OIML Member State SLOVAKIA	**OIML Certificate No.** **R49/2013-A-SK1-2024.06**

OIML CERTIFICATE ISSUED UNDER SCHEME A

OIML Issuing Authority

Name: **Slovak Legal Metrology (SLM)**
Address: Hviezdoslavova 1124/31, 974 01 Banská Bystrica, Slovakia
Person responsible: Dušan Šmigura, Director of PCB

Applicant

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

Manufacturer

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

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

Water meter type **PD-A…, PD-AP**

Designation of the module *(if applicable)*

Mechanical volumetric (rotary piston) water meter

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): 1 and 2

SLOVAK LEGAL METROLOGY SLM

OIML Certificate No.
R49/2013-A-SK1-2024.06

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 Test Report No 2024/CV034/312.15 dated 26th September 2024 that includes 118 pages.
OIML Type Evaluation Report No. 2024/ER034/SK1 dated 27th September 2024 that includes 18 pages.

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

„Technical documentation file Ningbo AIMEI_PD-A_AP_00“ dated 27th September 2024 that includes a sum of documents 91 pages.

OIML Certificate History

Revision No.	Date	Description of the modification
0	27th September 2024	Certificate first issued
-	-	-

Identification, signature and stamp

The OIML Issuing Authority

SLOVAK LEGAL METROLOGY SLM

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Dušan Šmigura

Date: 27th September 2024

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.

1. Designation

The mechanical water meters type **PD-A…** (DN15, DN20, DN25, DN40) and type **PD-AP…** (DN15, DN20) are designed to measure, memorize, and display the volume of water passing through the measurement transducers at metering conditions. The water meters are intended for the measurement of the volume of clean water for residential and commercial use.
The water meters type PD-A… and PD-AP… are a mechanical volumetric (rotary piston) water meters. They can be installed in any operating positions and which prevent flow.

2. Description

Essential parts of the water meters type PD-A… and PD-AP…:

- measuring chamber - included chamber, rotary piston and top plate with transmission shaft for connection of measuring part with register;
- liquid-sealed mechanical register with glycerine and indication device with 8 numbered drums:
  - for DN15 and DN20: 4 drums black colour for cubic meters, 4 drums red colour for sub-multiples of a cubic meters (last drum with marked 0,00002 sub-multiples of a cubic meters);
  - for DN25 and DN40: 5 black colour for cubic meters, 3 red colour for sub-multiples of a cubic meters for (last drum with marked 0,0002 sub-multiples of a cubic meters);
- the brass body for type PD-A… and plastic body for type PD-AP… with inlet and outlet connections;
- non return valve.

Non-essential parts of water meters type PD-A… and PD-AP…:
- sieve in the inlet of the water meter;
- pulse output with reed sensor switch (optional);
- K-factors 2 impulse/L;
- pulse output with hall effect sensor switch (optional).

2.1 Metrological functions

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

3. Technical and metrological data

Tab.1: Technical and metrological data PD-A DN15

Water meter type		**PD-A DN15**							
Characteristics	Unit								
Nominal diameter DN	mm	15							
Permanent flowrate Q_3	m^3/h	1,6				2,5			
Minimum flowrate Q_1	m^3/h	0,016	0,0128	0,01	0,008	0,015625	0,0125	0,01	0,008
Transitional flowrate Q_2	m^3/h	0,0256	0,02048	0,016	0,0128	0,025	0,02	0,016	0,0127
Overload flowrate Q_4	m^3/h	2				3,125			
Ratio Q_3/Q_1	R	100	125	160	200	160	200	250	315
Ratio Q_2/Q_1	-	1,6							
Connection thread	mm	G 3/4B							
Construction length L	mm	From 115 to 190							

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Water meter type		**PD-A DN15**
Characteristics	Unit	
Installation orientation	-	All positions
Water temperature range Temperature class	°C -	0,1 to 50 T30, T50
Maximum admissible pressure MAP	bar	16
Pressure loss class Δp	bar -	0,63 $\Delta p63$
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
Capacity of calculator	m^3	9999,99998
Scale interval	m^3	0,00002
Accuracy class	-	2
Mechanical class	-	M1
Climatic class	°C	(-10 to +55)
Electromagnetic class	-	E1
Flow profile sensitivity class	-	U0D0

Tab.2: Technical and metrological data PD-A DN20

Water meter type		**PD-A DN20**							
Characteristics	Unit								
Nominal diameter DN	mm	20							
Permanent flowrate Q_3	m^3/h	2,5				4			
Minimum flowrate Q_1	m^3/h	0,025	0,02	0,015625	0,0125	0,025	0,02	0,016	0,0127
Transitional flowrate Q_2	m^3/h	0,04	0,032	0,025	0,020	0,04	0,032	0,0256	0,02
Overload flowrate Q_4	m^3/h	3,125				5			
Ratio Q_3/Q_1	R	100	125	160	200	160	200	250	315
Ratio Q_2/Q_1	-	1,6							
Connection thread	mm	G 1B							
Construction length L	mm	From 130 to 195							
Installation orientation	-	All positions							
Water temperature range Temperature class	°C -	0,1 to 50 T30, T50							
Maximum admissible pressure MAP	bar	16							
Pressure loss class Δp	bar -	0,63 $\Delta p63$							

Water meter type		**PD-A DN20**
Characteristics	Unit	
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
Capacity of calculator	m^3	9999,99998
Scale interval	m^3	0,00002
Accuracy class	-	2
Mechanical class	-	M1
Climatic class	°C	(-10 to +55)
Electromagnetic class	-	E1
Flow profile sensitivity class	-	U0D0

Tab.3: Technical and metrological data PD-A DN25

Water meter type		**PD-A DN25**							
Characteristics	Unit								
Nominal diameter DN	mm	25							
Permanent flowrate Q_3	m^3/h	4				6,3			
Minimum flowrate Q_1	m^3/h	0,04	0,032	0,025	0,02	0,0394	0,0315	0,0252	0,02
Transitional flowrate Q_2	m^3/h	0,064	0,0512	0,04	0,032	0,063	0,0504	0,04032	0,032
Overload flowrate Q_4	m^3/h	5				7,875			
Ratio Q_3/Q_1	R	100	125	160	200	160	200	250	315
Ratio Q_2/Q_1	-	1,6							
Connection thread	mm	G 1 ¼ B							
Construction length L	mm	From 200 to 260							
Installation orientation	-	All positions							
Water temperature range Temperature class	°C -	0,1 to 50 T30, T50							
Maximum admissible pressure MAP	bar	16							
Pressure loss class Δp	bar -	0,63 $\Delta p63$							
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							
Capacity of calculator	m^3	99999,9998							
Scale interval	m^3	0,0002							
Accuracy class	-	2							

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Water meter type		**PD-A DN25**
Characteristics	Unit	
Mechanical class	-	M1
Climatic class	°C	(-10 to +55)
Electromagnetic class	-	E1
Flow profile sensitivity class	-	U0D0

Tab.4: Technical and metrological data PD-A DN40

Water meter type		**PD-A DN40**							
Characteristics	Unit								
Nominal diameter DN	mm	40							
Permanent flowrate Q_3	m^3/h	10				16			
Minimum flowrate Q_1	m^3/h	0,1	0,08	0,0625	0,05	0,1	0,08	0,064	0,05
Transitional flowrate Q_2	m^3/h	0,16	0,128	0,1	0,08	0,16	0,128	0,1024	0,08
Overload flowrate Q_4	m^3/h	12,5				20			
Ratio Q_3/Q_1	R	100	125	160	200	160	200	250	315
Ratio Q_2/Q_1	-	1,6							
Connection thread	mm	G 2 B							
Construction length L	mm	300							
Installation orientation	-	All positions							
Water temperature range Temperature class	°C -	0,1 to 50 T30, T50							
Maximum admissible pressure MAP	bar	16							
Pressure loss class Δp	bar -	0,63 $\Delta p63$							
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							
Capacity of calculator	m^3	99999,9998							
Scale interval	m^3	0,0002							
Accuracy class	-	2							
Mechanical class	-	M1							
Climatic class	°C	(-10 to +55)							
Electromagnetic class	-	E1							
Flow profile sensitivity class	-	U0D0							

Tab.5: Technical and metrological data PD-AP DN15

Water meter type		**PD-AP DN15**							
Characteristics	Unit								
Nominal diameter DN	mm	15							
Permanent flowrate Q_3	m^3/h	1,6				2,5			
Minimum flowrate Q_1	m^3/h	0,016	0,0128	0,01	0,008	0,015625	0,0125	0,01	0,008
Transitional flowrate Q_2	m^3/h	0,0256	0,02048	0,016	0,0128	0,025	0,02	0,016	0,0127
Overload flowrate Q_4	m^3/h	2				3,125			
Ratio Q_3/Q_1	R	100	125	160	200	160	200	250	315
Ratio Q_2/Q_1	-	1,6							
Connection thread	mm	G 3/4B							
Construction length L	mm	From 115 to 190							
Installation orientation	-	All positions							
Water temperature range Temperature class	°C -	0,1 to 50 T30, T50							
Maximum admissible pressure MAP	bar	16							
Pressure loss class Δp	bar -	0,63 $\Delta p63$							
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							
Capacity of calculator	m^3	9999,99998							
Scale interval	m^3	0,00002							
Accuracy class	-	2							
Mechanical class	-	M1							
Climatic class	°C	(-10 to +55)							
Electromagnetic class	-	E1							
Flow profile sensitivity class	-	U0D0							

Tab.6: Technical and metrological data PD-AP DN20

Water meter type		**PD-AP DN20**							
Characteristics	Unit								
Nominal diameter DN	mm	20							
Permanent flowrate Q_3	m^3/h	2,5				4			
Minimum flowrate Q_1	m^3/h	0,025	0,02	0,015625	0,0125	0,025	0,02	0,016	0,0127
Transitional flowrate Q_2	m^3/h	0,04	0,032	0,025	0,020	0,04	0,032	0,0256	0,0203
Overload flowrate Q_4	m^3/h	3,125				5			
Ratio Q_3/Q_1	R	100	125	160	200	160	200	250	315

Water meter type		**PD-AP DN20**
Characteristics	Unit	
Ratio Q_2/Q_1	-	1,6
Connection thread	mm	G 1B
Construction length L	mm	From 130 to 195
Installation orientation	-	All positions
Water temperature range Temperature class	°C -	0,1 to 50 T30, T50
Maximum admissible pressure MAP	bar	16
Pressure loss class Δp	bar -	0,63 $\Delta p63$
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
Capacity of calculator	m^3	9999,99998
Scale interval	m^3	0,00002
Accuracy class	-	2
Mechanical class	-	M1
Climatic class	°C	(-10 to +55)
Electromagnetic class	-	E1
Flow profile sensitivity class	-	U0D0

4. Marking and inscriptions

The following data shall be marked on the water meter:

a) unit of measurement (m^3);
b) flowrate Q_3 and ratio Q_3/Q_1 (R);
c) type of water meter;
d) manufacturers name or trademark;
e) year of manufacture or the month and year of manufacture;
f) serial number;
g) 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);
h) maximum admissible pressure (MAP);
i) temperature class (T);
j) pressure loss class (Δp);
k) the installation sensitivity class where it different from U0/D0;
l) environmental classification (can be given on a document supplied separately);
m) electromagnetic environmental class (can be given on a document supplied separately);
n) type approval sign according to national regulations.

Manufacturer uses the following trademarks on the water meter:

AIMEI ASM

5. Security measures

The water meter shall be protected against unauthorized manipulation by one sealing mark securing the connection of housing of water meter against opening. (Fig. 2)

6. Figures

PD-A PD-AP

Fig. 1: Views of water meters types PD-A and PD-AP

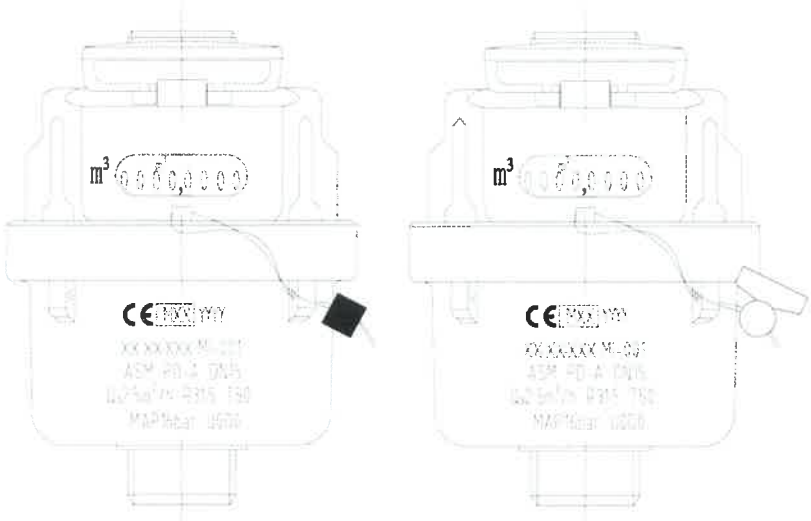
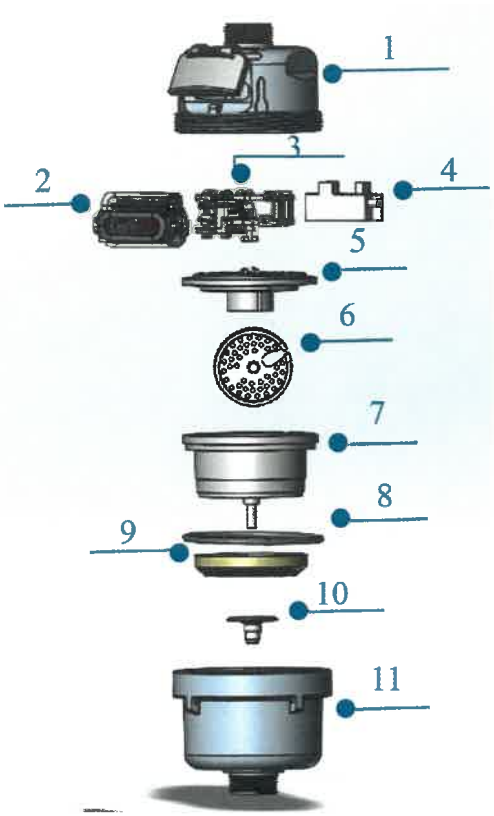


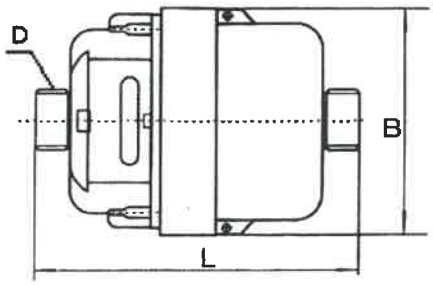
Fig. 2: Sealing

PD-A



PD-AP

Fig. 3: Exploded view of water meters (illustrative)



Type	Size (DN) (mm)	L (mm)	B (mm)	Connection Thread	Weight (kg)
PD-A	15	From 115 to 190	85	G 3/4B	0,85
	20	From 130 to 195		G 1B	0,99
	25	From 200 to 260	104	G1 1/4B	1,51
	40	300	175	G1 2B	6,34
PD-AP	15	From 115 to 190	99	G 3/4B	0,43
	20	From 130 to 195		G 1B	0,46

Fig.4: Dimensions of water meters