



**Slovenský metrologický ústav**

Karloveská 63, 842 55 Bratislava 4, Slovenská republika

## CERTIFIKÁT EÚ SKÚŠKY TYPU

### *EU – type examination certificate*

Číslo dokumentu:

*Document number:*

**SK 11-MI001-SMU021**

Revízia 10 nahrádza certifikát zo dňa 15. júl 2021

*Revision 10 replaces the certificate issued by July 15, 2021*

**Revízia 10**

*Revision 10*

V súlade s:

*In accordance with:*

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

*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:

*Issued to (Manufacturer):*

**Arad Dalia Ltd.**

**Kibbutz Dalia 19239, Israel**

Druh meradla:

*Type of instrument:*

**Vodomer (MI-001)**

*Water meter (MI-001)*

Označenie typu:

*Type designation:*

**WST SB**

Základné požiadavky:

*Essential requirements:*

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.

*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:

*Valid until:*

**15. júl 2031**

*July 15, 2031*

Notifikovaná osoba:

*Notified body:*

**Slovenský metrologický ústav 1781**

*Slovak Institute of Metrology 1781*

Dátum vydania:

*Date of issue:*

**24. marec 2022**

*March 24, 2022*

Základné charakteristiky, popis meradla a podmienky schválenia sú uvedené v prílohe, ktorá je súčasťou tohto certifikátu. Certifikát vrátane prílohy má spolu 14 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 14 pages.*



Ing. Viliam Mazúr  
zástupca notifikovanej osoby  
*representative of notified body*

Poznámka:  
*Note:*

Tento certifikát EÚ skúšky typu môže byť rozmnožovaný len celý a nezmenený. Bez podpisu a odtlačku pečiatky je neplatný.  
*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 11-MI001-SMU021, Revision 0	November 2, 2011	Initial certificate
SK 11-MI001-SMU021, Revision 1	August 24, 2012	Certificate update
SK 11-MI001-SMU021, Revision 2	June 24, 2014	Certificate update
SK 11-MI001-SMU021, Revision 3	November 13, 2015	Certificate update
SK 11-MI001-SMU021, Revision 4	June 24, 2016	Certificate update
SK 11-MI001-SMU021, Revision 5	January 13, 2017	Certificate update
SK 11-MI001-SMU021, Revision 6	May 17, 2017	Certificate update
SK 11-MI001-SMU021, Revision 7	December 21, 2018	Add production place
SK 11-MI001-SMU021, Revision 8	May 3, 2021	Add exchangeable metrological unit
SK 11-MI001-SMU021, Revision 9	July 15, 2021	Certificate renew
SK 11-MI001-SMU021, Revision 10	March 24, 2022	Instrument marking change

### Place of production:

1. **Arad Dalia Ltd.,**  
Kibbutz Dalia 19239, Israel
2. **Arad Metering Technologies Wuhan Co., Ltd.,**  
Room 1613-1617, Buynow building, No. 10, Luoyulu Road, Hongshan District  
Wuhan City, Hubei Province, China

## 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

### Woltman water meter – WST SB

Meter is made in following subgroups:

Type of meter	Temperature class	Class	Nominal Diameter
WST SB	T50	M1 <sup>1)</sup> B <sup>2)</sup> E1 <sup>1)</sup>	DN 50, DN65, DN 80, DN 100, DN 150, DN 200, DN 250, DN300

## 3 Description of measuring instrument

**Meter name:** Woltman water meter

**Type marking:** WST SB

### Description of operating principle instrument design:

The industrial horizontal meter is intended for metering of delivered water quantity. The Woltman meter (Picture No. 1, 2, 3 and 4) operates on the principle of a water speed sensor by impeller wheel. The operating speed of the wheel is proportionate to the speed of overflowing water. The operating speed is proportionate to water delivered quantity. The Water meter is dedicated to measure the flow and the delivered cold water quantity.

Water meter is:

- Woltman horizontal,
- dry water meter with mechanical register or with electronic register,
- with internal float regulation,
- with removable measuring insert attached to a cover with flanged connection to the body
- measures in horizontal position.

Water meters have been fitted for mounting on pipelines in horizontal position. Accidental occurrence of a reverse flow does not affect metrological characteristics provided for a normal flow.

All the meters with mechanical counter can be pre-equipped for option of having a signal for remote reading purposes - automated computerized system (wireless metering system) for controlling of metering of delivered water quantity or an optical encoder intended for reading water with optical disc equipped register and converting water flow into impulses. The optical encoder is powered from internal 3,6 V Lithium batteries.

<sup>1</sup> according to Government Ordinance of the Slovak Republic, Annex No. 1

<sup>2</sup> according to EN ISO 4064-1:2017 and OIML R 49-2:2013





*Picture No.1 Woltman water meter WST SB*



*Picture No.2 Bayonet type cover option*



*Picture No.3 Woltman water meter WST SB with electronic register (ER)*



*Picture No.4 Woltman water meter WST SB with GK register*

### 3.1 Description of subgroups

Marking: WST SB

Marking 3G Register: WST SB XX 3G (where XX is Nominal Diameter)

Marking GK Register: WST SB XX GK (where XX is Nominal Diameter)

DN: DN 50, DN 65, DN 80, DN 100, DN 150, DN 200, DN 250, DN 300

The meter can be equipped by following devices:

- meters with option of having a signal for remote reading purposes 3G or Optical encoder type which was not part of this certification
- mechanical register with option electrical output EV which was not part of this certification

### 3.2 Measuring insert

The measuring insert consists of the measuring mechanism, mechanism's flanged top cover and counter. The measuring insert is attached to the body by screws. The mechanism contacts the flow water directly, so all the parts of the mechanism are made from selected engineering plastic, stainless steel and brass. The rotation of the helix turbine impinged by the flow water in horizontal axis is converted to the rotation in vertical axis by the worm reduction gearing and is transmitted to the sealed register by the magnet coupling. The position of the regulation blade is adjustable via different positions in relation to the water flow.

### 3.3 Indicating device

#### 3.3.1 Mechanical register

The indicating device is a combined number rollers and pointers counter. It consists of 6 rollers for  $m^3$  and 3 scale indicators with pointers for the decimals of  $m^3$ . Counter capacity is 999 999  $m^3$  (9 999 999  $m^3$  for DN150, 99 999 999  $m^3$  for DN200, DN250 and DN300) and resolution of the reading is 0,5  $dm^3$  (5  $dm^3$  for DN150, 50  $dm^3$  for DN200, DN250 and DN300).

The counter design does not allow for resetting of meter indications.



The sealed register is with central gear with magnet to totalize the rotation from the measuring mechanism.

### 3.1.2 Electronic register

The electronic register (ER) is a fully electronic counter with no moving mechanical parts. The ER is based on a TMR (Tunneling Magneto-Resistance) Sensor that response to changes in a magnetic field that makes the ER for gathering the magnetic measurements from the meter and "translating" them to an accurate measurement of water volume.

A TMR sensor detects the impeller generating an analog signal. This signal is digitalized and introduced to the microcontroller. The microcontroller calculates the volume and the flow rate according to the parameters loaded in the microcontroller memory. The device is capable to detect the magnet direction showing a forward or backward arrow in display. The meter let show the positive, the negative or the total accumulated volume by display.

The ER is built from stainless steel chamber, borosilicate glass and rubber seal; the product is vacuum sealed with permanent mechanical closer; the electronics of the product is fully protected from any external factor and includes internal shock absorber.

The ER takes the power from a couple of non-rechargeable lithium batteries directly soldered to the circuit PCB. One battery is for the sensor and microcontroller circuit and the other battery for pulse output circuit.

### 3.1.3 Software

The counter design does not allow for resetting of meter indications. The ER is running with SW Version 7.1.5. and is fully complies with WELMEC 7.2 for P Type products.

Version identified is embedded into the firmware code. It is no possible to change it after the firmware is programmed. Each identification of software is associated to their correspondent checksum code. Checksum of the whole software is generated automatically by the compiler and it can be read by serial communication. Any change in the firmware (legally relevant or not) entails a new checksum code.

The identification of the software is determined by two ways.

The first one is for manufacturer reference and consists of three parts: Number of programs, version of software and subversion. The first one, the number of programs, is associated to a family or generation of water meters. In this case, number 07 is associated to CZ4000 family, which shares the same electronic architecture.

The second one is the version number which is associated to the legally relevant software and any change of this part will require a new approval and version number (consecutive numbers). The third part (subversion) indicates only minor changes to the software or changes related to not legally relevant software which need no new approval and it is also a consecutive number. This way of identification makes easy to have an idea of how old is the version.

The second way of identification is by 16-bits value checksum. This checksum is the result from calculating the CRC of firmware code memory and it is the more reliable. It is useful to avoid any kind of mistake in programming the correct firmware version.

It is possible to check the firmware version by means of display (just after reset) and by means of serial communication in the basic frame or using the Read\_Version command. The subversion can be obtained by means a specific communication command.

Additionally, the checksum values (nominal and calculated) appear on the flow rate digits of

display during 2 seconds in the next 8 seconds after the water meter detects the flow has stopped. Also, they can be obtained by means of a communication command.

#### 3.1.4 GK Register

GK (Glat Kosher) register is a mechanical register which incorporates an electronic reading and transition for remote reading (Picture No. 5). The register is installed on the meters and using a magnetic coupler, converts the rotation of the in-meter element to the rotation of the digit wheels which in turn shows the amount of water consumed. This operation is being done only by the mechanical stage of the register and does not involve any electronic component. Also, the electric stage does not come in contact with the mechanical stage and there is no magnetic influence on the cylinder's rotation due to the electronic position reading. For data transmission, the register includes a transmitter board, antenna and sensing element. The element is mounted next to each digit wheel and while transmitting, reads the position of the digit wheel and transferring this data to the transmitter board.

The register differs from other Arad's registers by not requiring a continues electronic reading or accurate data transmission. It is able to perform an electronic reading in a pre-defined schedule which enables a complete electronic shut down during Saturdays and holidays. This allows the register to keep with the highest level of "kashrut" certificate.

Electric stage of the register was not part of this certification.



*Picture No. 5 GK register*

### 3.4 Principle of operation

The core part of the water meter is the screw gear lying vertically on the axle of pipe axis. The screw gear is pressed by flash of liquid and turns into the rotation. The rotating movement of the screw gear is transferred through the magnetic clutch onto the mechanical or electronical register.

### 3.5 Technical documentation

A number of drawings of technical documentation are listed in the following table:



1 38 131 55MID /00	2 45 722 55 /03	2 63 302 09 /05	5 40 027 09MID /00
1 38 170 55MID /00	2 49 019 09 /02	2 65 103 09 /03	5 40 037 09MID /00
1 38 331 55MID /00	2 49 021 09 /03	2 65 104 09 /04	5 40 250 80MID /00
1 38 370 55MID /00	2 49 023 09 /06	2 65 520 09 /04	5 40 540 10MID /00
1 38 431 55MID /00	2 50 443 09 /00	2 66 712 19 /00	5 40 250 80MID /00
1 38 470 55MID /00	2 50 480 09 /02	2 66 713 19 /00	5 63 130 09MID /00
1 38 570 55MID /00	2 52 224 09 /01	2 67 319 19 /02	5 63 145 29MID /00
1 38 514 55MID/00	2 52 239 09 /02	2 67 319 39 /02	5 63 330 09MID /00
1 99 020 35MID /00	2 52 247 09 /00	2 67 320 19 /00	5 63 346 09MID /00
1 99 020 36MID /00	2 52 223 09 /06	2 85 350 09 /03	5 63 430 09MID /00
1 99 020 37MID /00	2 58 243 19 /00	3 22 124 09 /04	5 63 446 09MID /00
1 99 020 38MID /00	2 58 246 19 /00	3 22 324 09 /02	5 63 530 09MID /00
2 06 291 09 /01	2 58 246 29 /00	3 22 424 09 /09	5 63 543 19MID /00
2 06 295 09 /01	2 58 246 39 /00	3 22 592 09 /20	19902961
2 37 436 19 /00	2 58 254 09 /A	13882555YMID	19902962
2 37 425 69 /00	13822055MID	54006180MID	19902963
13861455MID	13822055YMID	54008180MID	19902958
13872555MID	13862555YMID	54009180MID	56363009MID
13882555MID	13872555YMID	54011109MID	32232409/02
56384309	56323009MID	32230309/05	28072719/01
20645809/00	24642509/01	19800609/00	13857055MID
23908001/00	27205509/15	28072709/01	13857055MID/03
96501309/00	13837055MID	13847055MID	54325009/00
13882555Y/03	13872555Y/03	13862555Y/03	54325209/00
13847055MID/03	13837055MID/03	13817055MID /03	54325309/00
23644331/00	23644473/00	23644517/00	54325409/00
23644776/00	23644843/00	23445109/01	54325609/00
23644178/00	23644677/00	56374309	23644173
23644229	23644466	23644552	23644653
23644778	23644815	236453335	90236008

All drawings, schemes and technical documentation used during the conformity assessment are saved in document No. NO-146/11, No. NO-187/12 and NO-244/13, NO-282/14, NO-294/15, NO-336/17, NO-354/17, NO-390/18, NO-479/20, NO-515/21 and NO-536/22.



#### 4 Basic technical characteristics

Type marking		WST SB							
Nominal diameter DN	mm	50	65	80	100	150	200	250	300
Indicating range	m³	999 999				9 999 999	99 999 999		
Resolution of the reading	m³	0,0005				0,005	0,05		
Maximum admissible pressure	-	MAP16							
Working pressure range	bar	from 0,3 to 16							
Pressure loss	-	40	25	40	40	16	16	25	16
Temperature class	-	T50							
Flow profile sensitivity classes	-	U5, D3							
Position	-	H							
Climatic and mechanical environments	-	closed spaces /from -25°C to 55°C/mech. class M1							
Electronical environment		E1							

#### 4.1 Additional technical characteristics

IP Code	IP68
Weight	from 12 kg to 95 kg
SW version	7.1.5 (P Type – according Welmec 7.2)
Firmware version	P07v02
Checksum	0x21a5

#### 5 Basic metrological characteristics

The maximum permissible error (accuracy class):

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

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

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

Diameter	DN	mm	50	65	80	100	150
Minimum flowrate	$Q_1$	m <sup>3</sup> /h	≥ 0,4	≥ 0,4	≥ 0,625	≥ 1	≥ 1,563
Transitional flowrate	$Q_2$	m <sup>3</sup> /h	≥ 0,63	≥ 0,63	≥ 1	≥ 1,6	≥ 2,5
Permanent flowrate	$Q_3$	m <sup>3</sup> /h	63	63	100	160	250
Overload flowrate	$Q_4$	m <sup>3</sup> /h	78,75	78,75	125	200	312,5
Measuring range R	$Q_3/Q_1$	-	≤ 160 <sup>3)</sup>				
Ratio	$Q_2/Q_1$	-	1,6				

<sup>3)</sup> The ratio  $Q_3 / Q_1$  shall be chosen from ISO 4064-1:2017 4.1.4

Diameter	DN	mm	200	250	300
Minimum flowrate	$Q_1$	m <sup>3</sup> /h	≥ 3,938	≥ 6,25	≥ 6,25
Transitional flowrate	$Q_2$	m <sup>3</sup> /h	≥ 6,3	≥ 10	≥ 10
Permanent flowrate	$Q_3$	m <sup>3</sup> /h	630	1000	1000
Overload flowrate	$Q_4$	m <sup>3</sup> /h	787,5	1250	1250
Measuring range R	$Q_3/Q_1$	-	≤ 160 <sup>3)</sup>		
Ratio	$Q_2/Q_1$	-	1,6		

## 6 Results of conformity assessment

The results of tests, assessments and evaluations given in the evaluation report No. NO-536/22/B/ER dated March 23, 2022 give sufficient evidence that the technical design of the measuring instrument – Woltman water meter type WST SB is in compliance with the technical requirements of the Slovak Republic Governmental Ordinance No. 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.

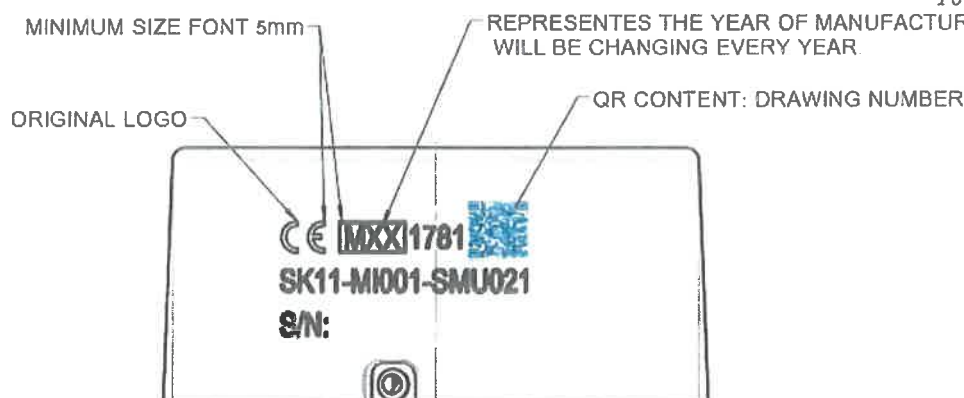
## 7 Data placed on the measuring instrument

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:

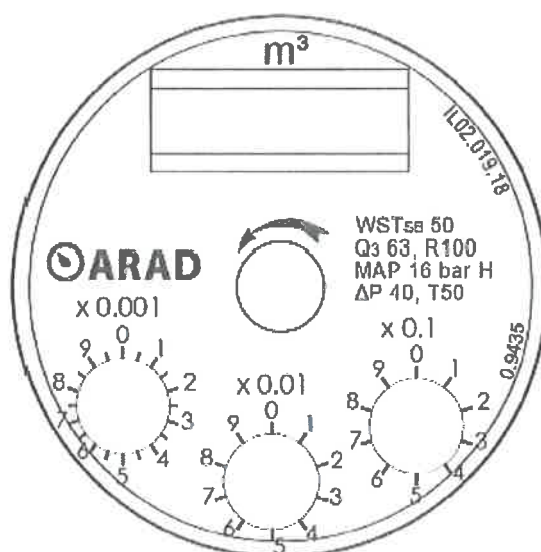
- producer's name, registered trade name or registered trade mark and contact postal address at which they can be contacted
- type of the Woltman meter
- measuring unit m<sup>3</sup>
- numerical value of  $Q_3$  and ratio  $Q_3/Q_1$
- production number and the year of production
- number of EU-type examination certificate and conformity mark
- the highest admissible pressure if it differs from 1 MPa
- flow direction
- the letter V or H, if the meter can be operated in the vertical or horizontal position
- class of pressure loss if it differs from  $\Delta P_{63}$
- class of climatic and mechanical environment
- flow profile sensitivity classes
- output signal of impulse transducer
- the temperature class where it differs from T30

In cases meters with option of having a signal for remote reading purposes 3G or Optical encoder type or electronical register

- electromagnetic environmental class
- the latest date that the meter is to be replaced shall be indicated on the meter in case of a fixed internal battery
- software version (for water meters with ER)



Picture No. 6 measure instrument marking



Picture No. 7 measure instrument marking

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

Woltman meters 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.

### 8.1 Metrological test

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 °C ± 5 °C in following point of flowrate:

- Minimum flowrate  $Q_1 \leq Q \leq 1,1Q_1$
- Transitional flowrate  $Q_2 \leq Q \leq 1,1Q_2$
- 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.

#### 8.1.1 Metrological test of exchangeable metrological unit

The verification test of the metrological unit has to be performed acc. to OIML R 49-1:2013 article 7.3.4. The applicable flow rates depend on the size of the used testing body and the appropriate  $Q_3$ . The ratios written on the type plate are marked accordingly.

### 8.2 Additional Requirements

The exchangeable metrological unit must be marked with their size (e.g. nominal size, permanent flow and Ratio) at a clearly visible point in order to facilitate mounting them into the correct meter body.

A suitable package must ensure that any possibility of contamination or damage during transport is prevented.

Each exchangeable metrological units is to be accompanied by a manual (please refer to section no. 10.2 “Installation requirements”).

The exchangeable metrological unit Woltman meters must be manufactured as a compact and/or secured unit including measuring mechanism, register and connecting flange.

## 9 Measures asked for providing measuring instrument integrity

### 9.1 Identification

Woltman meter should be in compliance with the description provided on item 3 of this Annex and should be in compliance with the marking specified the item 7 of this Annex. The number given to the EU-type examination certificate is put at each piece of the measuring instrument. Emplacement of the conformity mark is determined by § 15 of the Governmental ordinance.

### 9.2 Sealing of the measuring instrument

The Woltman water meter shall be before the conformity assessment according to the Annex No.2 (Module D or F) of the Governmental ordinance sealed by following sealing marks:

Connection of counter shroud and water meter body shall be sealed by seal used for security measures (lead, plastic seal) (Picture No. 8)



*Picture No.8 Emplacement of the seal for security measures*

### 9.2.1 Sealing of the exchangeable metrological unit

The measuring unit comes with sealing: a metal wire is threaded through a regulating screw and the top cover with the register.



*Picture No.9 Emplacement of the seal for security measures*

If the exchangeable metrological unit is mounted into the body outside of the test laboratory (e.g. on installation site), the conformity assessment marking must be placed clearly visible on the exchangeable metrological unit and the user seals shall be placed after installation.

In case of mounting the exchangeable metrological unit into the matching body on site (i.e. at the meter installation site or outside the test laboratory) a user seal must be placed in order to see whether the Wotlmans exchangeable metrological unit was removed and/or preventing unauthorised removal.

The user seal preventing dismounting the Wotlmans exchangeable metrological unit must be designed in such a way that it cannot be removed or unfastened without breaking.

### 9.3 Software securing

Commands entered via the user interface do not influence the legally relevant software and measurement data. User interface consists of LCD display that only shows information and no interaction is possible directly.

Commands inputted via communication interfaces of the instrument do not influence the legally relevant software and measurement data. Once the protection bit is activated, all commands related to modification of legal data modification are ignored by the device. The only way to remove the protection bit is disassembling the device what implies unseal the devices.

The device is sealed and once the manufacture and calibration processes has finished, it is not allowed to modify relevant parameters. Any intentional changes require, in any case, unsealing and dismounting the device.

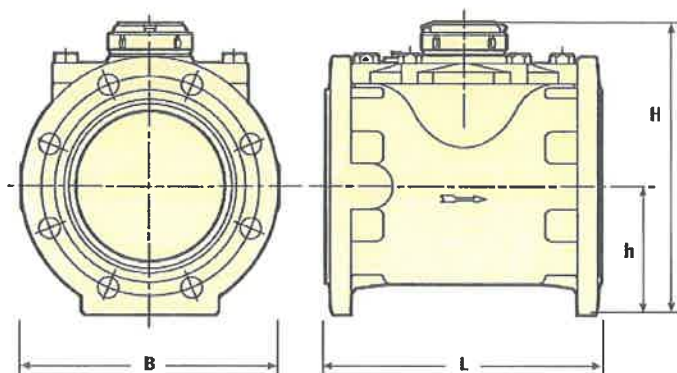


## 10 Requirements for installation, especially conditions of usage

### 10.1 Installation data

Nominal diameter	DN50	DN65	DN80	DN100
Construction length [mm] - $L$	200	200	225/230	250
Width [mm] - $B$	165	185	200	220
Weight [kg]	12	13	15,5	19
Height [mm] - $H$	239	254	259	275
Distance axle from edge [mm] - $h$	70	85	90	106

Nominal diameter	DN150	DN200	DN250	DN300
Construction length [mm] - $L$	300	350	450	500
Width [mm] - $B$	285	340	405	489
Weight [kg]	35	47	75	95
Height [mm] - $H$	344	377	463	505
Distance axle from edge [mm] - $h$	140	172	203	245



Picture No. 10 Installation dimensions

### 10.2 Installation requirements

The woltman water meter is introduced into the operation by a worker having a certificate for this activity performance. The woltman meter is possible to be 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 flanged 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 needed to be managed by recommendations of a producer by "Instruction of installation and conditions of use of flanged water meters".

Assessment done by: Ing. Viliam Mazúr

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