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

SNAS
Reg. No. 101/P-035

CERTIFIKÁT EÚ SKÚŠKY TYPU

EU – type examination certificate

Číslo dokumentu: **SK 11-MI004-SMU001** **Revízia 3**
Document number: Revízia 3 nahrádza certifikát zo dňa 16. februára 2021 *Revision 3*
Revision 3 replaces the certificate issued by February 16, 2021

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):
Apator Powogaz S.A.
ul. Jarzsyki 1c, 62-023 Żerniki, Poland

Druh meradla:
Type of instrument:
Merače tepla – snímač prietoku
Thermal energy meter - flow sensor

Označenie typu:
Type designation:
MWN130-NC (WPH-N-01-130-NC)

Základné požiadavky:
Essential requirements:
príloha č. 1 a príloha č. 6 Merače tepla (MI-004) 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. VI Thermal energy meters (MI-004) 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:
16. február 2031
February 16, 2031

Notifikovaná osoba:
Notified body:
Slovenský metrologický ústav **1781**
Slovak Institute of Metrology *1781*

Dátum vydania:
Date of issue:
29. apríl 2022
April 29, 2022

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.

SLOVAK INSTITUTE OF METROLOGY - Bratislava - NB 1781 SMU

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 11-MI0004-SMU001, Revision 0	February 18, 2011	Initial certificate
SK 11-MI0004-SMU001, Revision 1	February 19, 2014	Minor changes
SK 11-MI0004-SMU001, Revision 2	February 16, 2021	Certificate renewal
SK 11-MI0004-SMU001, Revision 3	April 29, 2022	Address change

Place of production:

1. **Apator PoWoGaz S.A.**

   ul. Klemensa Janickiego 23/25, 60 – 542 Poznań, Poland

2. **Apator PoWoGaz S.A.**

   ul. Jaryszki 1c, 62-023 Żerniki, Poland

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. 6 Thermal energy meter (MI-004) to Government Ordinance of SR No. 145/2016 Coll. as amended by Government Ordinance of the Slovak Republic No. 328/2019 Coll..

1.2 Harmonised standards and normative documents used:

OIML R 75-1:2002	Heat meters. Part 1: General requirements
OIML R 75-2:2002	Heat meters. Part 2: Type approval tests
EN 1434-1:2007	Heat meters. Part 1: General requirements
EN 1434-2:2007	Heat meters. Part 2: Constructional requirements
EN 1434-4:2007	Heat meters. Part 4: Pattern approval tests
EN 1434-5:2007	Heat meters. Part 5: Initial verification tests

1.3 Other instructions used:

OIML R 75-3:2006	Heat meters. Part 3: Test Report Format
EN 1434-1:2015+A1:2018	Thermal energy meters - Part 1: General requirements
EN 1434-2:2015+A1:2018	Thermal energy meters - Part 2: Constructional requirements
EN 1434-3:2015	Heat meters - Part 3: Data exchange and interfaces
EN 1434-4:2015+A1:2018	Thermal energy meters - Part 4: Pattern approval tests
EN 1434-5:2015+A1:2019	Thermal energy meters - Part 5: Initial verification tests
EN 1434-6:2015+A1:2019	Thermal energy meters - Part 6: Installation, commissioning, operational monitoring and maintenance

2 Type marking

Woltman flow sensor **MWN130-NC** (for type marking out of Poland is used **WPH-N-01-130-NC**)

Meter is made in following subgroups:

Type of meter	Limits of temperature	Class	Nominal Diameter
MWN130-NC (WPH-N-01-130-NC)	Θ_{min} = 0,1 °C Θ_{max} = 130 °C	C[1)] M1[2)]	DN40, DN50, DN65, DN80, DN100, DN125, DN150, DN200, DN250, DN300

3 Description of measuring instrument

Meter name: Woltman horizontal flow sensor

Type marking: MWN130-NC (WPH-N-01-130-NC)

Description of operating principle instrument design:

The Woltman horizontal flow sensor is a sub-assembly of Heat meter through which the heat-conveying liquid flows and which emits a signal, which is a function of the volume or the volumetric flow rate. The Woltman flow sensor (Picture No. 1) 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 flow sensor is dedicated to measure the flow and the delivered cold and hot water quantity.

Flow sensor is:

- Woltman horizontal, dry,
- with internal float regulation,
- with removable measuring insert in covered casing,
- measures in horizontal and vertical position.

[1] according to EN 1434-1:2015+A1 and OIML R 75-1:2002

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

Picture No.1 Woltman flow sensor MWN130-NC

3.1 Description of subgroups

Marking: MWN130-NC (WPH-N-01-130-NC)

DN: DN40, DN50, DN65, DN80, DN100, DN125, DN150, DN200, DN250, DN300

The flow sensor can be equipped by following output impulses:

- MWN130-NC - basic type with mechanical counter with contact or optical impulse tranducer
- WPH-N-01-130-NC - basic type with mechanical counter with contact or impulse transducer

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 tightness of the measuring insert is secured in the body by 2 O-rings, while one O-ring secures the outside tightness (measuring insert and screws). The 2-nd O-ring secures the tightness of the insert situated in the body (inlet and outlet without DN125,150,200,250,300). The position of the regulation blade is adjustable via different positions in relation to the water flow.

3.3 Indicating device

The indicating device is a combined number rollers and pointers counter. It consists of 6 rollers for m^3 and 3 or 2 scale indicators with pointers for the decimals of m^3. Counter capacity is 999 999 m^3 or 9 999 999 m^3 and resolution of the reading is 0,5; 5 or 50 dm^3.
The counter can be equipped by the contact or optical impulse transducer. The mechanical counter is equipped by metal cover, the contact or optical impulse transducer can be equipped as well.

3.4 Principle of operation

The core part of the flow sensor is the screw gear laying 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 counter.

3.5 Technical documentation

A number of drawing of technical documentations are listed in the following table:

5000-340000	5000-750000	7000-760000
5000-350000	5000-760000	6000-750000
5000-360000	7000-740000	7265-000000
5000-740000	7000-750000	7605-000000
7375-000000	7395-000000	7215-000000
7595-000000	7335-000000	7315-000000
7355-000000	7895-000000	

All drawings, schemes and technical documentations used during the conformity assessment are saved in document No. NO-068/09, NO-444/20 and NO-548/22.

4 Basic technical characteristics

Type marking MWN130-		40-NC	50-NC	65-NC	80-NC
Nominal diameter DN	mm	40	50	65	80
Indicating range	m^3	10^6			
Resolution of the reading	m^3	0,0005			
Maximum admissible pressure	-	PN16			
Working pressure range	bar	from 0,3 to 1,6			
Pressure loss	-	ΔP10			
Limits of temperature (Θ_{min} and Θ_{max})	-	Θ_{min} = 0,1 °C, Θ_{max} = 130°C			
Min. length of straight pipe before/after flow sensor	mm	0			
Position	-	H, V			
Environmental class	-	C			
Climatic and mechanical environments	-	closed spaces /from 5°C to 55°C/mech. class M1			
Contact impulse transducer NC	dm^3/imp	2,5; 5;10; 25;50; 100; 250;500; 1000 and others			

SLOVAK INSTITUTE OF METROLOGY
NB 1781
SMU
Bratislava

Type marking MWN130-		100-NC	125-NC	150-NC	200-NC
Nominal diameter DN	mm	100	125	150	200
Indicating range	m^3	10^6		10^7	
Resolution of the reading	m^3	0,0005		0,005	
Maximum admissible pressure	-	PN16			
Working pressure range	bar	from 0,3 to 16			
Pressure loss	-	ΔP10			
Limits of temperature (Θ_{min} and Θ_{max})	-	Θ_{min} = 0,1 °C, Θ_{max} = 130°C			
Min. length of straight pipe before/after flow sensor	mm	0			
Position	-	H, V			
Environmental class	-	C			
Climatic and mechanical environments	-	closed spaces /from 5°C to 55°C/mech. class M1			
Contact impulse transducer NC	dm^3/imp	2,5;5; 10; 25;50; 100; 250;500; 1000		25;50; 100; 250;500; 1000; 2500;5000; 10000	

Type marking MWN130-		250-NC	300-NC
Nominal diameter DN	mm	250	300
Indicating range	m^3	10^7	
Resolution of the reading	m^3	0,005	0,05
Maximum admissible pressure	-	PN16	
Working pressure range	bar	from 0,3 to 1,6	
Pressure loss	-	ΔP10	
Limits of temperature (Θ_{min} and Θ_{max})	-	Θ_{min} = 0,1 °C , Θ_{max} = 130°C	
Min. length of straight pipe before/after flow sensor	mm	0	
Position	-	H, V	
Environmental class	-	C	
Climatic and mechanical environments	-	closed spaces /from 5°C to 55°C/mech. class M1	
Contact impulse transducer NC	dm^3/imp	25;50; 100; 250;500; 1000; 2500;5000; 10000	250;500; 1000; 2500;5000; 10000

4.1 Additional technical characteristics

IP Code	IP 66, IP 68
Weight	from 7,9 kg to 103,1 kg

5 Basic metrological characteristics

The maximum permissible error (accuracy class 3):

$$E_f = \pm (3 + 0{,}05\ q_p/q), \text{ but not more than } \pm 5\ \%$$

DN	mm	40	50	65	80	100	125	150	200	250	300
q_i	m^3/h	0,6	0,6	1	1,6	2,4	4	6	10	40	60
q_p	m^3/h	15	15	25	40	60	100	150	250	400	600
q_s	m^3/h	30	30	50	80	120	200	300	500	800	1200
q_p/q_i	-	25	25	25	25	25	25	25	25	10	10

6 Results of conformity assessment

The results of tests, assessments and evaluations given in the evaluation report No. NO-548/22/B/ER dated April 28, 2022 give sufficient evidence that the technical design of the measuring instrument – Woltman flow sensor type MWN130-NC 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. 6 Thermal energy meter (MI-004) and the EN 1434-1:2007, EN 1434-2:2007 and OIML R 75-1:2002 (harmonised standards and normative documents) and other instructions EN 1434-1:2015+A1:2018 and EN 1434-2:2015+A1:2018 standards, 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 flow sensor or in the product documentation minimum the following data should be marked:

a) Manufacturer's name, registered trade name or registered mark
b) Postal address of manufacturer at which they can be contacted
c) Type of the Woltman flow sensor
d) Measuring unit (m^3)
e) Limits of flow rate (q_i, q_p and q_s)
f) Limits of temperature (Θ_{min} and Θ_{max})
g) Accuracy class
h) Year of production
i) Production serial number
j) Number of EU-type examination certificate and conformity mark
k) Maximum admissible working pressure (PN-class)
l) Flow direction
m) Environmental classification
n) Orientation limitations
o) Maximum pressure loss (pressure loss at q_p)
p) Installation requirements, including installation pipe lengths
q) Output signal of impulse transducer

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

Woltman flow sensor 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 75-1:2002. Metrological test is performed by testing equipment which should be in compliance with the requirements determined in EN 1434-5:2015+A1:2019 and water at temperature 50 °C ± 5 °C in following points of flowrate:

a) $q_i \leq q \leq 1{,}1\ q_i$
b) $0{,}1\ q_p \leq q \leq 0{,}11\ q_p$
c) $0{,}9\ q_p \leq q \leq q_p$

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

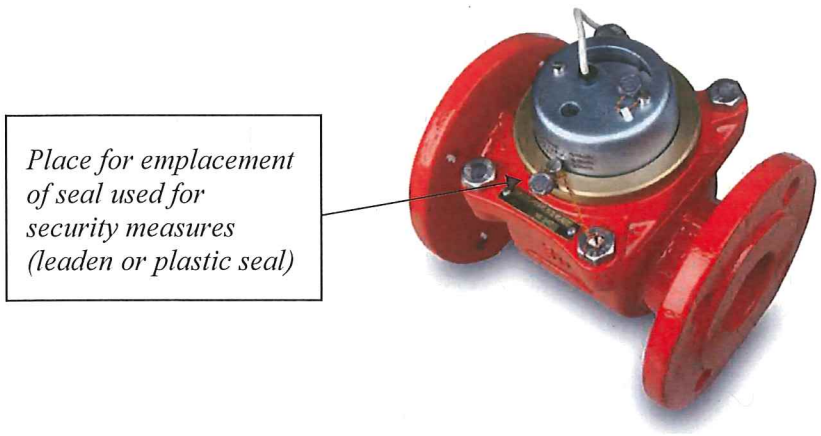
Woltman flow sensor should be in compliance with the description provided on the item 3 of this Annex and should be in compliance with the marking specified by the item 7 of this Annex. The number given to the EU-type examination certificate is put at each piece of the measuring instrument.

Emplacement of the conformity mark is followed by § 15 of the Governmental ordinance.

9.2 Sealing of the measuring instrument

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

Connexion of counter shroud and flow sensor body shall be sealed by seal used for security measures (leaden or plastic seal) (Picture No. 2)



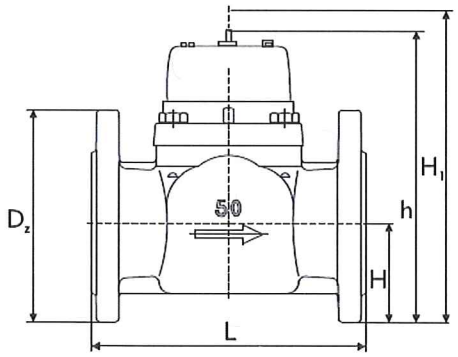
Picture No.2 Emplacement of the seal for security measures

10 Requirements for installation, especially conditions of using

10.1 Installation data

Nominal diameter	DN40	DN50	DN65	DN80	DN100
Construction length [mm] - *L*	200	200	200	225/200	250
Flange diameter [mm] - D_z	150	165	185	200	220
Weight [kg]	7,9	9,9	10,6	13,3	15,6
Hight [mm] - *h*	177	187	197	219	229
Distance axle from edge [mm] – *H*	65	72	83	95	105
Space hight for remove insert - H_1	277	287	297	339	349

Diameter	DN125	DN150	DN200	DN250	DN300
Construction length [mm] - *L*	250	300	350	450	500
Flange diameter [mm] - D_z	250	285	340	400	460
Weight [kg]	18,1	40,1	51,1	75,1	103,1
Hight [mm] - *h*	257	357	382	427	497
Distance axle from edge [mm] – *H*	120	135	160	193	230
Space hight for remove insert - H_1	377	582	607	652	722



Picture No.3 Installation dimensions

10.2 Installation requirements

The Woltman flow sensor is introduced into the operation by a worker having a certificate for this activity performance. The Woltman flow sensor 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 flow sensors". 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 flow sensors".

Assessment done by: Ing. Viliam Mazúr

***