

Standards and documents applied:

LST EN ISO 4064-1:2017/A11/2023;
LST EN ISO 4064-2:2017/A11/2023;
LST EN ISO 4064-4:2014;
LST EN ISO 4064-5:2017/A11/2023;
OIML R 49-1:2013;
OIML R 49-2:2013;
WELMEC 7.2:2022.

The measuring instrument must correspond with the following specifications:

1 Design of the instrument

1.1 Construction

Electronic single-jet dry type smart water meter JETO (hereinafter referred to as the water meter) is a complete measuring instrument, consisting of a brass body with an impeller rotating in the measuring chamber and electronic module – calculator with an integrated LCD indicating device. The meter modification JETO (Fig. 1) is produced with a nominal diameter of DN15 (end connections G $\frac{3}{4}$ B).

The meter modification JETO-L (Fig. 2) is equipped with a higher calculator housing and is produced with nominal diameter DN15 (end connections G $\frac{3}{4}$ B) and DN20 (end connections G 1B).

The meter modification JETO is powered by a non-replaceable 3,6 V DC, A size internal battery.

The meter modification JETO-L is powered by a non-replaceable 3,6 V DC, C size internal battery.

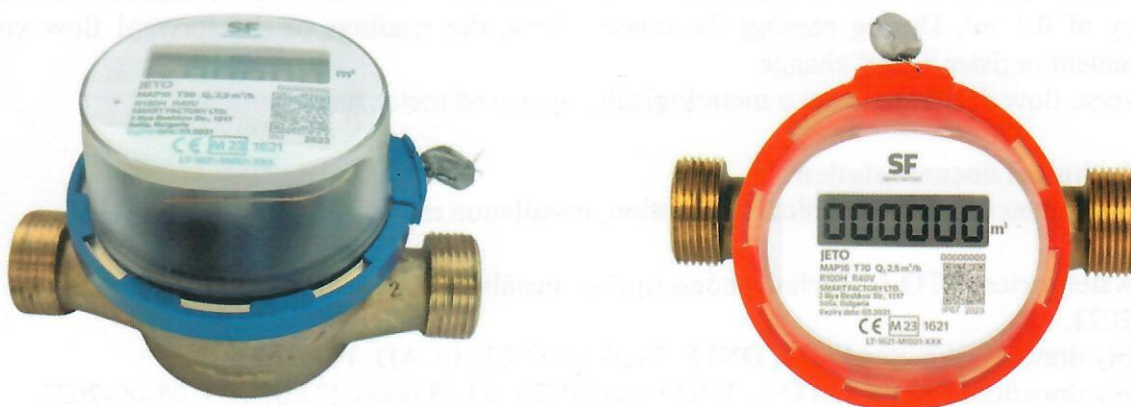


Fig. 1. Water meter JETO



Fig. 2. Water meter JETO-L

1.2 Sensor

The single-jet sensor for the volume of flowing water, which consist of a measuring chamber with impeller rotating inside. The flow of water flowing through the meter rotates the impeller, the number of revolutions of which is proportional to the volume of water passing through the meter. The meter is adjusted in two ways: electronically – by entering the calibration coefficients and/or mechanically – by changing the position of the pressure plate.

1.3 Measurement value processing

The flow of water passing through the meter rotates the impeller equipped with a 4-pole ring magnet. Magnet signals are transmitted to a group of Hall sensors in the electronic module of the meter. The electronic module has an transducer, which is intended to convert the magnitude of the magnetic field created by the rotating impeller magnet into a voltage signal. The analog-digital converter of the electronic module microcontroller converts the analog voltage signal into a digital signal which is proportional to the volume of water passed through the meter.

1.4 Indication of the measurement results

Measured volume of water is indicated on the 1-line, 6-digits LCD indicating device.

Indications in operating mode : m^3 , one digit after decimal point.

Indications in TEST mode : m^3 , five digits after decimal point.

1.5 Optional equipment and functions subject to MID requirements

The meter has a reverse flow detection function. When reverse flow is flowing through the meter, the indicating device displays the reverse flow volume measurement register with a minus sign. The reverse flow volume of water is indicated in the reverse flow volume measurement register with an accuracy of $0,1 \text{ m}^3$. During passing the reverse flow, the readings of the forward flow volume measurement register do not change.

The reverse flow detection is not a metrologically approved meter function.

1.6 Technical documentation

Smart water meter JETO. Technical description, installation manual and user guide: v.1.0, 21-03-2023.

Smart water meter JETO-L. Technical description, installation manual and user guide: v.1.5, 25-10-2023.

Assembly drawing of meter JETO, DN15: 53.28.0002.222.01 AD, 16-08-2022.

Assembly drawing of meter JETO-L, DN15 and DN20: 53.28.0004.222.01 AD, 08-09-2023.

Drawing of the meter JETO and JETO-L, DN15 measuring chamber: 53.28.0001.211.01 AD, 24-01-2023.

Drawing of the meter JETO-L, DN20 measuring chamber: 53.28.0001.211.04 AD, 05-09-2023.

Other reference documents on which basis this certificate is issued, are stored in files No.LEI-12-MP-004.23 and No.LEI-12-MP-005.23.

1.7 Integrated equipment and functions not subject to MID

Short-range radio device (SRD) is integrated in the meter, intended for data transfer via SIGFOX (RC1, RC7) or SMP protocol in the frequency range from $863,0 \text{ MHz}$ to $870,0 \text{ MHz}$.

The meter also has an integrated optical communication interface in accordance with the requirements of EN 62056-21, for entering the meter calibration coefficients during production and outputting optical pulses in the TEST mode.

2 Technical data

2.1 Rated operating conditions

2.1.1 Measurand

The volume of water passing through the meter is displayed on the LCD indicating device.

2.1.2 Measurement range

The measurement range and main technical characteristics of the water meter JETO and JETO-L with nominal diameter DN15 and end connections G 3/4B are presented in table 1:

Table 1

Flowrate, m ³ /h				The ratio R (Q_3/Q_1)	Installation position: horizontally-H vertically-V	Temperature class	End connections	Overall length L, mm
Q_3	Q_4	Q_1	Q_2					
2,5	3,125	0,063	0,100	40	H and V	T30; T50;T70	G 3/4B	110
		0,050	0,080	50	H	T30; T50;T70		
		0,040	0,063	63	H	T30; T50;T70		
		0,031	0,050	80	H	T30; T50;T70		
		0,025	0,040	100	H	T30; T50;T70		
		0,020	0,032	125	H	T30; T50		
		0,016	0,025	160	H	T30; T50		

The measurement range and main technical characteristics of the water meter JETO-L with nominal diameter DN20 and end connections G 1B are presented in table 2:

Table 2

Flowrate, m ³ /h				The ratio R (Q_3/Q_1)	Installation position: horizontally-H	Temperature class	End connections	Overall length L, mm
Q_3	Q_4	Q_1	Q_2					
2,5	3,125	0,063	0,100	40	H	T30; T50;T70	G 1B	130
		0,050	0,080	50	H	T30; T50;T70		
		0,040	0,063	63	H	T30; T50;T70		
		0,031	0,050	80	H	T30; T50;T70		
		0,025	0,040	100	H	T30; T50;T70		
		0,020	0,032	125	H	T30; T50		
		0,016	0,025	160	H	T30; T50		

2.1.3 Meter temperature classes and maximum permissible errors

Meter temperature classes and maximum permissible errors are presented in table 3:

Table 3

Meter temperature class	Water temperature ranges	Maximum permissible errors
T30	between 0,1 °C and 30°C	± 5 % in flow range $Q_1 \leq Q < Q_2$ ± 2 % in flow range $Q_2 \leq Q \leq Q_4$
T50 and T70	for meters T50: between 0,1 °C and 50 °C for meters T70: between 0,1 °C and 70 °C	± 5 % in flow range $Q_1 \leq Q < Q_2$ ± 2 % in flow range $Q_2 \leq Q \leq Q_4$ (for water temperature between 0,1 °C and 30 °C) ± 3 % in flow range $Q_2 \leq Q \leq Q_4$ (for water temperature above 30 °C)



2.1.4 Environmental conditions / Influence quantities

Ambient working temperature	:	+5 °C to +55 °C;
Humidity level	:	condensing;
Installations	:	indoor;
Electromagnetic environment	:	class E2;
Mechanical environment	:	class M1;
Degree of protection	:	IP67.

2.2 Other operating conditions

2.2.1 Maximum admissible pressure

The maximum admissible pressure of water meter is 1,6 MPa (MAP 16).

2.2.2 Pressure loss class

The pressure loss class of the meter DN15, modification JETO and JETO-L is Δp 63.

The pressure loss class of the meter DN20, modification JETO-L is Δp 25.

2.2.3 Mounting position of the water meter

Water meter modifications JETO and JETO-L, with end connections G $\frac{3}{4}$ B, can be mounted horizontally (indicating device positioning on top) or vertically (flow direction upwards or downwards).

Water meter modification JETO-L, with end connections G 1B, can be mounted only horizontally (indicating device positioning on top).

3 Interfaces and compatibility conditions

The communication interfaces of the meter are described in section 1.7 of this appendix.

4 Requirements on production, putting into use and utilization

4.1 Requirements for production

At the end of the manufacturing and adjustment process the water meters shall be tested according to the requirements of the EN ISO 4064-2, section 10.1. Errors of water meters shall not exceed the maximum permissible errors, described in Annex III (MI-001) of the Directive 2014/32/EU.

The meters shall be tested within each of the following flowrates:

between Q_1 and $1,1Q_1$;

between Q_2 and $1,1Q_2$;

between $0,9Q_3$ and Q_3 .

For meters class T30 and T50: water temperature of tests $20\text{ °C} \pm 10\text{ °C}$.

For meters class T70: water temperature of tests is $20\text{ °C} \pm 10\text{ °C}$ and $50\text{ °C} \pm 10\text{ °C}$.

4.2 Requirements for putting into use

The water meter JETO must be installed in accordance with the requirements of technical descriptions specified in section 1.6.

The straight pipelines in upstream and downstream the meter is not necessary (flow profile sensitivity class U0/D0).

4.3 Requirements for consistent utilization

No special requirements identified.

5 Checking of instruments which are in operation

5.1 Documented procedure

None.

5.2 Special equipment or software

None.

5.3 Identification of hardware and software

Identification of hardware:

- see Fig.1 and Fig. 2 of this appendix.

Identification of software:

- software name: **JETO**;
- software version number: **032.5.02** (for meter modification JETO);
- software version number: **036.5.09** (for meter modification JETO-L);

The name and version number can be displayed on the device's display according to the request.

5.4 Calibration/adjustment procedure

The meter TEST mode is activated by pressing the touch button on the side of the meter electronic module.

Indications in TEST mode: m³, five digits after decimal point.

6 Security measures

6.1 Sealing

The measuring chamber of the water meter is connected to the electronic module by a protective ring, which is sealed with a hanging manufacturer's seal (Fig. 3 and Fig. 4).

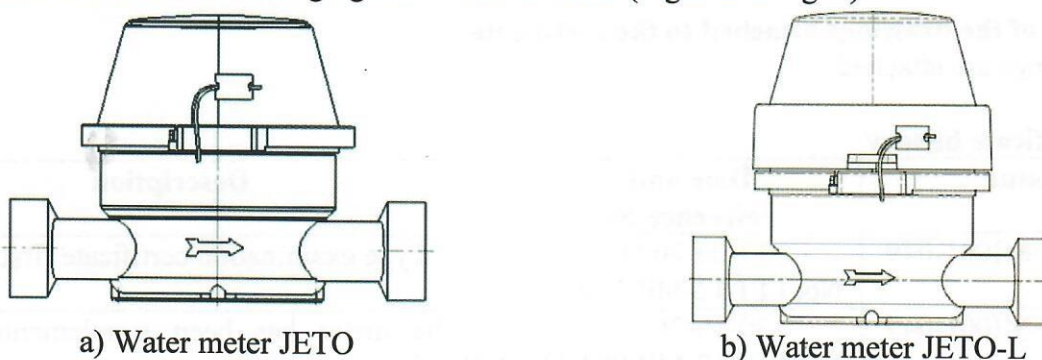


Fig. 3. Sealing of the water meter JETO and JETO-L

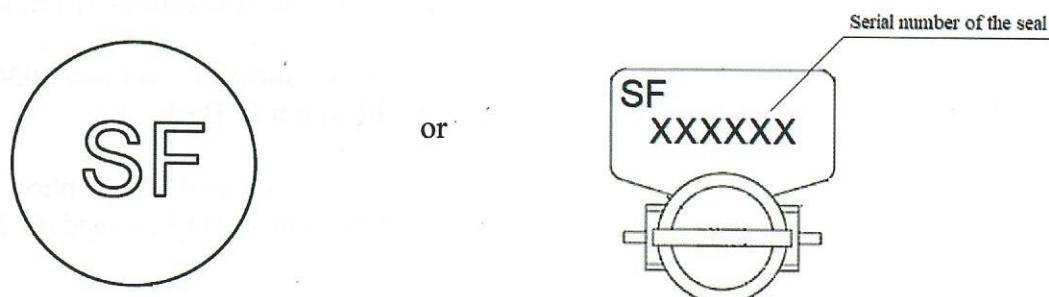


Fig. 4. Manufacturer's security seals

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7 Marking and inscriptions

7.1 Information to be borne by and to accompany the measuring instrument

Water meter marking label contains the following information:

- EU-type examination certificate number;
- manufacturer's name and trade mark;
- type designation of the meter;
- year of manufacture and serial number;
- unit of measurement: m^3 ;
- permanent flowrate Q_3 ;
- the ratio Q_3/Q_1 , preceded by „R“;
- temperature class;
- maximum admissible pressure (MAP);
- manufacturer's address (only for modification JETO);
- the latest date by which the meter shall be replaced;
- QR code;
- IP code.

There is an arrow on the body of the water meter to indicate the flow direction.

7.2 Conformity marking

In addition, the label of water meter should contain the following marking:

- „CE” marking;
- supplementary metrology marking, consisting of the capital letter „M” and the last two digits of the year of its affixing, surrounded by a rectangle;
- the number of the notified body that carried out the conformity assessment.

8 List of the drawings attached to the certificate

No drawings are attached.

9 Certificate history

Issue	Date and reference №	Description
LT-1621-MI001-049	13-04-2023, No. LEI-12-MP-129.22	Type examination certificate first issued
LT-1621-MI001-049 Revision 1	30-10-2023, No. LEI-12-MP-004.23 No. LEI-12-MP-004.23	1. The meter has been supplemented with the following modifications: JETO-L, end connections G $\frac{3}{4}$B, length $l = 110$ mm JETO-L, end connections G 1B, length $l = 130$ mm. 2. New software version 036.5.09 for meter modification JETO-L. 3. New technical description v1.5 for meter modification JETO-L, issued on 25-10-2023.

