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Notified Body

No. 1383

EC-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/11 – 4813

Addition 1

This addition replaces all previous versions of this certificate in full wording.

Page 1 from 9 pages

In accordance with: point 3 of annex 2 to Government Order No. 464/2005 Coll. (annex B of the Directive 2004/22/EC) from 19 October 2005 that lays down technical requirements on measuring instruments and implements in Czech Republic Directive 2004/22/EC of the European Parliament and of the Council.

Manufacturer: Apator Powogaz S.A.
Klemensa Janickiego 23/25
60-542 Poznań
Poland

For: water meter – combination
type: MWN/JM, MWN/WM, MWN/JS, MWN/WS
Accuracy class: 2
Temperature class: T30, T50

Valid until: 8 March 2021

Document number: 0115-CS-A009-11

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate. This certificate contains 9 pages.

Date of issue: 13 November 2012



Certificate approved by:

RNDr. Pavel Klenovský

Revision 1 – Added a new water meter Js as subassembly of combination water meter.

1. Measuring device description

The combination water meters type MWN/JM, MWN/WM, MWN/JS, MWN/WS are designed to measure the volume at metering conditions of water passing through the measurement transducer in the sense of the Directive of the European Parliament and of the Council no. 2004/22/EC of measuring instruments, as amended.

Combination water meters MWN/XX are designed to measure the actual volume of cold water flowing in a completely filled closed conduit.

There are the following versions due to the type:
(„XX” is the type of water meter)

MWN/XX – basic version with the ability to read the radio transmitter. Radio module is not covered by this certification.

MWN/XX-NK - equipped with a reed contact pulse transmitter.

MWN/XX-NKP - can be equipped with a reed contact NK pulse transmitter during operation of water meter.

MWN/XX-IP68 - can be equipped with hermetically sealed register (IP68) and pulse transmitter reed NK or can be equipped with a reed pulse NK transmitter during operation of water meter.

The water meter can be divided into three main groups:

- The main watermeter type MWN, which is a dry water meter with a horizontal axis of an impeller.
- Lateral watermeter type: JM, WM, JS, WS, which is a single- or multijet; dry or wet water meter.
- Switching valve spring S-type. Operation of the valve is automatic without use of an external energy source.

The main type of water meter MWN-executed and marked in accordance with the type certification: SK 08-M001-SMU002, where all measurement parameters and technical description of water meters are set.

Lateral meter type JM, WM JS, WS - made and marked in accordance with the Certificate type:

TCM 142/09 – 4695 (JM),
TCM 142/10 – 4730 (WM),
SK 09-MI001-SMU007 (JS), TCM 142/11 4832 (JS)
TCM 142/09 – 4708 (WS),

where all measurement parameters and technical description of water meters are set.

Switching valve S-type - directs water through the lateral meter at low flowrate and both – lateral and main meters at high flowrate by displacement of a control part and deflection of spring.

High values of liquid volume flux can flow only through the main meter.

Lateral water meters are protected against overload by placing restricting valve cooperating with the spring loaded valve in the drain flow.

Measuring ranges of main and lateral water meter interpenetrate. Measuring range of compound meter is contained within the minimum volume flow of lateral meter to the maximum volume flow of main meter. Reading total volume of water passing through the compound meter requires the sum of the readings indicated by the volume of main and lateral meters

The combination water meter shall be installed to operate in horizontal position only.

Combination water meters are manufactured according to technical documentation of the company Apator PoWoGaz S.A., from 19.08.2010 and 10.07.2012.

Table number 1

MWN/JM 50/4,0-S	30-7905-000000	MWN/WM 50/4,0-S	30-7910-000000
MWN/JM 65/4,0-S	30-7915-000000	MWN/WM 65/4,0-S	30-7920-000000
MWN/JM 80/4,0-S	30-7925-000000	MWN/WM 80/4,0-S	30-7930-000000
MWN/JM 100/4,0-S	30-7935-000000	MWN/WM 100/4,0-S	30-7940-000000
MWN/JM 150/16-S	-	MWN/WM 150/16-S	30-7945-000000

Table number 2



MWN/JS 50/4,0-S	30-5905-000000	MWN/WS 50/4,0-S	30-5910-000000
MWN/JS 65/4,0-S	30-5915-000000	MWN/WS 65/4,0-S	30-5920-000000
MWN/JS 80/4,0-S	30-5925-000000	MWN/WS 80/4,0-S	30-5930-000000
MWN/JS 100/4,0-S	30-5935-000000	MWN/WS 100/4,0-S	30-5940-000000
MWN/JS 150/16-S	-	MWN/WS 150/16-S	30-5950-000000

Table number 3

MWN/JS 50/4,0-S	60-5281001-000
MWN/JS 65/4,0-S	60-5282001-000
MWN/JS 80/4,0-S	60-5283001-000
MWN/JS 100/4,0-S	60-5284001-000
MWN/JS 150/16-S	60-5271001-000

2. Basic technical data

Table number 4

Combination water meter type:	MWN/JM, MWN/WM 50/4,0-S	MWN/JM, MWN/WM 65/4,0-S	MWN/JM, MWN/WM 80/4,0-S	MWN/JM, MWN/WM 100/4,0-S	MWN/WM 150/16-S
Type of used water meters:	MWN50; JM4,0; WM4,0	MWN65; JM4,0; WM4,0	MWN80; JM4,0; WM4,0	MWN100; JM4,0; WM4,0	MWN150; WM16
Nominal Diameter (DN) [mm]:	50	65	80	100	150
Overload Flowrate (Q_4) [m ³ /h]:	≤ 31.25	≤ 50	≤ 78.75	≤ 125	≤ 312.5
Permanent Flowrate (Q_3) [m ³ /h]:	≤ 25 ¹	≤ 40 ¹	≤ 63 ¹	≤ 100 ¹	≤ 250 ¹
Transitional Flowrate (Q_2) [m ³ /h]:	≥ 0.04	≥ 0.04	≥ 0.04	≥ 0.04	≥ 0.16
Minimum Flowrate (Q_1) [m ³ /h]:	≥ 0.025	≥ 0.025	≥ 0.025	≥ 0.025	≥ 0.1
Change-over flowrate (Q_{x1}) [m ³ /h]:	1.3	2.0	2.0	1.6	5.0
Change-over flowrate (Q_{x2}) [m ³ /h]:	2.6	2.8	2.8	2.7	6.6
Ratio Q_3/Q_1 :	≤ 1000 ²	≤ 1600 ²	≤ 2500 ²	≤ 4000 ²	≤ 2500 ²
Ratio Q_2/Q_1 :	1.6				
Accuracy class:	2				
Maximum permissible error for lower flowrate zone (MPE _l):	± 5 %				
Maximum permissible error for upper flowrate zone (MPE _u):	± 2 %				
Temperature class:	T30, T50				
Water pressure classes:	MAP 16				
Pressure-loss classes:	ΔP 63				
Indicating range [m ³]:	10 ⁶ / 10 ⁵				10 ⁷ / 10 ⁶
Resolution of the indication device [L]:	0.5 / 0.05				5.0 / 0.05
Flow profile sensitivity classes:	U0, D0				
Orientation limitation:	H				
Reed contact K-factor [L/ pulse]:	2.5; 5;10; 25; 50;100; 250; 500;1000 / 0.25; 0.5; 1; 2.5; 5; 10; 25; 50; 100; 250; 500; 1000				
Reed contact K-factor [L/ pulse]: for MWN/WM 150/16-S	25;50;100;250; 500; 1000;2500; 5000; 10000/ 0.25; 0.5; 1; 2.5; 5; 10; 25; 50; 100; 250; 500; 1000				
Reed contact power supply (U_{max} / I_{max}):	Max. 24 V / 0.1 A				
Revers flow	No				
Connection type: flange L=mm	270, 300	300	300, 350	360,350	500±15

¹⁾ The value of Q_3 shall be chosen from the R5 line of ISO 3:1973.

²⁾ The ratio Q_3/Q_1 shall be chosen from the R10 line of ISO 3:1973 and thus value be higher than 10.



Table number 5

Combination water meter type:	MWN/JS, 50/4,0-S	MWN/JS, 65/4,0-S	MWN/JS, 80/4,0-S	MWN/JS, 100/4,0-S	MWN/JS, 150/16-S
Type of used water meters:	MWN50 JS4,0	MWN65 JS4,0	MWN80 JS4,0	MWN100 JS4,0	MWN150 JS16
Nominal Diameter (DN) [mm]:	50	65	80	100	150
Overload Flowrate (Q_4) [m ³ /h]:	≤ 31.25	≤ 50	≤ 78.75	≤ 125	≤ 312.5
Permanent Flowrate (Q_3) [m ³ /h]:	≤ 25 ¹	≤ 40 ¹	≤ 63 ¹	≤ 100 ¹	≤ 250 ¹
Transitional Flowrate (Q_2) [m ³ /h]:	≥ 0.04	≥ 0.04	≥ 0.04	≥ 0.04	≥ 0.16
Minimum Flowrate (Q_1) [m ³ /h]:	≥ 0.025	≥ 0.025	≥ 0.025	≥ 0.025	≥ 0.1
Change-over flowrate (Q_{X1}) [m ³ /h]:	1.3	2.0	2.0	1.6	5.0
Change-over flowrate (Q_{X2}) [m ³ /h]:	2.6	2.8	2.8	2.7	6.6
Ratio Q_3/Q_1 :	≤ 1000 ²	≤ 1600 ²	≤ 2500 ²	≤ 4000 ²	≤ 2500 ²
Ratio Q_2/Q_1 :	1.6				
Accuracy class:	2				
Maximum permissible error for lower flowrate zone (MPE _l):	± 5 %				
Maximum permissible error for upper flowrate zone (MPE _u):	± 2 %				
Temperature class:	T30, T50				
Water pressure classes:	MAP 16				
Pressure-loss classes:	ΔP 63				
Indicating range [m ³]:		10 ⁶ / 10 ⁵			10 ⁷ / 10 ⁵
Resolution of the indication device [L]:		0.5 / 0.05			5.0 / 0.05
Flow profile sensitivity classes:	U0, D0				
Orientation limitation:	H				
Reed contact K-factor [L/ pulse]:	2.5; 5; 10; 25; 50; 100; 250; 500; 1000 / 0.25; 0.5; 1; 2.5; 5; 10; 25; 50; 100; 250; 500; 1000				
Reed contact K-factor [L/ pulse]: For MWN/JS 150/16-S	25; 50; 100; 250; 500; 1000; 2500; 5000; 10000/ 0.25; 0.5; 1; 2.5; 5; 10; 25; 50; 100; 250; 500; 1000				
Reed contact power supply (U_{max} / I_{max}):	Max. 24 V / 0.1 A				
Revers flow	No				
Connection type: flange L=mm	270, 300	300	300, 350	360, 350	500±15

¹⁾ The value of Q_3 shall be chosen from the R5 line of ISO 3:1973.

²⁾ The ratio Q_3/Q_1 shall be chosen from the R10 line of ISO 3:1973 and thus value be higher than 10.



Table number 6

Combination water meter type:	MWN/JS, MWN/WS 50/4,0-S	MWN/JS, MWN/WS 65/4,0-S	MWN/JS, MWN/WS 80/4,0-S	MWN/JS, MWN/WS 100/4,0-S	MWN/WS 150/16-S
Type of used water meters:	MWN50; JS4,0; WS4,0	MWN65; JS4,0; WS4,0	MWN80; JS4,0; WS4,0	MWN100; JS4,0; WS4,0	MWN150 WS16
Nominal Diameter (DN) [mm]:	50	65	80	100	150
Overload Flowrate (Q_4) [m^3/h]:	≤ 31.25	≤ 50	≤ 78.75	≤ 125	≤ 312.5
Permanent Flowrate (Q_3) [m^3/h]:	$\leq 25^1$	$\leq 40^1$	$\leq 63^1$	$\leq 100^1$	$\leq 250^1$
Transitional Flowrate (Q_2) [m^3/h]:	≥ 0.064	≥ 0.064	≥ 0.064	≥ 0.064	≥ 0.256
Minimum Flowrate (Q_1) [m^3/h]:	≥ 0.04	≥ 0.04	≥ 0.04	≥ 0.04	≥ 0.16
Change-over flowrate (Q_{x1}) [m^3/h]:	1.3	2.0	2.0	1.6	5.0
Change-over flowrate (Q_{x2}) [m^3/h]:	2.6	2.8	2.8	2.7	6.6
Ratio Q_3/Q_1 :	$\leq 630^2$	$\leq 1000^2$	$\leq 1600^2$	$\leq 2500^2$	$\leq 1600^2$
Ratio Q_2/Q_1 :	1.6				
Accuracy class:	2				
Maximum permissible error for lower flowrate zone (MPE _l):	$\pm 5\%$				
Maximum permissible error for upper flowrate zone (MPE _u):	$\pm 2\%$				
Temperature class:	T30, T50				
Water pressure classes:	MAP 16				
Pressure-loss classes:	ΔP 63				
Indicating range [m^3]:	$10^6 / 10^5$				$10^7 / 10^5$
Resolution of the indication device [L]:	0.5 / 0.05				5.0 / 0.05
Flow profile sensitivity classes:	U0, D0				
Orientation limitation:	H				
Reed contact K-factor [L/ pulse]:	2.5; 10; 25; 100; 250; 1000 / 0.25; 0.5; 1; 2.5; 5.0; 10; 25; 50; 100; 250; 500; 1000				
Reed contact K-factor [L/ pulse]: for MWN/WS 150/16-S	250; 500; 1000; 2500; 5000; 10000/ 0.25; 0.5; 1; 2.5; 5.0; 10; 25; 50; 100; 250; 500; 1000				
Reed contact power supply (U_{max} / I_{max}):	Max. 24 V / 0.1 A				
Reverse flow	No				
Connection type: flange L=mm	270,300	300	300, 350	360,350	500±15

¹⁾ The value of Q_3 shall be chosen from the R5 line of ISO 3:1973.

²⁾ The ratio Q_3/Q_1 shall be chosen from the R10 line of ISO 3:1973 and thus value be higher than 10.

3. Test

Technical tests of the combined water meters were performed in compliance with the International Recommendation OIML R 49 Edition 2006 (E), Test Report No. 6015-PT-P040-12 from November 6, 2012.



4. The measuring device data

There are following data on the measurement device of water meters:

- The “CE” marking and supplementary metrology marking
- Number of EC-type examination certificate
- Manufacturer’s mark or name
- Year of manufacturer (last two digits)
- Measuring device type
- The serial number (as near as possible to the indicating device)
- Unit of measurement (m^3)
- Accuracy class 2
- Numerical value Q_3 in m^3/h ($Q_3 \times .x$)
- The ratio Q_3 / Q_1 ($R \times x$)
- The temperature class ($T \times x$)
- The maximum pressure lost ($\Delta P \times x$)
- Orientation limitation (H)
- Classes on sensitivity to irregularities in velocity field (U0 D0)
- Direction of flow arrow on both sides of the meter body

and if the water meter is equipped with impulse transmitter:

- output signals for ancillary devices (type / levels)
- external power supply requirements (voltage – frequency)

There are following data on the changeover device:

- The “CE” marking and supplementary metrology marking
- Number of EC-type examination certificate
- Name of trademark of manufacturer
- Year of manufacturer (last two digits)
- Measuring device type
- The serial number
- Numerical value Q_1 , Q_2 , and Q_3 of combination water meter in m^3/h ($Q_3 \times .x$)
- Direction of flow arrow

5. Sealing

The characteristic of conformity assessment should be imposed on the Seal hanged on a wire threaded through the holes in the bolts connecting the main water meter and valve body spring.

Security features should be imposed on the Seal hanging on a wire threaded through the holes:

- the head of the blanking plug in the flange of the intake (if any) of the main meter,
- the nut connecting the inlet and the main meter rib body,
- in flange allows the connection meter inlet side of the hyphen and the head of the screw mounting flange with the inlet connector.

Characteristics of the conformity assessment of the main and laterall watermeters shall be imposed according to the type examination certificates for these meters.

The location of the seals is described in Figure 1.



Figure 1: The sealing of combination water meter:

APATOR POWOGAZ S.A.

COMBINATION WATER METER WITH A SPRING VALVE TYPE MWN/XX, MWN/XX-NK(P)

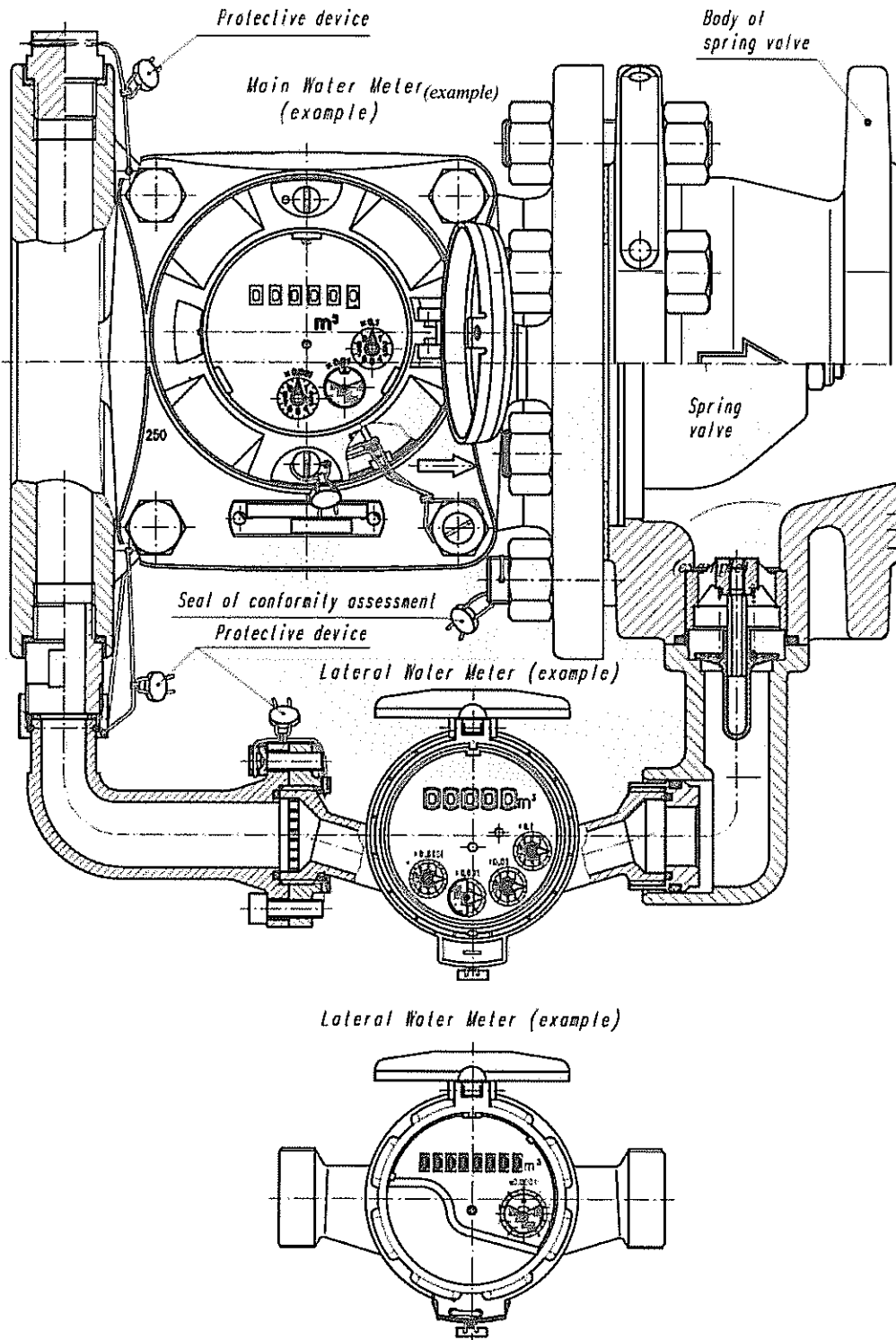
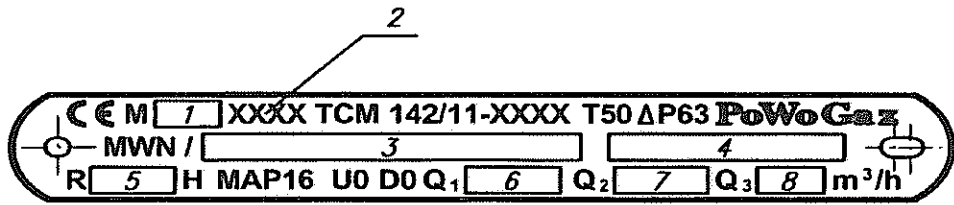


Figure 2: Data plate of combination water meter



1. Year of metrology testing
2. Number of the notified body
3. Type of device
4. Year of manufacturer (last two digits) and the serial number
5. The ratio Q_3/Q_1
6. Numerical value Q_1
7. Numerical value Q_2
8. Numerical value Q_3

Figure 3: Materials of the changeover device:

Lp	Component name	Valve
1	Valve bracket	Plastic material PPA / Brass MO58
2	Valve axis with sleeve	Plastic material PPA / Plastic material PA
	Valve axis	Stainless Steel
3	Piston valve	Plastic material PPO / Plastic material PA
4	First ring	Plastic material PPO
5	Second ring	Plastic material PPO
6	Special nut	Plastic material PP / Plastic material PA
7	Shielding ring	Plastic material POM / Plastic material PA
8	Slip ring	Plastic material PTFE
9	Valve gasket	FG55 rubber / EPDM rubber
10	Packing ring	EPDM rubber
11	Special Washer	Plastic material PA / Stainless Steel
12	Spring	Stainless steel
13	Self-locking nut	Plastic material PA / Stainless Steel

