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Standards and documents applied:

LST EN ISO 4064-1:2017;
 LST EN ISO 4064-2:2017;
 LST EN ISO 4064-4:2014;
 LST EN ISO 4064-5:2017;
 OIML R 49-1:2013;
 OIML R 49-2:2013;
 WELMEC 7.2:2015.

The measuring instrument must correspond with the following specifications:

1 Design of the instrument

1.1 Construction

Ultrasonic complete water meter QALCOSONIC W1 consists of a measurement transducer with a primary flow sensor, an electronic calculator and indicating device. Plastic measuring sections with two ultrasonic transducers are installed in the plastic meter body (for meters with threaded end connection G2 – with four ultrasonic transducers). The meter has an electronic calculator and a LCD indicating device mounted in the same body.

The meter is powered by an non-replaceable 3,6 V DC lithium battery (one or two).



Fig.1. Water meter QALCOSONIC W1, $Q_3 = 1,6/2,5/4,0 \text{ m}^3/\text{h}$, with threaded end connection G ¾ or G 1



Fig. 2. Water meter QALCOSONIC W1,
 $Q_3 = 6,3/10 \text{ m}^3$, with threaded end connection
 G 1½ or G 2



Fig. 3. Water meter QALCOSONIC W1,
 $Q_3 = 10/16/25 \text{ m}^3$, with threaded
 end connection G2

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1.2 Sensor

Ultrasonic flow sensor.

1.3 Measurement value processing

The flow measurement principle is based on the measurement of ultrasonic signal propagation time on the downstream and upstream of water flow. The difference between the measuring times is proportional to the water flow through the meter, which is calculated by the meter calculator.

1.4 Indication of the measurement results

Measured volume of water is indicated on the two-line LCD indicating device.

Upper line: 9 columns, intended for volume of water, passing through the meter.

Indications in operating mode: m³, three digits after decimal point.

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

Lower line: 5 columns for displaying current flow in m³/h and information symbols.

1.5 Optional equipment and functions subject to MID requirements

None.

1.6 Technical documentation

Ultrasonic water meter QALCOSONIC W1. Technical description, installation and operating instructions: TM_QW1_V02_LT, 07-06-2021.

Assembly drawing N10.0001.00.00-01, 24-08-2018.

Assembly drawing N10.0013.00.00-01, 24-08-2018.

Assembly drawing N14.0010.00.00-00, 01-10-2020.

Assembly drawing N10.0033.00.00-00, 01-10-2020.

Assembly drawing N14.013.00.00 W1 DN40 L300, 11-12-2020.

Other reference documents on which basis this certificate is issued, are stored in a file Nr.LEI-12-MP-115.21.

1.7 Integrated equipment and functions not subject to MID

NFC (near-field communication) interface is integrated in the meter, intended for data reading. The optical interface according to requirements of EN 62056-21 is integrated in the meter, intended for data reading via M-Bus protocol, for meter parameters setting and for optical pulses output.

The meter is equipped with one of the following wireless communication interfaces:

- RF 868 MHz;
- RF 433 MHz;
- RF 915 MHz;
- RF 920,5 MHz;
- NB-IoT, frequency bands B1, B3, B5, B8, B20, B28.

Data via RF communication interfaces may be transmitted using the following protocols:

- W-M-Bus-T1;
- W-M-Bus-T2;
- W-M-Bus-S1;
- W-M-Bus-C1;
- SIGFOX;

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- LORA WAN;
- CoAP.

2 Technical data

2.1 Rated operating conditions

2.1.1 Measurand

The volume of water passing through the meter, indicated on the LCD indicator.

2.1.2 Measurement range

The measurement range of the water meter QALCOSONIC W1 and other technical characteristics are presented in table 1:

Table 1

Flowrate, m ³ /h				The ratio $R, Q_3/Q_1$	End connections	Overall length $L, \text{ mm}$	Pressure loss class
Permanent Q_3	Overload Q_4	Minimum Q_1	Transitional Q_2				
1,6	2,0	0,020	0,032	80	G ¾	80; 105; 110; 165;170	Δp 16
1,6	2,0	0,010	0,016	160	G ¾	80; 105; 110; 165;170	Δp 16
1,6	2,0	0,0064	0,010	250	G ¾	80; 105; 110; 165;170	Δp 16
1,6	2,0	0,005	0,008	315	G ¾	80; 105; 110; 165;170	Δp 16
1,6	2,0	0,004	0,0064	400	G ¾	80; 105; 110; 165;170	Δp 16
2,5	3,125	0,031	0,050	80	G ¾	80; 105; 110; 165;170	Δp 25
2,5	3,125	0,0156	0,025	160	G ¾	80; 105; 110; 165;170	Δp 25
2,5	3,125	0,010	0,016	250	G ¾	80; 105; 110; 165;170	Δp 25
2,5	3,125	0,0062	0,010	400	G ¾	80; 105; 110; 165;170	Δp 25
2,5	3,125	0,0031	0,005	800	G ¾	80; 105; 110; 165;170	Δp 25
2,5	3,125	0,031	0,050	80	G 1	105; 110; 130; 165;190	Δp 16
2,5	3,125	0,0156	0,025	160	G 1	105; 110; 130; 165;190	Δp 16
2,5	3,125	0,010	0,016	250	G 1	105; 110; 130; 165;190	Δp 16
2,5	3,125	0,0062	0,010	400	G 1	105; 110; 130; 165;190	Δp 16
4,0	5,0	0,050	0,080	80	G 1	105; 110; 130; 165;190	Δp 25
4,0	5,0	0,025	0,040	160	G 1	105; 110; 130; 165;190	Δp 25
4,0	5,0	0,016	0,026	250	G 1	105; 110; 130; 165;190	Δp 25

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Flowrate, m³/h				The ratio $R, Q_3/Q_1$	End connections	Overall length L, mm	Pressure loss class
Permanent Q_3	Overload Q_4	Minimum Q_1	Transitional Q_2				
4,0	5,0	0,010	0,016	400	G 1	105; 110; 130; 165; 190	Δp 25
4,0	5,0	0,005	0,008	800	G 1	105; 110; 130; 165; 190	Δp 25
6,3	7,875	0,079	0,126	80	G 1½	260	Δp 25
6,3	7,875	0,040	0,063	160	G 1½	260	Δp 25
6,3	7,875	0,0252	0,040	250	G 1½	260	Δp 25
6,3	7,875	0,016	0,0252	400	G 1½	260	Δp 25
6,3	7,875	0,008	0,013	800*	G 1½	260	Δp 25
6,3	7,875	0,079	0,126	80	G 1½	260	Δp 16
6,3	7,875	0,040	0,063	160	G 1½	260	Δp 16
6,3	7,875	0,0252	0,040	250	G 1½	260	Δp 16
6,3	7,875	0,016	0,0252	400	G 1½	260	Δp 16
10,0	12,5	0,125	0,200	80	G 1½	260	Δp 63
10,0	12,5	0,0625	0,100	160	G 1½	260	Δp 63
10,0	12,5	0,040	0,064	250	G 1½	260	Δp 63
10,0	12,5	0,025	0,040	400	G 1½	260	Δp 63
10,0	12,5	0,0125	0,020	800*	G 1½	260	Δp 63
10,0	12,5	0,010	0,016	1000*	G 1½	260	Δp 63
10,0	12,5	0,125	0,200	80	G 1½	260	Δp 25
10,0	12,5	0,0625	0,100	160	G 1½	260	Δp 25
10,0	12,5	0,025	0,040	400	G 1½	260	Δp 25
10,0	12,5	0,0125	0,020	800*	G 1½	260	Δp 25
10,0	12,5	0,125	0,200	80	G 2	300	Δp 16
10,0	12,5	0,0625	0,100	160	G 2	300	Δp 16
10,0	12,5	0,040	0,064	250	G 2	300	Δp 16
16,0	20,0	0,200	0,320	80	G 2	300	Δp 16
16,0	20,0	0,100	0,160	160	G 2	300	Δp 16
16,0	20,0	0,064	0,102	250	G 2	300	Δp 16
16,0	20,0	0,040	0,064	400	G 2	300	Δp 16
25,0	31,25	0,3125	0,500	80	G 2	300	Δp 16
25,0	31,25	0,156	0,250	160	G 2	300	Δp 16
25,0	31,25	0,100	0,160	250	G 2	300	Δp 16
25,0	31,25	0,0625	0,100	400	G 2	300	Δp 16
25,0	31,25	0,0312	0,050	800*	G 2	300	Δp 16

Note: * – this ratio is only valid for meters with temperature class T30.

2.1.3 Meter temperature classes and maximum permissible errors

Meter temperature classes and maximum permissible errors are presented in table 2:

Table 2

Meter temperature class	Water temperature ranges	Maximum permissible errors
T30	between 0,1 °C and 30 °C	$\pm 5\%$ in flow range $Q_1 \leq Q < Q_2$ $\pm 2\%$ in flow range $Q_2 \leq Q \leq Q_4$

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Meter temperature class	Water temperature ranges	Maximum permissible errors
T50	between 0,1 °C and 50 °C	$\pm 5\%$ in flow range $Q_1 \leq Q < Q_2$ $\pm 2\%$ in flow range $Q_2 \leq Q \leq Q_4$ (for water temperature between 0,1 °C and 30 °C) $\pm 3\%$ in flow range $Q_2 \leq Q \leq Q_4$ (for water temperature between 30 °C and 50 °C)
T30/90	between 30 °C and 90°C	$\pm 5\%$ in flow range $Q_1 \leq Q < Q_2$ $\pm 3\%$ in flow range $Q_2 \leq Q \leq Q_4$ $\pm 5\%$ in flow range $Q_1 \leq Q < Q_2$
T90	between 0,1 °C and 90 °C	$\pm 2\%$ in flow range $Q_2 \leq Q \leq Q_4$ (for water temperature between 0,1 °C and 30 °C) $\pm 3\%$ in flow range $Q_2 \leq Q \leq Q_4$ (for water temperature between 30 °C and 90 °C)

2.1.4 Environmental conditions / Influence quantities

- Ambient working temperature : -15 °C to 70 °C;
 Humidity level : condensing;
 Installations : indoor or outdoor;
 Electromagnetic environment : class E2;
 Degree of protection : IP68.

2.2 Other operating conditions

2.2.1 Maximum admissible working pressure

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

2.2.2 Mounting position of the water meter

Water meter can be mounted either horizontally, vertically or inclined.

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 on 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 $20\text{ }^{\circ}\text{C} \pm 10\text{ }^{\circ}\text{C}$.

For meters class T30/90: water temperature of tests is $50\text{ }^{\circ}\text{C} \pm 10\text{ }^{\circ}\text{C}$.

For meters class T90: water temperature of tests $20\text{ }^{\circ}\text{C} \pm 10\text{ }^{\circ}\text{C}$ and $50\text{ }^{\circ}\text{C} \pm 10\text{ }^{\circ}\text{C}$.

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4.2 Requirements on putting into use

The water meter QALCOSONIC W1 must be installed in accordance with the requirements of technical description 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 Control of the measuring process after tasks of the instrument in use

5.1 Documentation of the procedure

None.

5.2 Special equipment or software

- optical reading head according to standard LST EN 62056-21, with special holder;
- service software **W1 TOOL**.

5.3 Identification of hardware and software

Identification of hardware:

- see Fig.1, Fig. 2, Fig.3 and drawings N10.0001.00.00-01, N10.0013.00.00-01, N14.0010.00.00-00, N10.0033.00.00-00, N14.013.00.00 W1 DN40 L300 of this appendix.

Identification of software: the software version number is **1.03** for meters with threaded end connection G ¾, G 1, G 1¼, G 1½ and **1.02** for meters with threaded end connection G2. This number shall be marked on the label of the device (SW:1.01 or SW:1.02).

5.4 Calibration-adjustment procedure

Using an optical head and computer with **W1 TOOL** software the meter verification mode (TEST) is activated. Optical head should be connected to the computer USB interface.

After placing the optical head on the meter with the special holder and opening the program startup window, computer port number (to which optical head is connected) is entered in the field „Com Port“.

Click „Wake Up Meter“ button, then click the „Enter Test Mode“ button. When the meter TEST mode is activated, meter readings are displayed with a resolution of 1 ml.

The meter's measurement errors shall be evaluated at the reference flow rates indicated in section 4.1 of this appendix. Optical pulse output of the meter is used or volume indications can be read directly from meter's LCD.

The volume pulse value in TEST mode is presented in table 3.

Table 3

Permanent flowrate Q_3 of the meter, m ³ /h	Volume pulse value in verification mode (TEST), litre/pulse
1,6	0,001
2,5	0,002
4	0,004
6,3	0,005
10	0,010
16	0,015
25	0,020

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Using an optical head and computer with **W1 TOOL** software the meter is returned to the operating mode. After opening the program startup window, click the „Wake Up Meter“ button, then click the „Enter User Mode“ button, the meter returns to the operating mode.

The meter returns to its operating mode itself, 24 hours after activation of the TEST mode.

6 Security measures

6.1 Sealing

The meter casing is imperceptibly closed. Any unauthorized opening of the housing is impossible without damaging. When the upper cover is opened, the safety button that is installed in the meter body is activated and the error code appears on the meter display, with the first digit „4“.

For the sealing of the meter after installation, there are provided holes in the meter body (Fig. 4).

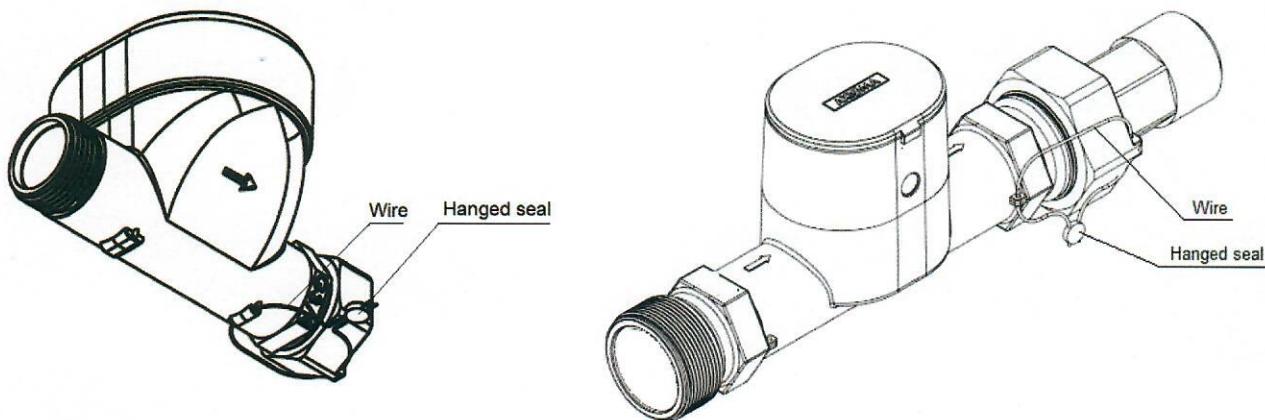


Fig.4. Sealing of the water meter QALCOSONIC W1 after installation

7 Marking and inscriptions

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

The water meter housing cover contains the following information:

- EU-type examination certificate number;
- trade mark of the manufacturer;
- distributor's logo (if applicable);
- type designation of the meter;
- year of manufacture and serial number;
- unit of measurement: m³ (on LCD display);
- permanent flowrate Q_3 ;
- the ratio Q_3/Q_1 , preceded by „R“;
- the temperature class, where it differs from T30;
- the maximum admissible working pressure (MAP);
- pressure loss class;
- the installation sensitivity class of the meter;
- the latest date by which the meter shall be replaced;
- software version number;
- IP code;
- QR code or barcode;
- communication interface NB-IoT (if installed on the meter).

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Arrow to indicate the direction of the flow shall appear on flow sensor body.

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

Assembly drawing N10.0001.00.00-01, 24-08-2018.

Assembly drawing N10.0013.00.00-01, 24-08-2018.

Assembly drawing N14.0010.00.00-00, 01-10-2020.

Assembly drawing N10.0033.00.00-00, 01-10-2020.

Assembly drawing N14.013.00.00 W1 DN40 L300, 11-12-2020.

9 Certificate history

Issue	Date and reference No.	Description																																																								
		1	2	3																																																						
LT-1621-MI001-034	31-08-2018, No. LEI-12-MP-076.18	Type examination certificate first issued																																																								
LT-1621-MI001-034 Revision 1	30-07-2019, No. LEI-12-MP-088.19	1. The meter has been supplemented with water temperature class T50. 2. The design of the meter marking label has been changed (Fig. 1) 3. The document PL_QW1_V02, issued 29-08-2018, has been replaced by the document PL_QW1_V04, issued 24-07-2019.																																																								
LT-1621-MI001-034 Revision 2	09-12-2019, No. LEI-12-MP-092.19	1. The meter has been supplemented by new modifications with extended flow measurement limits: <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="4">Flowrate, m³/h</th> <th rowspan="2">R, Q_3/Q_1</th> <th rowspan="2">End connections</th> <th rowspan="2">Overall length L, mm</th> <th rowspan="2">Pressure loss class</th> </tr> <tr> <th>Q_3</th> <th>Q_4</th> <th>Q_1</th> <th>Q_2</th> </tr> </thead> <tbody> <tr> <td rowspan="5">1,6</td> <td rowspan="5">2,0</td> <td rowspan="5">0,004</td> <td rowspan="5">0,0064</td> <td rowspan="5">400</td> <td>G $\frac{3}{4}$</td> <td>80</td> <td>ΔP 25</td> </tr> <tr> <td>G $\frac{3}{4}$</td> <td>105</td> <td>ΔP 25</td> </tr> <tr> <td>G $\frac{3}{4}$</td> <td>110</td> <td>ΔP 25</td> </tr> <tr> <td>G $\frac{3}{4}$</td> <td>165</td> <td>ΔP 25</td> </tr> <tr> <td>G $\frac{3}{4}$</td> <td>170</td> <td>ΔP 25</td> </tr> <tr> <td rowspan="5">2,5</td> <td rowspan="5">3,125</td> <td rowspan="5">0,0031</td> <td rowspan="5">0,005</td> <td rowspan="5">800</td> <td>G $\frac{3}{4}$</td> <td>80</td> <td>ΔP 40</td> </tr> <tr> <td>G $\frac{3}{4}$</td> <td>105</td> <td>ΔP 40</td> </tr> <tr> <td>G $\frac{3}{4}$</td> <td>110</td> <td>ΔP 40</td> </tr> <tr> <td>G $\frac{3}{4}$</td> <td>165</td> <td>ΔP 40</td> </tr> <tr> <td>G $\frac{3}{4}$</td> <td>170</td> <td>ΔP 40</td> </tr> </tbody> </table> 2. New meter labeling drawings with distributor's NeoVac logo.					Flowrate, m ³ /h				R, Q_3/Q_1	End connections	Overall length L, mm	Pressure loss class	Q_3	Q_4	Q_1	Q_2	1,6	2,0	0,004	0,0064	400	G $\frac{3}{4}$	80	ΔP 25	G $\frac{3}{4}$	105	ΔP 25	G $\frac{3}{4}$	110	ΔP 25	G $\frac{3}{4}$	165	ΔP 25	G $\frac{3}{4}$	170	ΔP 25	2,5	3,125	0,0031	0,005	800	G $\frac{3}{4}$	80	ΔP 40	G $\frac{3}{4}$	105	ΔP 40	G $\frac{3}{4}$	110	ΔP 40	G $\frac{3}{4}$	165	ΔP 40	G $\frac{3}{4}$	170	ΔP 40
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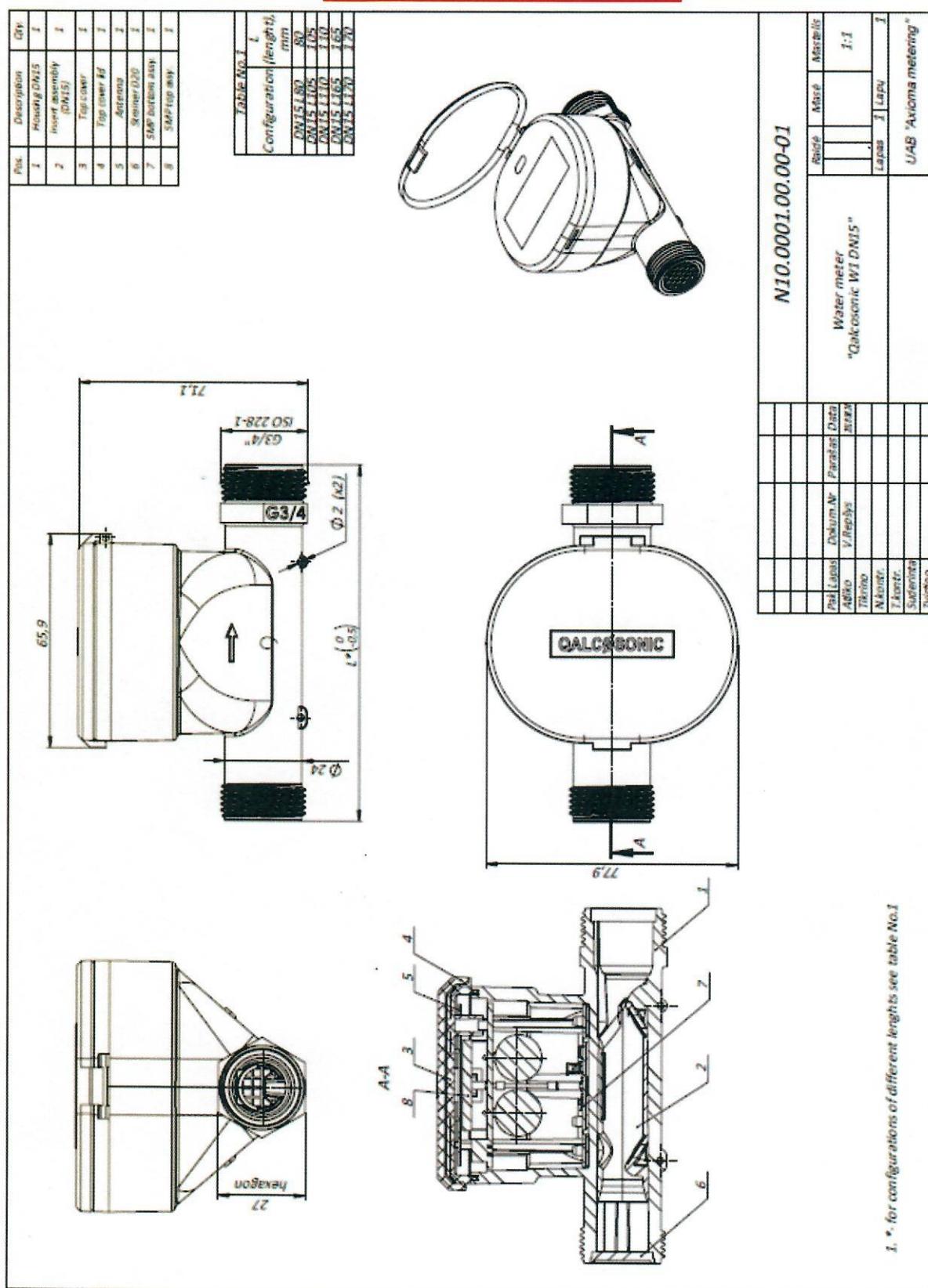
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		3. The document PL_QW1_V04, issued 24-07-2019, has been replaced by the document PL_QW1_V05, issued 21-08-2019.																																																																																																																																																																												
LT-1621-MI001-034 Revision 3	31-01-2020, No. LEI-12-MP-098.20	<p>1. The meter may additionally equipped with the following wireless communication interfaces:</p> <ul style="list-style-type: none"> - RF 920,5 MHz; - NB-IoT, frequency bands B1, B3, B5, B8, B20, B28. <p>2. The document PL_QW1_V05, issued 21-08-2019, has been replaced by the document PL_QW1_V06, issued 09-01-2020.</p>																																																																																																																																																																												
LT-1621-MI001-034 Revision 4	25-08-2020, No. LEI-12-MP-106.20	<p>1. The meter has been supplemented by modifications with additional values of the ratio $R(Q_3/Q_1) = 80$ and $R(Q_3/Q_1) = 160$.</p> <p>2. For meters with end connections G ¾ and permanent flowrate $Q_3 = 1,6 \text{ m}^3/\text{h}$, pressure-loss class has been changed from Δp 25 to Δp 16.</p> <p>3. For meters with end connections G ¾ and permanent flowrate $Q_3 = 2,5 \text{ m}^3/\text{h}$, pressure-loss class has been changed from Δp 40 to Δp 25.</p> <p>4. New meter marking labels with distributor logos (Fig.1p).</p> <p>5. The document PL_QW1_V06, issued 09-01-2020, has been replaced by the document PL_QW1_V08, issued 22-07-2020.</p>																																																																																																																																																																												
LT-1621-MI001-034 Revision 5	25-08-2020, No. LEI-12-MP-106.20	<p>1. The meter has been supplemented with the following new modifications:</p> <table border="1"> <thead> <tr> <th colspan="4">Flowrate, m^3/h</th> <th rowspan="2">$R, Q_3/Q_1$</th> <th rowspan="2">End connections</th> <th rowspan="2">Overall length L, mm</th> <th rowspan="2">Pressure loss class</th> </tr> <tr> <th>Q_3</th> <th>Q_4</th> <th>Q_1</th> <th>Q_2</th> </tr> </thead> <tbody> <tr><td>6,3</td><td>7,875</td><td>0,079</td><td>0,126</td><td>80</td><td>G 1¼</td><td>260</td><td>Δp 25</td></tr> <tr><td>6,3</td><td>7,875</td><td>0,040</td><td>0,063</td><td>160</td><td>G 1¼</td><td>260</td><td>Δp 25</td></tr> <tr><td>6,3</td><td>7,875</td><td>0,0252</td><td>0,040</td><td>250</td><td>G 1¼</td><td>260</td><td>Δp 25</td></tr> <tr><td>6,3</td><td>7,875</td><td>0,016</td><td>0,0252</td><td>400</td><td>G 1¼</td><td>260</td><td>Δp 25</td></tr> <tr><td>6,3</td><td>7,875</td><td>0,008</td><td>0,013</td><td>800*</td><td>G 1¼</td><td>260</td><td>Δp 25</td></tr> <tr><td>6,3</td><td>7,875</td><td>0,079</td><td>0,126</td><td>80</td><td>G ½</td><td>260</td><td>Δp 16</td></tr> <tr><td>6,3</td><td>7,875</td><td>0,040</td><td>0,063</td><td>160</td><td>G ½</td><td>260</td><td>Δp 16</td></tr> <tr><td>6,3</td><td>7,875</td><td>0,0252</td><td>0,040</td><td>250</td><td>G ½</td><td>260</td><td>Δp 16</td></tr> <tr><td>6,3</td><td>7,875</td><td>0,016</td><td>0,0252</td><td>400</td><td>G ½</td><td>260</td><td>Δp 16</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,125</td><td>0,200</td><td>80</td><td>G 1¼</td><td>260</td><td>Δp 63</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,0625</td><td>0,100</td><td>160</td><td>G 1¼</td><td>260</td><td>Δp 63</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,040</td><td>0,064</td><td>250</td><td>G 1¼</td><td>260</td><td>Δp 63</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,025</td><td>0,040</td><td>400</td><td>G 1¼</td><td>260</td><td>Δp 63</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,0125</td><td>0,020</td><td>800*</td><td>G 1¼</td><td>260</td><td>Δp 63</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,010</td><td>0,016</td><td>1000*</td><td>G 1¼</td><td>260</td><td>Δp 63</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,125</td><td>0,200</td><td>80</td><td>G ½</td><td>260</td><td>Δp 25</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,0625</td><td>0,100</td><td>160</td><td>G ½</td><td>260</td><td>Δp 25</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,040</td><td>0,064</td><td>250</td><td>G ½</td><td>260</td><td>Δp 25</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,025</td><td>0,040</td><td>400</td><td>G ½</td><td>260</td><td>Δp 25</td></tr> <tr><td>10,0</td><td>12,5</td><td>0,0125</td><td>0,020</td><td>800*</td><td>G ½</td><td>260</td><td>Δp 25</td></tr> </tbody> </table> <p>Note: * – this ratio is only valid for meters with temperature class T30.</p>	Flowrate, m^3/h				$R, Q_3/Q_1$	End connections	Overall length L, mm	Pressure loss class	Q_3	Q_4	Q_1	Q_2	6,3	7,875	0,079	0,126	80	G 1¼	260	Δp 25	6,3	7,875	0,040	0,063	160	G 1¼	260	Δp 25	6,3	7,875	0,0252	0,040	250	G 1¼	260	Δp 25	6,3	7,875	0,016	0,0252	400	G 1¼	260	Δp 25	6,3	7,875	0,008	0,013	800*	G 1¼	260	Δp 25	6,3	7,875	0,079	0,126	80	G ½	260	Δp 16	6,3	7,875	0,040	0,063	160	G ½	260	Δp 16	6,3	7,875	0,0252	0,040	250	G ½	260	Δp 16	6,3	7,875	0,016	0,0252	400	G ½	260	Δp 16	10,0	12,5	0,125	0,200	80	G 1¼	260	Δp 63	10,0	12,5	0,0625	0,100	160	G 1¼	260	Δp 63	10,0	12,5	0,040	0,064	250	G 1¼	260	Δp 63	10,0	12,5	0,025	0,040	400	G 1¼	260	Δp 63	10,0	12,5	0,0125	0,020	800*	G 1¼	260	Δp 63	10,0	12,5	0,010	0,016	1000*	G 1¼	260	Δp 63	10,0	12,5	0,125	0,200	80	G ½	260	Δp 25	10,0	12,5	0,0625	0,100	160	G ½	260	Δp 25	10,0	12,5	0,040	0,064	250	G ½	260	Δp 25	10,0	12,5	0,025	0,040	400	G ½	260	Δp 25	10,0	12,5	0,0125	0,020	800*	G ½	260	Δp 25
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		<p>2. Meter version with additional wired M-Bus or pulse output communication interface has been removed.</p> <p>3. For meters with end connections G 1 and permanent flowrate $Q_3 = 2,5 \text{ m}^3/\text{h}$, pressure-loss class has been changed from Δp 25 to Δp 16.</p> <p>4. For meters with end connections G 1 and permanent flowrate $Q_3 = 4,0 \text{ m}^3/\text{h}$, pressure-loss class has been changed from Δp 40 to Δp 25.</p> <p>5. Additional technical description for meters $Q_3 = 6,3 \text{ m}^3/\text{h}$ and $Q_3 = 10 \text{ m}^3/\text{h}$: PL_QW1DN25-32_V01, issued 19-10-2020.</p>																																																																																																																		
LT-1621- MI001-034 Revision 6	21-01-2021, No. LEI-12- MP-111.21	<p>1. The meter has been supplemented with the following new modifications with threaded end connection G2:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">Flowrate, m^3/h</th> <th rowspan="2" style="text-align: center;">$R, Q_3/Q_1$</th> <th rowspan="2" style="text-align: center;">End connections</th> <th rowspan="2" style="text-align: center;">Overall length L, mm</th> <th rowspan="2" style="text-align: center;">Pressure loss class</th> </tr> <tr> <th style="text-align: center;">Q_3</th> <th style="text-align: center;">Q_4</th> <th style="text-align: center;">Q_1</th> <th style="text-align: center;">Q_2</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">10,0</td> <td style="text-align: center;">12,5</td> <td style="text-align: center;">0,125</td> <td style="text-align: center;">0,200</td> <td style="text-align: center;">80</td> <td style="text-align: center;">G 2</td> <td style="text-align: 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class	Q_3	Q_4	Q_1	Q_2	10,0	12,5	0,125	0,200	80	G 2	300	Δp 16	10,0	12,5	0,0625	0,100	160	G 2	300	Δp 16	10,0	12,5	0,040	0,064	250	G 2	300	Δp 16	16,0	20,0	0,200	0,320	80	G 2	300	Δp 16	16,0	20,0	0,100	0,160	160	G 2	300	Δp 16	16,0	20,0	0,064	0,102	250	G 2	300	Δp 16	16,0	20,0	0,040	0,064	400	G 2	300	Δp 16	25,0	31,25	0,3125	0,500	80	G 2	300	Δp 16	25,0	31,25	0,156	0,250	160	G 2	300	Δp 16	25,0	31,25	0,100	0,160	250	G 2	300	Δp 16	25,0	31,25	0,0625	0,100	400	G 2	300	Δp 16	25,0	31,25	0,0312	0,050	800*	G 2	300	Δp 16
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LT-1621- MI001-034 Revision 7	25-05-2021, No. LEI-12- MP-114.21	<p>1. Meter marking labels with new distributors logos (Fig. 1p).</p> <p>2. New technical description for meters of all sizes: TM_QW1_V01_LT, issued 05-05-2021.</p>																																																																																																																		

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1	2	3
LT-1621- MI001-034 Revision 8	14-06-2021, No. LEI-12- MP-115.21	<ol style="list-style-type: none">1. Additional data transmission protocol W-M-Bus-T2 for meter RF communication interfaces.2. New software version for meters with threaded end connection G ¾, G 1, G 1¼, G 1½. The version number is 1.03.3. The document TM_QW1_V01_LT, issued 05-05-2021, has been replaced by the document TM_QW1_V02_LT, issued 07-06-2021.

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Pos.	Description	G1P	Table No. 1		N10.0013.00.00-01
			L	CONFIGURATION (height), mm	
1	Housing DN10	I		DW 20.11.05	105
2	Insert DN20	I		DW 20.11.07	110
3	Top cover	I		DW 20.11.32	130
5	Axialia	I		DW 20.11.65	165
6	Strainer 0.35	I		DW 20.11.80	180
8	SME top assy	I			
11	Top-cover lid	I			

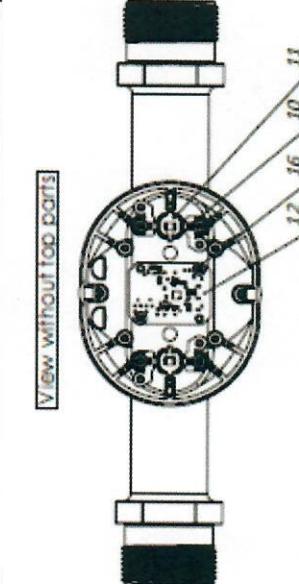
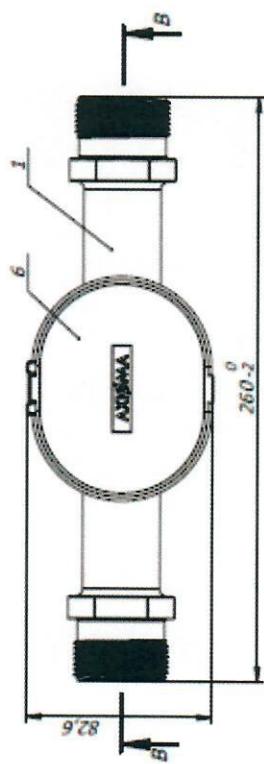
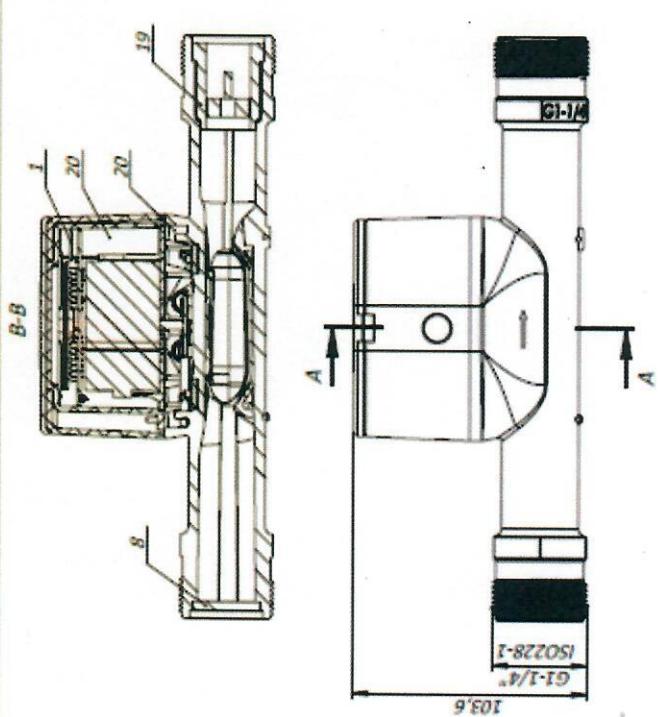
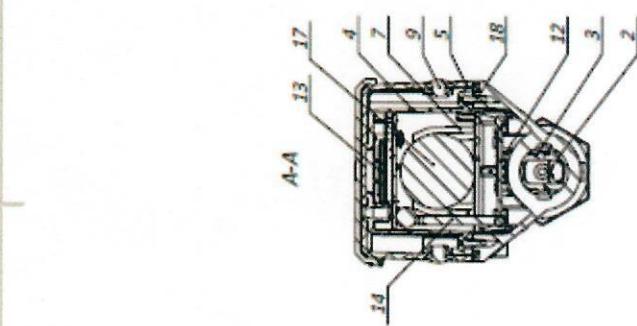
*1. * for configurations of different lengths see table No. I*

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Pos.	Part#	Description	Qty.
1	N14.001.00.01-03	Housing DIN25.240	1
2	N14.001.01.01_03	Inert DIN25 bottom	1
3	N14.001.02.01.03	Inert DIN25 top	1
4	N10.003.02.01.03	Inner shield	1
5	N10.003.02.02.02	Outer shield	1
6	N10.003.03.05.00	Cover lid	1
7	N10.003.02.02.00	Battery holder	1
8	N14.013.00.06.00	Stronger DIN25	1
9	N1.400.00.03.05	Plastic rivet	2
10	N10.003.00.03.02	Shield metal spring	2
11	N10.003.00.04.00	PCB plastic form	2
12	N10.001.05.00.02	SMP bottom cap	1
13	N10.003.00.02.04.03	Top PCB	1
14	-	Cap	1
15	N10.003.02.07.00	Antenna	1
16	SP.39A05000.70	Screw 3.0x7	8
17	-	D-Cab bottom	1
18	SP.39A03.5010E	Screw 3.5x10mm	2
19	W.M25.W1.490.256.00	Check valve "Watts"	1
20	-	Polling compound	

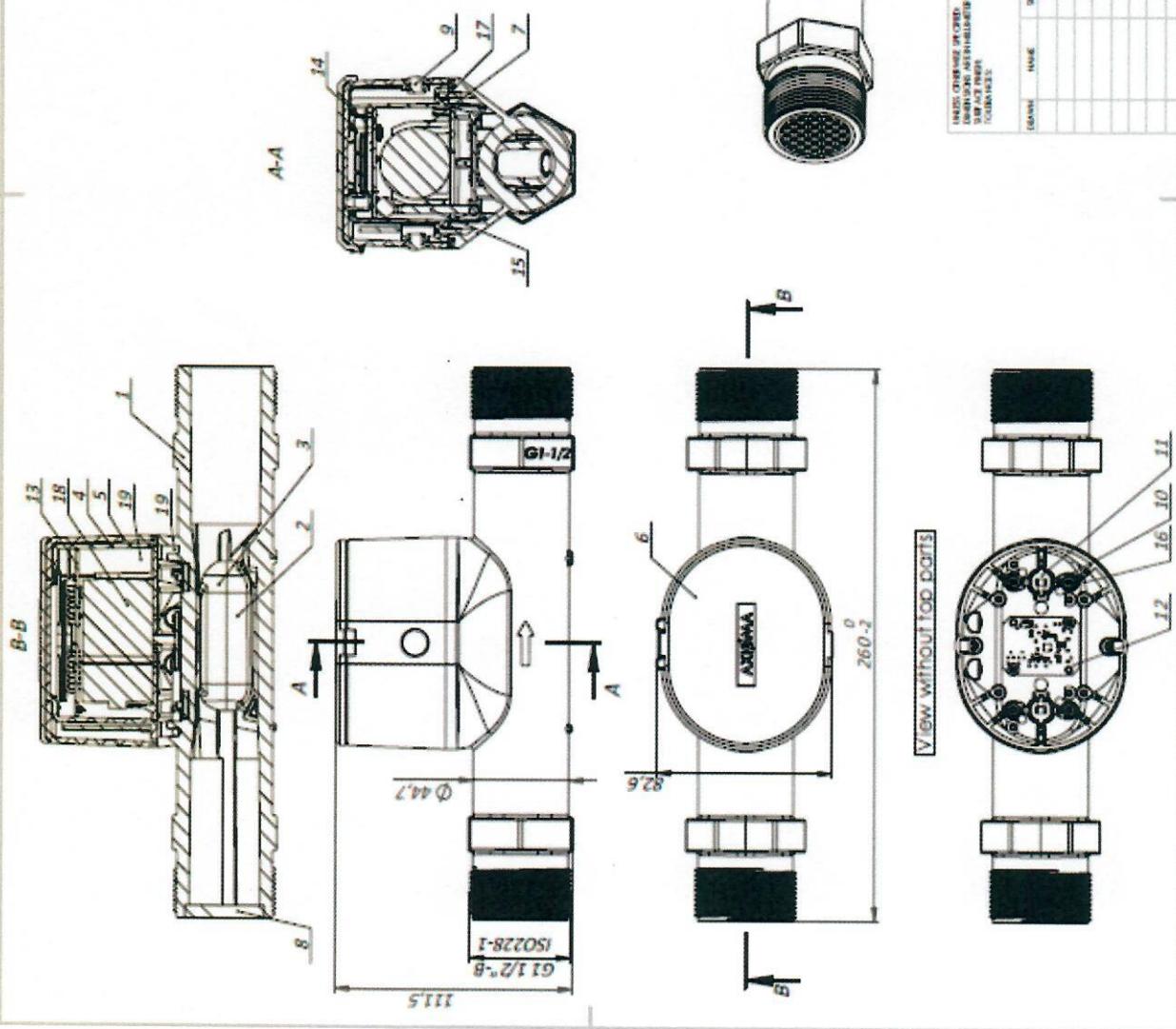


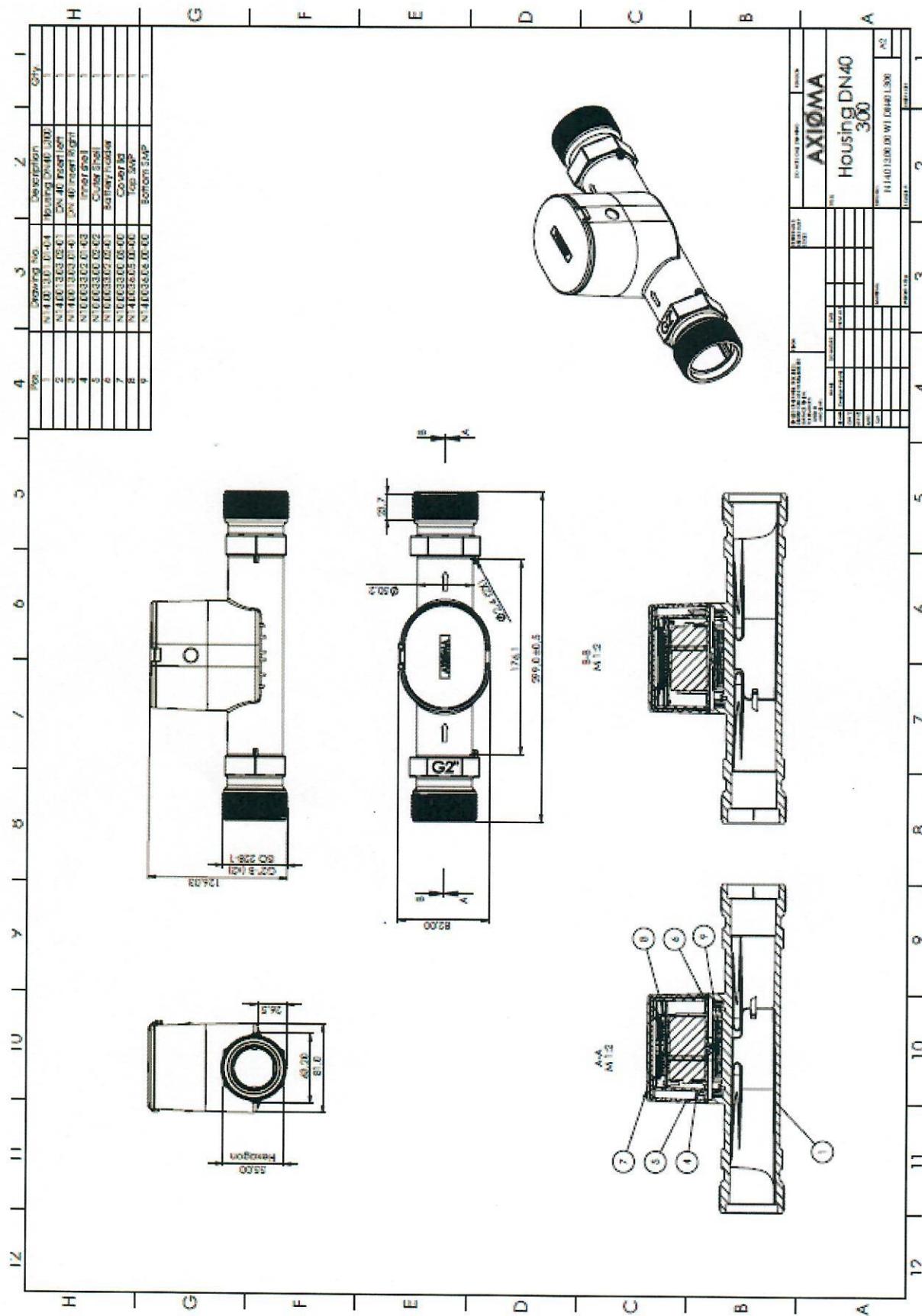
PROJECT: THE NEW SP. OF GOREY TURBINE & PUMP STATION		1982/83	DESIGNER: DOWNS INGENIERIE		1982/83	MANUFACTURER:	
						AXIOMA	
GRANITE	NAME	DISCHARGE	DATE	1982/83	WATER	Water meter "W 1 DN25 L260"	
		2000 L/SEC			1982		
						1:2	
						A.3	
						SHEET 1 OF	
						N14.0010.00.00-00	
						DRAFT NO.	
						DRAWN BY:	
						REVIEWED BY:	
						APPROVED BY:	



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Pos.	Part No.	Description	Qty.
1	N10.003300.01-08	Housing DN32 L260	1
2	N10.003301.02-05	Insert DN32 bottom	1
3	N10.003301.01-04	Insert DN32 loop	1
4	N10.003302.01-03	Inner shell	1
5	N10.003500.02-02	Outer shell	1
6	N10.003500.05-03	Cover lid	1
7	N10.003301.02-00	Battery holder	1
8	N10.003300.00-00	Stainless DN32	1
9	N14.0010.03-05	Plastic seal	2
10	N10.003300.03-02	Sheet metal spring	2
11	N10.003300.04-00	PCB plate 10mm	2
12	N10.0010.05-00-02	SMP bottom cap	1
13	N10.0033.00.02.00-00	Top PCB	1
14	N10.003302.07-00	Antenna	1
15	-	Cable	1
16	SI059A03000070	Screw 3.0x7 Ø	8
17	SI259A0300100E	Screw 3.5x10 hex	2
18	-	O-Cell battery	1
19	-	Poiling compound	1



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1) Distributor's Neovac label	2) Distributor's DIAM label
3) Distributor's HT GROUP label	4) Distributor's Heitland label
5) Distributor's ADF label	6) Distributor's AMAP label
7) Distributor's OSE label	8) Distributor's GSP label

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9) Distributor's EQUYSIS label	10) Distributor's AQP label
11) Distributor's SECAM label	12) Distributor's RKG label
13) Distributor's Hydro Control label	14) Distributor's NSVA label
15) Distributor's VASYD label	16) Distributor's ASIS label

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Fig.1p. Meter labels with distributor logos