

CERTYFIKAT BADANIA TYPU WE

EC TYPE EXAMINATION CERTIFICATE

Nr PL-MI002-1450CL0001



Certification Office of INiG-PIB hereby states that the:

Diaphragm gas meters

measuring series: **UG G1,6** **UG G2,5** **UG G4**

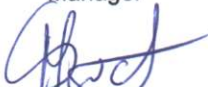
issued to: **APATOR METRIX S.A.**
ul. Grunwaldzka 14, 83-110 Tczew, Polska

manufacturing sites: **mentioned on 2nd page**

*meet the requirements of Decree issued by
Minister of Economy in Poland of 18th December 2006
describing essential requirements for measuring instruments,
and at the same time the essential requirements
covered by Directive on measuring instruments 2004/22/EC,
Annex No. 1 & annex MI-002*

document of reference: **PN-EN 1359:2004 [EN 1359:1998]**
PN-EN 1359:2004/A1:2006 [EN 1359:1998/A1:2006]
10/GM/2009+A1:2010; 11/GM/2009, 2/GM/2010, 14/GM/2010,
31/GM/2010, 2/GM/2011, 3/GM/2011, 11/GM/2011, 12/GM/2011,
test reports: 25/GM/2011, 26/GM/2011, 4/GM/2012, 11/GM/2014, 39/GM/2014,
42/GM/2014, 4/GM/2015p, 14/GM/2015, 15/GM/2015, 16/GM/2015,
46/GM/2015,
pages: **7**
certificate is valid until: **9th February 2020**

Certification Office
Manager


Magdalena Swat



Kraków, 04-02-2016

Director of the Oil and Gas Institute
National Research Institute


Maria Ciechanowska

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Appliance		
Diaphragm gas meter		
Manufacturing sites		
Main factory: APATOR METRIX S.A. ul. Grunwaldzka 14, 83-110 Tczew, Polska		
Alternative localisation of manufacturing of gas-meters for version UG-F and UG-FP: METRIKS GAZ VE SU ARMATÜRLERİ SANAYİ VE TİCARET LİMİTED ŞİRKETİ 75. Yıl Mahallesi Organize Sanayi Bölgesi, 17.nci Cadde, No. 1 Eskişehir, Turkey		
Measuring series		
UG G1,6	UG G2,5	UG G4
Case version		
1. UG 2. UG-F	3. UG-NL 4. UG-EN	5. UG-ALU 6. UG-DE
7. UG-FP		8. UG-MG
Design of the instrument		
Diaphragm gas-meter type UG consists of three units: measurement (battery), case and index. Measurement unit body (battery) consists of measuring chambers protected by walls, each chamber operates moving diaphragms (bellows) that are connected from both sides of the body by the distribution duct with separate inlets and a common outlet duct. In the body there are two shafts coupled with diaphragm discs, and at the opposite side with a crankset, timing mechanism and an outlet bevel differential for the magnetic drive. Case unit comprises of two individually shaped upper and lower deep drawn vessels, when cross-sectioned resemble a rectangular form. The vessels have flanges, which are mated together and tightly connected by band clip creating a sealed unit. Connectors are placed securely within the upper part and the outlet connector of the battery is fitted securely to the outlet connector inside the upper part. The magnetic clutch sub-assembly is placed inside the front face of the upper part and the body of index units bevel differential (gearing) is then with magnetic drive. Index unit has a body with two shafts for number drums and pinions. The initial number drum is coupled with a gear train drive transmission which rotates the number drums. In addition, a fascia plate is mounted to the body and an index window is secured over the fascia plate and body. The Index window allows the usage reading from number drums.		

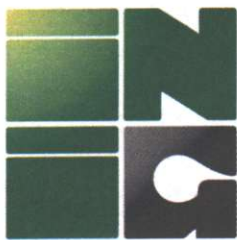


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Technical documentation - list of figures			
No.	Gas meters	Fig no.	Remarks
1	Gas-meter UG G1,6	SX000000*/3	main assembly drawing
2	Gas-meter UG G2,5	SW000000*/3	main assembly drawing
3	Gas-meter UG G4	SU000000*/3	main assembly drawing
4	Gas-meter UG G1,6 in UG-F case	SQ000000	main assembly drawing
5	Gas-meter UG G2,5 in UG-F case	SO000000	main assembly drawing
6	Gas-meter UG G4 in UG-F case	SN000000	main assembly drawing
7	Gas-meter UG G1,6 in UG-NL case	SX000000.NL	main assembly drawing
8	Gas-meter UG G2,5 in UG-NL case	SW000000.NL	main assembly drawing
9	Gas-meter UG G4 in UG-NL case	SU000000.NL	main assembly drawing
10	Gas-meter UG G1,6 in UG-EN case	SX000000.EN	main assembly drawing
11	Gas-meter UG G2,5 in UG-EN case	SW000000.EN	main assembly drawing
12	Gas-meter UG G4 in UG-EN case	SU000000.EN	main assembly drawing
13	Gas-meter UG G1,6 in UG-ALU case	AA000000	main assembly drawing
14	Gas-meter UG G2,5 in UG-ALU case	AB000000	main assembly drawing
15	Gas-meter UG G4 in UG-ALU case	AC000000	main assembly drawing
16	Gas-meter UG G1,6 in UG-DE case	SX000000.DE	main assembly drawing
17	Gas-meter UG G2,5 in UG-DE case	SW000000.DE	main assembly drawing
18	Gas-meter UG G4 in UG-F case	SU000000.DE	main assembly drawing
19	Gas-meter UG G1,6 in UG-FP case	SQ000000.P	main assembly drawing
20	Gas-meter UG G2,5 in UG-FP case	SO000000.P	main assembly drawing
21	Gas-meter UG G4 in UG-FP case	SN000000.P	main assembly drawing
22	Gas-meter UG G1,6 in UG-MG case	MH000XXX	main assembly drawing
23	Gas-meter UG G2,5 in UG-MG case	MF000XXX	main assembly drawing
24	Gas-meter UG G4 in UG-MG case	MG000XXX	main assembly drawing



Technical data

Gas-meter trade name	gas-meter size	Maximum flowrate Q_{max}	Minimum flowrate Q_{min}	cyclic volume V	Distance between connections	Finishing
-	-	m^3/h	m^3/h	dm^3	mm	-
1	2	3	4	5	6	7
UG G1,6	G1,6	2,5	0,016	1,2	0 ÷ 250	K2v
UG G2,5	G2,5	4	0,025 or 0,016	1,2	0 ÷ 250	K2v
UG G4	G4	6	0,040 or 0,025 or 0,016	1,2	0 ÷ 250	K2v

K2v – gas-meter with vertical axis connections

Gas-meter class	1,5
Mechanical Class	M1
Maximum operating pressure p_{max} ..	50 kPa (0,5 bar); 200kPa (2 bar) dla/for UG-ALU
Ambient temperature range t_m	-25÷55°C
Gas temperature range t_g	-25÷55°C
Resistance to high ambient temperature	T (at 10kPa /0,1 bar according to EN 1359)
Index measuring range	99999,999 m^3
1 impulse value	0,01 m^3
Nominal cyclic volume V	1,2 dm^3
	UG: 110 mm or 130 mm
	UG-F: 0 mm or 100 or 110 mm or 130 mm
	UG-NL : 220 mm
	UG-EN: 0 mm or 130 mm or 160 or (6") 152,4 mm
Distance between connections	UG-ALU : 100 mm or 110 mm
	UG-DE : 250 mm
	UG-FP *: 100 mm or 110 mm or 130 mm
	UG-MG 110 mm or 130 mm or 160 or (6") 152,4 mm
Nominal size of connections	DN20÷DN25
Membrane type	EFFBE or SMI
Weight	~2 kg up to 2,75 kg
Family of gases	Gaseous fuels: family 1,2 & 3 acc. to EN 437:2003 +A1:2009

* UG-FP gas inlet from right side



Interfaces and compatibility conditions

Gas-meter may be connected to reed relay low frequency impulse transmitter type NI-3 produced by Apator Metrix. This transmitter may cooperate with gas-volume conversion devices or devices that record the flowrate corresponding to 1 impulse. 1 impulse value is $0,01 \text{ m}^3$.

Requirements on production, putting into use and utilisation

Production.

During production the following checks and inspections are being carried out:

- 100% inspection of incoming goods (the quantity inspection), statistical quality inspection;
- tests during production: measurement check, 100% leak test, statistical check of torque and statistical check of bending moment,
- final tests: checking internal and external tightness, marking, checking the operation of meter (selection of change gears), calibration.

Final tests consists also of checking the permissible errors of indication and pressure absorption in accordance with paragraph A.2.1. of EN 1359:1998/A1:2006.

Installation, utilisation and repair.

Requirements concerning installation, utilisation and repair are described in operation and maintenance manual provided with the gas-meter.

Control of the measuring tasks of the instrument in use

Gas-meters are subject to conformity assessment according to directive 2004/22/EC (MID). In order to make a proof of performed conformity assessment the appropriate manufacturer's symbols are being stamped. Separate national legislation determine the date when gas-meter should be submitted to next legalization after completion of conformity assessment.

Security measures

Gas-meter UG may be secured by different means:

1) Through the index window.

Down right on the transparent index window, the seal symbol "Mx" is printed before the index window is mounted. The index is locked by an index blockage when the index window is mounted. This locking can be released only if the index window is removed and thereby broken.

2) Securing by a seal.

On the right side of the index, there is a possibility to apply a seal with manufacturer's symbol "Mx". This seal, too, prevents the opening of the index.

It is possible to secure the appliance using both of a/m ways, but the manufacturer's symbol "Mx" is printed only on 1 seal.



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Marking requirements

Each gas-meter should bear a marking plate on index or as a separate plate having at least the following information:

- a) identification mark or manufacturer's name;*
- b) CE mark, additional metrology marking, identifying number of notified body*
- c) accuracy class of the meter;*
- d) meter's serial number and year of production;*
- e) maximum flowrate Q_{max} (m^3/h);*
- f) minimum flowrate Q_{min} (m^3/h);*
- g) maximum working pressure, p_{max} (bar);*
- h) nominal cyclic volume, V (dm^3);*
- i) number and issue year of standard of object;*
- j) ambient temperature range, if higher than $-10^{\circ}C$ to $40^{\circ}C$;*
- k) gas temperature range, if different from ambient temperature range;*
- l) additional marking required by legislation, e.g. the number of type examination certificate;*

If gas-meter is resistant to high ambient temperature it should be additionally mark with „T” symbol.

Marking should be visible and permanent in normal operating conditions of gas-meter.

If gas meter is intended to use outdoors, it should be additionally marked with the symbol H3.



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Labelling and inscriptions

Gas-meter marking example

× CE M14 1450		14MUGG4 13000214852		×	
G4		UG			
metrix GRUPA APATOR		H3 ○ T			
Q _{max} =6m ³ /h		p _{max} =50kPa			
Q _{min} =0,04m ³ /h		1 imp ≙ 0,01m ³			
V=1,2dm ³		t _m = -25°C...55°C		p _{max} T =10kPa	
				m ³	
Informacja klienta Customer info		PL-MI002-1450-CL0001 EN1359:1998/A1 Class 1.5		Nr 214852 2014	



Manufacturer's mark

Kraków, dnia 04-02-2016

Certification
Office Manager

Magdalena Swat