-	E1	
Flow profile sensitivity class	-	U0D0	

3.3 Technical and metrological parameters of the water meters types ***SD-A*** and ***SD-AP,*** DN20, H

Type		***SD-A / SD-AP***							
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	0,06349	0,05	0,040	0,08	0,064	0,0512	0,04
Overload flowrate Q_4	m^3/h	3,125				5			
Ratio Q_3/Q_1	-	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 / 165 / 190							
Installation position	-	H (indicating device positioned on top)							
Water temperature range	°C	0,1 to 50 (*SD-A / SD-AP*) 0,1 to 90 (*SD-A*)							

Meter temperature class	-	T30, T50, T90 / *SD-A* T30, T50 / *SD-AP*
Maximum working pressure	bar	16
Pressure loss ΔP	bar	0,63
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 ranges $Q_1 \leq Q < Q_2$	%	± 5
Scale interval	m^3	0,00005
Capacity of calculator	m^3	99999,99995
Mechanical class	-	M1
Climatic class	°C	-10 to +55
Electromagnetic class	-	E1
Flow profile sensitivity class	-	U0D0

3.4 Technical and metrological parameters of the water meters types ***SD-A*** and ***SD-AP,*** DN20, V

Type		***SD-A / SD-AP***	
Nominal diameter DN	mm	20	
Permanent flowrate Q_3	m^3/h	2,5	4
Minimum flowrate Q_1	m^3/h	0,0625	0,100
Transitional flowrate Q_2	m^3/h	0,100	0,160
Overload flowrate Q_4	m^3/h	3,125	5
Ratio Q_3/Q_1	-	40	
Ratio Q_2/Q_1	-	1,6	
Connection thread	-	G 1 B	
Construction length L	mm	130 / 165 / 190	
Installation position	-	V	
Water temperature range	°C	0,1 to 50 (*SD-A / SD-AP*) 0,1 to 90 (*SD-A*)	
Meter temperature class	-	T30, T50, T90 / *SD-A* T30, T50 / *SD-AP*	
Maximum working pressure	bar	16	
Pressure loss ΔP	bar	0,63	
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 ranges $Q_1 \leq Q < Q_2$	%	± 5	
Scale interval	m^3	0,00005	
Capacity of calculator	m^3	99999,99995	

Mechanical class	-	M1
Climatic class	°C	-10 to +55
Electromagnetic class	-	E1
Flow profile sensitivity class	-	U0D0

4. Interfaces and compatibility conditions

- not applicable

5. Marking and inscriptions

The following data shall be marked on the water meter:

a) manufacturer's name or mark;
b) type of water meter;
c) measuring unit m^3;
d) year of production and serial number;
e) flowrateQ_3 and ratio Q_3/Q_1 indicated as *(R)* followed by the ratio;
f) maximum working pressure, indicated as MAP 16;
g) maximum water temperature, indicated as T30 or T50 or T90;
h) indication that the meter must be installed horizontally (H or V according to tables in point 3);
i) OIML Certificate of conformity number.

The flow direction shall be marked on a water meter's body in form of an arrow.
Markings on water meter must comply with the requirements OIML R 49.

Manufacturer can use following trademarks on its water meters:

AIMEI **ASM**

6. Security measures

The water meter shall be protected against unauthorized manipulation:

- by one seal on wire securing the connection of the measuring mechanism (in the lower part of the water meter body) with upper part of water meter (mechanical register) via the lock ring, which serve as connection of the upper part of water meter (mechanical register) and measuring mechanism (in the lower part of the meter body)

or

- by one seal securing the connection of the water meter head with the screw cap of adjustment device for water meter with adjusting screw alternatively.

7. Documentation used for assessment purposes

- Test report No 2016/MI-001/B 033/312.03;
- Manufacturer`s technical documentation stored in folder *Ningbo_SD-A_AP_01.*

8. Standards and regulations used for assessment purposes

- OIML R 49-1, edition 2013 (E);
- OIML R 49-2, edition 2013 (E);
- OIML R 49-3, edition 2013 (E).

9. Certificate history

Issue No	Certificate No	Date	Description of modification
1	R49/2013-SK1-16.03	08.03.2016	-
2	R49/2013-SK1-16.03 Rev. 1	13.07.2017	- add. T90 - add for DN15: Q3=1,6 - add for DN20: Q3=2,5