

CERTIFIKÁT EÚ SKÚŠKY TYPU

EU – type examination certificate

Číslo dokumentu: SK 23-MI001-SMU074
Document number:

Revízia 0
Revision 0

V súlade s: prílohou č. 2, Modul B nariadenia vlády Slovenskej republiky č. 145/2016 Z. z. o sprístupňovaní meradiel na trhu v znení nariadenia vlády SR č. 328/2019 Z. z., ktorým sa preberá smernica Európskeho parlamentu a Rady 2014/32/EU o harmonizácii právnych predpisov členských štátov týkajúcich sa sprístupnenia meradiel na trhu
In accordance with: Annex II, Module B to Government Ordinance of the Slovak Republic No. 145/2016 Coll. Relating to the making available on the market of measuring instruments as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll., which implemented the Directive 2014/32/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments

Žiadateľ/Výrobca: Arad Dalia Ltd.
Issued to (Manufacturer): Kibbutz Dalia 1923900, Israel

Druh meradla: Vodomer (MI-001)
Type of instrument: Water meter (MI-001)

Označenie typu: PD25 Polymer
Type designation:

Základné požiadavky: príloha č. 1 a príloha č. 3 Vodomery (MI-001) k nariadeniu vlády SR č. 145/2016 Z. z. v znení nariadenia vlády SR č. 328/2019 Z. z.
Essential requirements: Annex No. I and Annex No. III Water meters (MI-001) to Government Ordinance of the Slovak Republic No. 145/2016 Coll. as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll.

Platnosť do: 31. marec 2033
Valid until: March 31, 2033

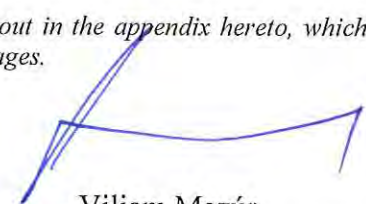
Notifikovaná osoba: Slovenský metrologický ústav 1781
Notified body: Slovak Institute of Metrology 1781

Dátum vydania: 31. marec 2023
Date of issue: March 31, 2023

Základné charakteristiky, popis meradla a podmienky schválenia sú uvedené v prílohe, ktorá je súčasťou tohto certifikátu. Certifikát vrátane prílohy má spolu 9 strán.

Essential characteristics, instrument description and approval conditions are set out in the appendix hereto, which forms the part of the certificate. The certificate including the appendix contains 9 pages.




Viliam Mazúr
zástupca notifikovanej osoby
representative of notified body

Poznámka: Tento certifikát EÚ skúšky typu môže byť rozmnožovaný len celý a nezmenený. Bez podpisu a odtlačku pečiatky je neplatný.
Note: This EU-type examination certificate shall not be reproduced except in full. Certificates without signature and stamp are not valid.

History of the Certificate

Issue of the Certificate	Date	Modification
SK 23-MI001-SMU074, Revision 0	March 31, 2023	Initial certificate

1 Instructions and standards used within assessment

1.1 Generally binding instructions

Meter type was examined in terms of request for given type provisions Government Ordinance of the Slovak Republic No. 145/2016 Coll. relating to the making available on the market of measuring instruments as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll., which implemented the Directive 2014/32/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments as later amended (next Government Ordinance).

Requirements are set out in Annex No. 1 and Annex No. 3 Water Meters (MI-001) to Government Ordinance of SR No. 145/2016 Coll. as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll.

1.2 Technical specification used:

OIML R 49-1:2013	Water meters intended for the metering of cold potable water and hot water. Part 1: Metrological and technical requirements
OIML R 49-2:2013	Water meters intended for the metering of cold potable water and hot water. Part 2: Test methods
OIML R 49-3:2013	Water meters intended for the metering of cold potable water and hot water. Part 3: Test report format
EN ISO 4064-1: 2017	Water meters for cold potable water and hot water. Part 1: Metrological and technical requirements
EN ISO 4064-2: 2017	Water meters for cold potable water and hot water. Part 2: Test methods
EN ISO 4064-3: 2014	Water meters for cold potable water and hot water. Part 3: Test report format
EN ISO 4064-5: 2017	Water meters for cold potable water and hot water. Part 5: Installation requirements

2 Type marking

Volumetric water meter for cold water – PD25 Polymer

Meter is made in following subgroups:

Type of meter	Temperature class	Class	Nominal Diameter
PD25 Polymer	T50	M1 ¹⁾ O ²⁾ E1 ¹⁾	DN25

¹ according to Government Ordinance of the Slovak Republic, Annex No. 1

² according to EN ISO 4064-1:2017 and OIML R 49-1:2013



3 Description of measuring instrument

Meter name: Volumetric semi-positive displacement water meter

Type marking: PD25 Polymer

Description of operating principal instrument design:

Volumetric water meter incorporates a semi-positive displacement rotary piston measuring assembly mounted in a plastic body that is fitted into a thermoplastic injection moulded body for connection to a manifold in any orientation. The rotary piston drives a magnet that couples to a non-resettable totalising display (register) that indicates up to 99999.99995 m³. The register is positioned on the top of the measurement chamber and secured between the plastic snap-shut register cover and meter body.

The meter is mainly composed of the body group and measuring unit group. The body group consists of the body, the cap, the lid, adjusting device and the inlet strainer. The glass cover can protect the register against the external damages, and the lid provides the further protection to the register. The water meter cannot be calibrated by adjusting device or by another way because of volumetric principle of measuring. Water meters could be installed for mounting on pipelines in every possible position. Accidental occurrence of a reverse flow does not affect metrological characteristics provided for a normal flow.

All the meters can be pre-equipped for option of having a signal for remote reading purposes - automated computerized system (wireless metering system) to control metering of delivered water quantity, which was not part of this certification.



Picture No.1 General view of PD25 Polymer water meter



3.1 Description of subgroups

Marking: PD25 Polymer

The meter can be equipped by following devices:

- Dialog 3G - Meters emitting a RF signal for remote reading purposes which was not part of this certification
- 3P – Arad's mechanical register (3 points);
- LoRa (LR) – digital register;
- Allegro – Arad's electronic register.

3.2 Measuring insert

The measuring unit group consists of the sealed register, the measuring chamber, the vane wheel assembly and the pressure plate. It is a key group for the accuracy performance of the meter. The magnetic gear on the top of vane wheel shaft transmits the movement of the turbine to the clockwork and register.

3.3 Indicating device

The capacity of the counter is 99999.99995 m³ for size DN25 and minimum resolution of the reading is 0,05 dm³. The register lens (glass, IP 68) is made of borosilicate glass on request to give the register protection against the impact damage and contamination. The counter design does not allow for resetting of meter indications. Counter pointers rotate clockwise. Indicated digital values increase as the drums with digits marked on them move upwards. An indication increase by one digit is complete when a digit in a lower decade changes from 9 to 0. In a decade of the lowest values, digital indications change continuously. Black digits marked on digital drums or black pointers indicate cubic meters or their multiples whereas red digits or pointers indicate submultiples of cubic meters. The pointers move around scales marked with proper multipliers and placed on an indicating dial.

3.4 Principle of operation

The potable water enters the meter from the inlet of the meter to the cup with well-calculated volume. This cup has one entrance and exit gateway. The water come through the gateway, fill the cup, turn it, and get out. Each rotation of cup has been directly transmitting to the register via magnets. The register totalizes the rotation of the cup, multiply it by the cup volume, and by this way calculate the summary volume of water that passed through the water meter. The water meter is dedicated to measure the flow and the delivered cold-water quantity.

3.5 Technical documentation

A number of drawings of technical documentations is listed in the following table:

Drawing No.	Description
11249307	PD25 polymer 178 BSP w/o register JANZ
25282709/03	Register Cover high for OE
90231000/00	Laser unit template PD MID

All drawings, schemes and technical documentations used during the conformity assessment are saved in document No. NO-537/22.



4 Basic technical characteristics

Type marking		PD25 Polymer
Nominal diameter DN	mm	25
Indicating range	m ³	10 ⁵
Resolution of the reading	m ³	0,00005
Maximum admissible pressure	-	MAP16
Working pressure range	bar	from 0,3 to 16
Pressure loss	-	Δp 63
Temperature class	-	T50
Flow profile sensitivity classes	-	U0, D0
Position	-	H, V
Climatic and mechanical environments	-	closed spaces /from -10°C to 55°C/mech. class M1, class O for fixed meters installed outdoor
Electromagnetic environments	-	E1
Reverse Flow:	-	The meter is not designed to measure reverse flow

4.1 Additional technical characteristics

Weight [kg]	from 1,28 – 1,32
IP Code	IP 68
Software	Type P, Risk class C, no extensions, (Welmec Guide 7.2)
Software version and checksum	2b3d; Checksum 4fc17115

5 Basic metrological characteristics

The maximum permissible error (accurate class):

$$\pm 5 \% (Q_1 \leq Q < Q_2)$$

$$\pm 2 \% (Q_2 \leq Q \leq Q_4) \text{ for water temperature (from 0,1 to 30) } ^\circ\text{C}$$

$$\pm 3 \% (Q_2 \leq Q \leq Q_4) \text{ for water temperature greater than 30 } ^\circ\text{C}$$

Nominal diameter	DN	mm	25	
Minimum flowrate	Q_1	m ³ /h	0,02	0,01575
Transitional flowrate	Q_2	m ³ /h	0,032	0,0252
Permanent flowrate	Q_3	m ³ /h	6,3	
Overload flowrate	Q_4	m ³ /h	7,875	
Measuring range R	Q_3/Q_1	-	315	400
Ratio	Q_2/Q_1	-	1,6	
Pressure loss	-	-	Δp 63	



6 Results of conformity assessment

The results of tests, assessments and evaluations given in the evaluation report No. NO-537/23/B/ER dated March 29, 2023 gives sufficient evidence, that the technical design of the measuring instrument – Volumetric semi-positive displacement water meter type PD25 Polymer is in compliance with the technical requirements of the Slovak Republic Governmental Ordinance No. 145/2016 Coll. relating to the making available on the market of measuring instruments as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll., Annex No. 1 and Annex No. 3 Water Meters and with the requirements determined in EN ISO 4064-1:2017, respectively OIML R49-1:2013, which are relevant for this type of meter.

7 Data placed on the measuring instrument

On the shroud, the dial of the indicating device or on an identification plate of every water meter or in the product documentation minimum the following data should be marked:

- a) Manufacturer's name, registered trade name or registered mark
- b) Postal address of manufacturer at which they can be contacted
- c) Type of the water meter
- d) Measuring unit (m^3)
- e) Numerical value of Q_3 in m^3/h (Q_3 x,x) and ratio Q_3/Q_1 (Rxxx)
- f) Year of production
- g) Production serial number
- h) Number of EU-type examination certificate and conformity mark
- i) The highest admissible pressure if it differs from 1 MPa (MAP xx)
- j) Flow direction
- k) The letter V or H, if the meter can only be operated in the vertical or horizontal position
- l) Class of pressure loss if it differs from Δp_{63} (Δp XX)
- m) Class of climatic and mechanical environment
- n) Flow profile sensitivity classes ($U_x D_x$)
- o) Class of electromagnetic environment
- p) Output signal of impulse transducer
- q) The temperature class where it differs from T30





Picture No.2 Dial plates example

8 Conditions of conformity assessment of measuring instruments produced with type approval

PD25 Polymer water meter for cold potable water which was put onto the market in line with the procedure of conformity assessment according to the Annex No.2 (Module D or F) of the Governmental ordinance, should be in compliance with the technical description by the item 3 of this report and at test should be in compliance with the requirements determined in OIML R 49-1:2013 and EN ISO 4064-1:2017. Metrological test is performed by testing equipment which should be in compliance with the requirements determined in EN ISO 4064-2:2017 and water at temperature $20\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ in following point of flowrate:

- a) Minimum flowrate $Q_1 \leq Q \leq 1,1Q_1$
- b) Transitional flowrate $Q_2 \leq Q \leq 1,1Q_2$
- c) Permanent flowrate $0,9Q_3 \leq Q \leq Q_3$

A metrological test may only be performed by a producer, or a notified body respectively in line with the conformity assessment procedure according to the Annex No.2 (Module D or F) of the Governmental ordinance respectively.

9 Measures asked for providing measuring instrument integrity

9.1 Identification

The Volumetric semi-positive displacement water meter should be in compliance with the description provided in the chapter 3 of this Annex and should be in compliance with the marking specified in the chapter 7 of this Annex. The number given to the EU-type examination certificate will be placed at each piece of the measuring instrument. Emplacement of the conformity mark is followed by § 15 of the Governmental ordinance.



9.2 Sealing of the measuring instrument

Water meter should be sealed before the conformity assessment according to the Annex No.2 (Module D or F) of the Governmental ordinance sealed in following ways (Picture No. 3).

The measuring assembly is secured by locating the snap fit plastic cover to the meter body. The register is positioned between the plastic cover and the meter body. The plastic cover and meter body have integrally moulded clips and once fitted, unauthorised dismantling is not possible without leaving evidence of tampering.

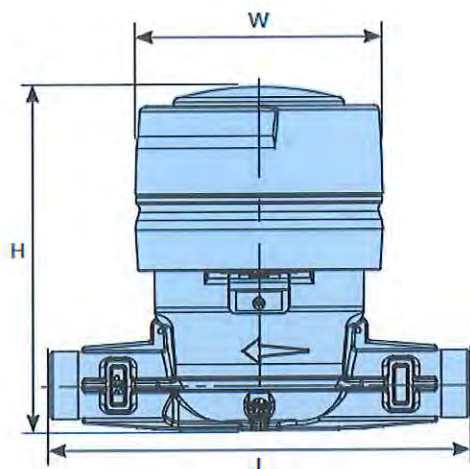


Picture No.3 Sealing for security measures in meter

10 Requirements for installation, especially conditions of usage
10.1 Installation data

Nominal diameter	DN25		
Length without couplings [mm] - <i>L</i>	178	198	260
Weight with 1" couplings [kg]	1,68	1,70	1,71
Weight [kg]	1,28	1,30	1,32
Width [mm] - <i>W</i>	136		
Hight [mm] - <i>H</i>	156		
Hight for RF type [mm] - <i>H</i>	172		





Picture No.4 Installation dimensions

10.2 Installation requirements

Volumetric water meter is introduced into the operation by a worker having a certificate for this activity performance. Water meter is possible to put into use after a construction in line with this report and in line with a producer instruction by “Instruction of installation and conditions of use of water meters”. A measuring instrument should be installed in direction of water flow arrow marked on the meter body.

10.3 Conditions of use

Within using the measuring instrument, it is preferable to operate by recommendations of a producer by “Instruction of installation and conditions of use of water meters”.

Assessment done by:  Ing. Viliam Mazúr

