



Slovenský metrologický ústav
Karloveská 63, 842 55 Bratislava 4,
Slovenská republika



Reg. No. 101/P-035

CERTIFIKÁT EÚ SKÚŠKY TYPU

EU – type examination certificate

Číslo dokumentu:
Document number:

SK 24-MI001-SMU078

Revízia 0
Revision 0

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):

Ningbo Bestway M&E Co., Ltd.
10F, Zhenru Center, No. 225 Northern Section of Huancheng
West road, 315000 Ningbo, China

Druh meradla:
Type of instrument:

Vodomer (MI-001)
Water meter (MI-001)

Označenie typu:
Type designation:

STW 02

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:

5. apríla 2034
April 5, 2034

Notifikovaná osoba:
Notified body:

Slovenský metrologický ústav 1781
Slovak Institute of Metrology 1781

Dátum vydania:
Date of issue:

5. apríla 2024
April 5, 2024

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 24-MI001-SMU078, Revision 0	April 5, 2024	Initial certificate

Place of production:

- **Ningbo Wasser Geraete Co., Ltd.,**
No. 9 Xinxing Road, Chalu, Ninghai, 315606 Zhejiang, 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

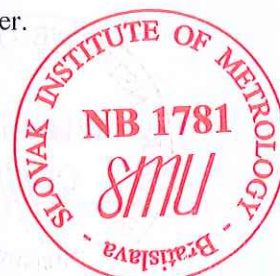
2 Type marking

Vane-wheel single-jet water meter – **STW 02**

Meter is made in following subgroups:

Type of meter	Temperature class	Class	Nominal Diameter
STW 02	T50, T90	M1 ¹⁾	DN15, DN20

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



3 Description of measuring instrument

Meter name: Vane-wheel single-jet water meter

Type marking: STW 02

Description of operating principle instrument design:

Vane-wheel single-jet water meter with permanent flow rates of 2,5 m³/h and 4 m³/h has been designed to measure actual volume of cold potable and hot water flowing in a completely filled up closed pipeline. The water meter is composed of body, measuring mechanism and counter. Water flowing through a meter sets the vane-wheel in a rotary motion that is transferred by a magnetic clutch to the counting mechanism.

Vane-wheel single-jet water meters are composed of three basic assemblies:

1. measuring unit;
2. indicating device.

The indicating device has been set so that it can be easily adjusted by rotation to facilitate readout.

The body of the water meter is a brass casting equipped with screwed pipe connectors to enable mounting on a pipeline with the help of fittings and nuts.

Water meters have been fitted for mounting on pipelines in horizontal (dial facing up) and vertical positions. Accidental occurrence of a reverse flow does not affect metrological characteristics provided for a normal flow.



Picture No.1 Vane - wheel water meter



3.1 Description of subgroups

Marking: STW 02

DN: DN15, DN20

The meter can be equipped with following devices:

- reed contact pulse transmitter, which was not part of this certification

3.2 Measuring insert

The main elements of the measuring unit are the following:

- a body with a strainer set in the inlet channel and a basic axle pressed into the body bottom without any additional swelling plate in the body bottom or with a swelling plate fixed to the body bottom;
- a vane-wheel;
- a packing plate.

The vane-wheel is borne on a basic axle and in a bearing, sleeve mounted on the packing plate. There is a magnet of a magnetic clutch on the vane-wheel. The packing plate is fitted with an adjusting rib angled to water flow, which allows meter adjustment.

3.3 Indicating device

The capacity of the counter is 99 999 m³ and resolution of the reading is 0,05 dm³.

The counting mechanism includes a rear clutch, gears and a register. The register consists of one pointer and eight-drum roller. A transparent casing facilitates readout of meter indications. On the central axle of the counting mechanism on which the magnet of the magnetic clutch has been fixed there is a flow indicator that performs a function of a vane-wheel rotation indicator. The flow indicator is also used in the process of electronic testing of meters.

The counter design does not allow 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 indicate cubic meters or their multiples whereas red digits or pointers indicate submultiples of cubic meters.

The pointers move round scales marked with proper multipliers and placed on an indicating dial.

3.4 Principle of operation

The water meter operates on the principle of water speed sensor by impeller wheel. The operating speed of the wheel is proportionated to the speed of overflowing water. The operating speed is proportionated to water delivered quantity. The water meter is dedicated to measure the flow and the delivered cold potable and hot water quantity.



3.5 Technical documentation

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

Drawing Number	
STW 02-15,20-003	STW 02-15,20-004
STW 02-15,20-T50-001.1	STW 02-15,20-T50-001.2
STW 02-15,20-T50-001	STW 02-15,20-T50-002
STW 02-15,20-T90-001.1	STW 02-15,20-T90-001.2
STW 02-15,20-T90-001	STW 02-15,20-T90-002

All drawings, schemes and technical documentations used during the conformity assessment are saved in documents No. NO-618/24.

4 Basic technical characteristics

Type marking		STW 02	
Nominal diameter DN	mm	15	20
Indicating range	m ³	99 999	
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, T90	
Flow profile sensitivity classes	-	U0, D0	
Position	-	H (dial facing up), V	
Climatic and mechanical environments	-	closed spaces /from -10°C to 55°C/, mechanical class M1	
EUT testing requirements (OIML R 49-2:2013, 8.1.8)			
Category		Turbine water meters with no electronic devices	
Case		A	

4.1 Additional technical characteristics

Weight [kg]	from 0,45 to 0,52
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5 Basic metrological characteristics

The maximum permissible error (accuracy class):

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

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

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



Nominal Diameter	DN		mm	15	20
Minimum flow rate	Q_1	H	m ³ /h	0,01563	0,025
		V	m ³ /h	0,03125	0,05
Transitional flow rate	Q_2	H	m ³ /h	0,025	0,04
		V	m ³ /h	0,5	0,08
Permanent flow rate	Q_3		m ³ /h	2,5	4
Overload flow rate	Q_4		m ³ /h	3,125	5
Measuring range R	Q_3/Q_1	H	-	160	
		V	-	80	
Ratio	Q_2/Q_1		-	1,6	

6 Results of conformity assessment

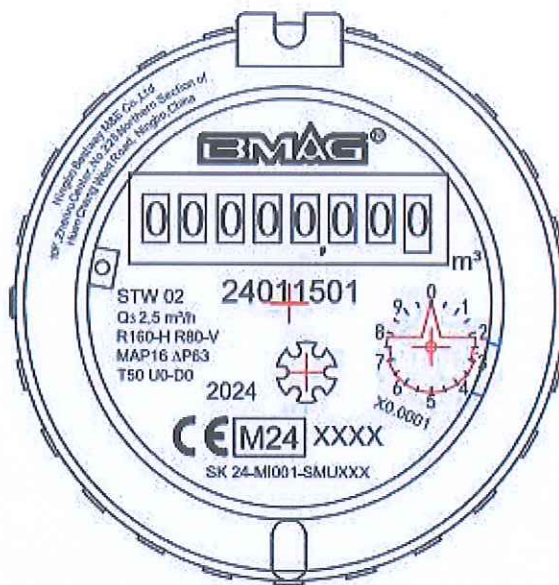
The results of tests, assessments and evaluations given in the evaluation report No. NO-618/24/B/ER dated April 3, 2024 give sufficient evidence, that the technical design of the measuring instrument – vane-wheel single-jet water meter type STW 02 is in compliance with the technical requirements of the 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:

- Manufacturer's name, registered trade name or registered mark and postal address of manufacturer at which they can be contacted
- Measuring instrument type
- Measuring unit (m³)
- Numerical value of Q_3 in m³/h (Q_3 x,x) and ratio Q_3/Q_1 (Rxxx)
- Year of production and production serial number
- Number of EU-type examination certificate and conformity mark
- The highest admissible pressure if it differs from 1 MPa (MAP xx)
- Flow direction
- The letter V or H, if the meter can only be operated in the vertical or horizontal position
- Class of pressure loss if it differs from Δp_{63} (Δp XX)
- Flow profile sensitivity classes (Ux Dx)
- Class of climatic and mechanical environment
- The temperature class where it differs from T30





Picture No.2 Dial plate

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

Vane-wheel single-jet water meters for cold potable and hot water 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 $20\text{ °C} \pm 10\text{ °C}$ (for temperature class T50) and $20\text{ °C} \pm 10\text{ °C}$ and $50\text{ °C} \pm 10\text{ °C}$ (for temperature class T90) at the following flowrates:

- 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.

9 Measures asked for providing measuring instrument integrity

9.1 Identification

Vane-wheel single-jet water 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 followed by § 15 of the Governmental ordinance.

9.2 Sealing of the measuring instrument

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

Place for emplacement of label used for security measures (sticker)



Picture No.3 Emplacement of the label for security measures

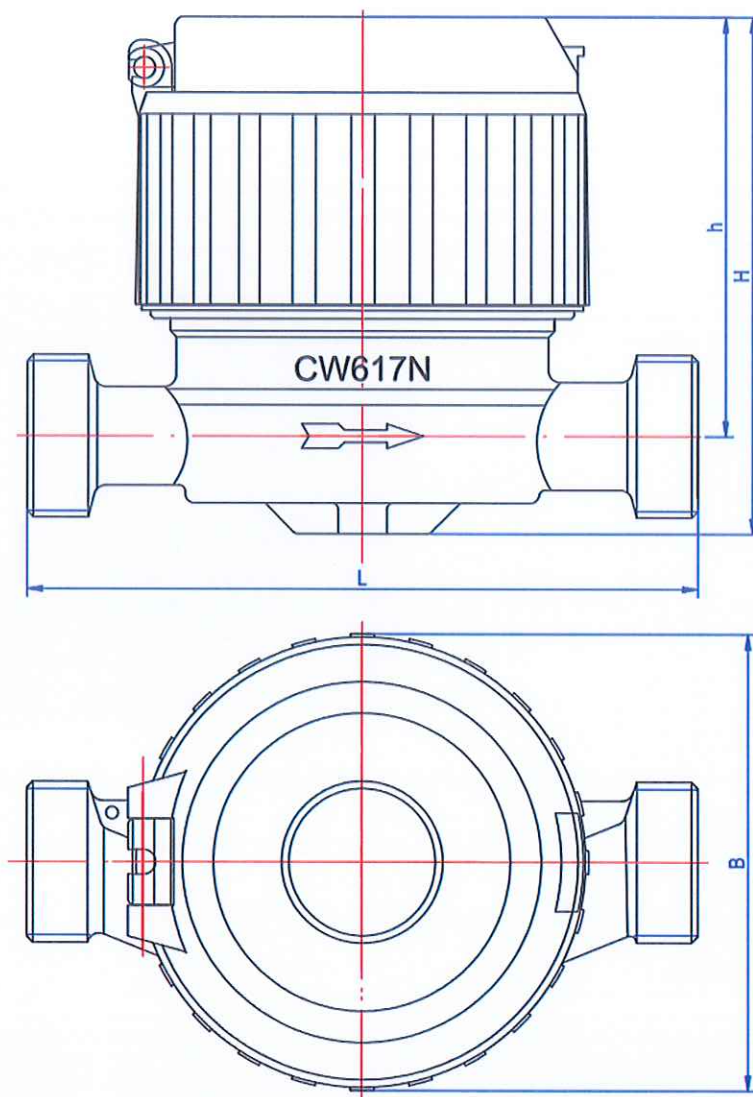
Sealing is done by placing label (sticker) on the side of counter of water meter. (Picture No. 3)

10 Requirements for installation, especially conditions of using

10.1 Installation data

Nominal Diameter	DN15	DN20
Construction length [mm] - <i>L</i>	110	130
Counter diameter [mm] - <i>B</i>	75	75
Weight [kg]	0,45	0,52
Height [mm] - <i>H</i>	84	84
Distance axle from edge [mm] – <i>h</i>	68	68





Picture No.4 Installation dimensions

10.2 Installation requirements

A vane-wheel single-jet water meter should be introduced into operation by qualified for this activity performance worker. 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

The measuring instrument should be used within the recommendations of a producer or manufacturer: “Instruction of installation and conditions of use of water meters”.

Assessment done by: Maryna Tokarieva



