

## ES CERTIFIKÁT TYPU

### EC – Type-examination certificate

Číslo dokumentu: SK 11-MI004-SMU001 Revision 0  
Document number:

V súlade: nariadením vlády Slovenskej republiky č. 294/2005 Z. z. o meradlách, ktorým sa preberá smernica Európskeho parlamentu a rady 2004/22/ES z 31. marca 2004 o meradlách  
In accordance with: Government Ordinance of the Slovak Republic No. 294/2005 Coll., on measuring instruments, which implemented the Directive 2004/22/EC of the European Parliament and Council of the March 31, 2004 on measuring instruments

Žiadateľ/Výrobca: Apator Powogaz S.A.  
Issued to (Manufacturer): ul. Klemensa Janickiego 23/25, 60 – 542 Poznań, Poľská republika

Druh meradla: Merače tepla - snímač prietoku  
Type of instrument: Heat meters – flow sensors / Woltman flow sensors

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

Základné požiadavky: príloha č. 1 a príloha MI-004 k nariadeniu vlády SR č. 294/2005 Z. z.  
Essential requirements: Annex No. 1 and Annex MI-004 to Government Ordinance of SR No. 294/2005 Coll.


Platnosť do: 17. februára 2021  
Valid until: February 17, 2021

Notifikovaná osoba: 1781  
Notified body:

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Date of issue: February 18, 2011

Základné charakteristiky, popis meradla a podmienky schválenia sú uvedené v prílohe, ktorá je súčasťou tohto certifikátu. Certifikát vrátane prílohy má spolu 8 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 8 pages.



  
Dr. Anna Nemečková  
osoba oprávnená konať v mene notifikovanej osoby č. 1781  
Notified body No. 1781

Poznámka: ES certifikát typu je bez pečiatky a podpisu neplatný. Tento ES certifikát typu môže byť rozmnožovaný len celý a nezmenený. Rozmnožovať jeho časti je možné len s písomným súhlasom Slovenského metrologického ústavu.  
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**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. 294/2005 Coll. (next Government Ordinance), on measuring instruments, which implemented the Directive 2004/22/EC of the European Parliament and Council of March 31, 2004 on measuring instruments.

Requirements are listed in No. 1 and Annex MI-004 to Government Ordinance of SR No. 294/2005 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 1434-3:2007 Heat meters. Part 3: Data exchange and interfaces
- EN 1434-6:2007 Heat 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)	$\theta_{min} = 0,1 \text{ }^\circ\text{C}$ , $\theta_{max} = 130 \text{ }^\circ\text{C}$	C <sup>1)</sup>	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.

<sup>1</sup> according to EN 1434-1:2007+A1 and OIML R 75-1:2002



Flow sensor is:

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



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 transducer
- 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 out side 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<sup>3</sup> and 3 or 2 scale indicators with pointers for the decimals of m<sup>3</sup>. Counter capacity is 999 999 m<sup>3</sup> or 9 999 999 m<sup>3</sup> and resolution of the reading is 0,5; 5 or 50 dm<sup>3</sup>.

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 documentation's 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 documentation's used during the conformity assessment are saved in document No. NO-068/09.

**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 <sup>3</sup>	10 <sup>6</sup>			
Resolution of the reading	m <sup>3</sup>	0,0005			
Maximum admissible pressure	-	PN16			
Working pressure range	bar	from 0,3 to 1,6			
Pressure loss	-	ΔP10			
Limits of temperature ( $\theta_{min}$ and $\theta_{max}$ )	-	$\theta_{min} = 0,1\text{ }^{\circ}\text{C}$ , $\theta_{max} = 130\text{ }^{\circ}\text{C}$			
Min. length of straight pipe before/after flow sensor	mm	0			
Position	-	H, V			
Environmental class	-	C			
Contact impulse transducer NC	dm <sup>3</sup> /imp	2,5; 5;10; 25;50; 100; 250;500; 1000 and others			



Type marking	MWN130-	100-NC	125-NC	150-NC	200-NC
Nominal diameter DN	mm	100	125	150	200
Indicating range	m <sup>3</sup>	10 <sup>6</sup>		10 <sup>7</sup>	
Resolution of the reading	m <sup>3</sup>	0,0005		0,005	
Maximum admissible pressure	-	PN16			
Working pressure range	bar	from 0,3 to 16			
Pressure loss	-	ΔP10			
Limits of temperature ( $\theta_{min}$ and $\theta_{max}$ )	-	$\theta_{min} = 0,1\text{ }^{\circ}\text{C}$ , $\theta_{max} = 130^{\circ}\text{C}$			
Min. length of straight pipe before/after flow sensor	mm	0			
Position	-	H, V			
Environmental class	-	C			
Contact impulse transducer NC	dm <sup>3</sup> /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 <sup>3</sup>	10 <sup>7</sup>	
Resolution of the reading	m <sup>3</sup>	0,005	0,05
Maximum admissible pressure	-	PN16	
Working pressure range	bar	from 0,3 to 1,6	
Pressure loss	-	ΔP10	
Limits of temperature ( $\theta_{min}$ and $\theta_{max}$ )	-	$\theta_{min} = 0,1\text{ }^{\circ}\text{C}$ , $\theta_{max} = 130^{\circ}\text{C}$	
Min. length of straight pipe before/after flow sensor	mm	0	
Position	-	H, V	
Environmental class	-	C	
Contact impulse transducer NC	dm <sup>3</sup> /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):

$$E_r = \pm (3 + 0.05 q_p/q), \text{ but not more than } \pm 5\%$$

DN	mm	40	50	65	80	100	125	150	200	250	300
$q_i$	m <sup>3</sup> /h	0,6	0,6	1	1,6	2,4	4	6	10	40	60
$q_p$	m <sup>3</sup> /h	15	15	25	40	60	100	150	250	400	600
$q_s$	m <sup>3</sup> /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. 7429/230/142/11 dated January 28, 2011 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. 294/2005 Coll. On measuring instruments, Annex No. 1 and MI-004, and the EN 1434-1:2007 and OIML R 75-1:2002 standards.

## 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) producer's name or his production mark
- b) type of the Woltman flow sensor
- c) measuring unit  $m^3$
- d) limits of flow rate ( $q_i$ ,  $q_p$  and  $q_s$ )
- e) limits of temperature ( $\theta_{min}$  and  $\theta_{max}$ )
- f) accuracy class
- g) production number and the year of production
- h) number of EC certificate type and conformity mark
- i) maximum admissible working pressure (PN-class)
- j) indication of the direction of flow
- k) environmental class
- l) orientation limitations
- m) maximum pressure loss (pressure loss at  $q_p$ )
- n) installation requirements, including installation pipe lengths
- o) 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 D or F Annexes 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 a testing equipment which should be in compliance with the requirements determined in EN 1434-5:2007 and water at temperature  $50\text{ °C} \pm 5\text{ °C}$  at the following flowrates:

- 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 D or F Annexes of the Governmental ordinance respectively.



**9 Measures asked for providing measuring instrument integrity**

**9.1 Identification**

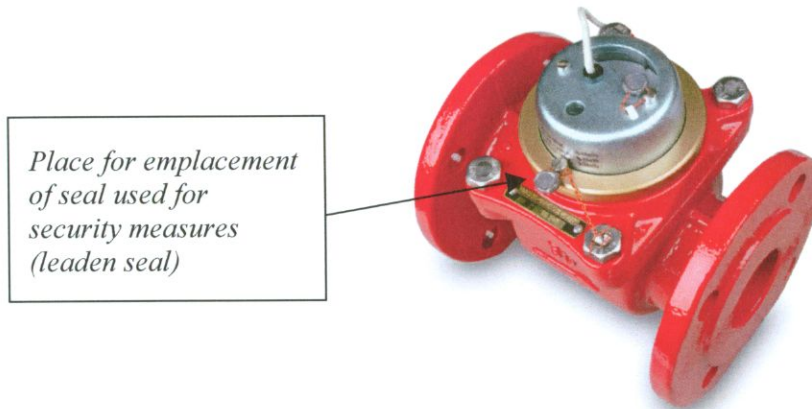
Woltman flow sensor should be in compliance with the description provided on the item 3 of this Annex and should be in compliance with the marking specified by the item 7 of this Annex. The number given to the EC certificate is put at each piece of the measuring instrument.

Emplacement of the conformity mark is followed by § 7 of the Governmental ordinance.

**9.2 Sealing of the measuring instrument**

The Woltman flow sensor shall be before the conformity assessment according to the D or F Annexes sealed by following sealing marks:

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

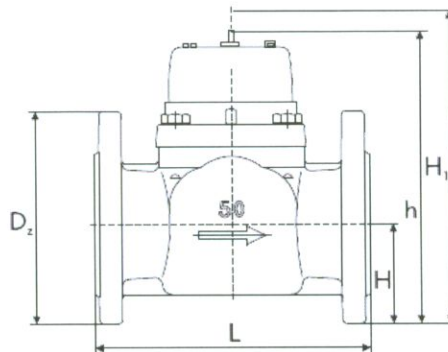


Picture No.2 Emplacement of the seal for security measures

**10 Requirements for installation, especially conditions of usage**

**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
Height [mm] - h	177	187	197	219	229
Distance axle from edge [mm] - H	65	72	83	95	105
Space high for remove insert - $H_1$	277	287	297	339	349
Nominal 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
Height [mm] - h	257	357	382	427	497
Distance axle from edge [mm] - H	120	135	160	193	230
Space high 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. Miroslava Benková, Director of the Flow Centre