

CERTYFIKAT BADANIA TYPU UE

EU TYPE EXAMINATION CERTIFICATE

Nr PL-MI002-1450CN0007



Certification Office of INiG-PIB hereby states that the:

Diaphragm gas meters

measuring series **UG G4**

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

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

meet the essential requirements covered by the Directive 2014/32/EU of The European Parliament and of the Council of 26th February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (OJEU of 2014 L 96) on the basis of EU type examination according to Annex IV (MI-002) of Directive 2014/32/EU and at the same time the requirements of Regulation issued by Minister of Development of 2nd June 2016 on requirements for measuring instruments, Annex no. 2 (Polish Journal of Laws of 2016 item 815)

document of reference: **PN-EN 1359:2004 [EN 1359:1998]**
PN-EN 1359:2004/A1:2006 [EN 1359:1998/A1:2006]

test reports: 14/GM/2010; 1/GM/2011+A1:2012; 22/GM/2012+A1:2012;
26/GM/2011; 27/GM/2011+A1:2012, 28/GM/2011+A1:2012;
4/GM/2012; 23/GM/2012+A1:2012; 36/GM/2012; 38/GM/2012,
11/GM/2014, 42/GM/2014, 14/GM/2015, 15/GM/2015,
16/GM/2015, 34/GM/2016

pages: **6**

certificate is valid until: **28th October 2022**

Certification Office
Manager

Magdalena Swat



Kraków, 18.10.2016

Director of the Oil and Gas Institute
National Research Institute

Maria Ciechanowska

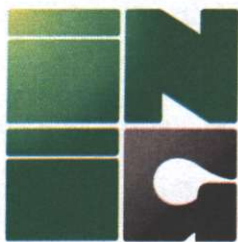
4th edition, replaces the 3rd edition of 08-05-2015



INSTYTUT NAFTY I GAZU – Państwowy Instytut Badawczy
OIL AND GAS INSTITUTE – National Research Institute
PL 31-503 Kraków, ul. Lubicz 25 A
tel.: +48 12 421 00 33 www.inig.pl office@inig.pl
BIURO CERTYFIKACJI
CERTIFICATION OFFICE
tel.: +48 12 430 38 64 e-mail: swat@inig.pl



AC 010



Appliance

diaphragm gas meters

measuring series

UG G4

Case version

1.UG-EN

2.UG-NL

3.UG-DE

4. UG-MG

Design of the instrument

Diaphragm gas-meter type UG consists of three units: measurement (battery), case and index.

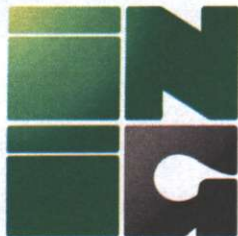
Measurement unit body (battery) consists of measuring chambers protected by walls, each chamber operates moving diaphragms (bellows) that are connected from both sides of the body by the distribution duct with separate inlets and a common outlet duct. In the body there are two shafts coupled with diaphragm 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.

Technical documentation – list of figures

1	Gas-meter UG 2,2 G4	fig No. SY000000	main assembly drawing
2	Gas-meter UG 2,2 G4 in UG-EN case	fig No. SY000000.EN	main assembly drawing
3	Gas-meter UG 2,2 G4 (1 pipe) in UG-EN case	fig No. SU200000.EN	main assembly drawing
4	Gas-meter UG 2,2 G4 in UG-NL case	fig No. SY000000.NL	main assembly drawing
5	Gas-meter UG 2,2 G4 in UG-DE case	fig No. SY000000.DE	main assembly drawing
6	Gas-meter UG 2,2 G4 in UG-MG case	Fig no. MJ000XXX	main assembly drawing



No.	Case version	Distance between connections	Nominal size of connection
1	UG – EN	130 mm lub 152,4 (6")mm, 160 mm	DN 20 / 22 / 25
		0 mm (1 pipe)	DN 25
2	UG – NL	220 mm	DN 20 / 22 / 25
3	UG - DE	250 mm	DN 20 / 22 / 25
4	UG-MG	110 mm or 130 mm or 152,4 (6")mm, 160 mm	DN 20 / 22 / 25

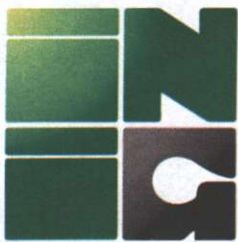
Technical data

Gas-meter trade name	gas-meter size	Maximum flowrate Q_{max}	Minimum flowrate Q_{min}	cyclic volume V_c	Distance between connections	Finishing
-	-	m^3/h	m^3/h	dm^3	mm	-
1	2	3	4	5	6	7
UG G4	G4	6	0,04	2,2	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)
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 2,2 dm^3
Distance between connections 0, 110, 130; 152,4; 160, 220; 250 [mm]
Nominal size of connections DN20÷DN25
Membrane type SMI or EFFBE
Weight ~2,8 ÷ 4,9kg (depending on case version)
Family of gases Gaseous fuels: family 1,2 & 3 acc. to EN 437:2003 +A1:2009

8



INSTYTUT NAFTY I GAZU – Państwowy Instytut Badawczy
OIL AND GAS INSTITUTE – National Research Institute
PL 31-503 Kraków, ul. Lubicz 25 A
tel.: +48 12 421 00 33 www.inig.pl office@inig.pl

BIURO CERTYFIKACJI
CERTIFICATION OFFICE
tel.: +48 12 430 38 64 e-mail: swat@inig.pl

PL-MI002-1450CN0007

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 m³.

Requirements on production, putting into use and utilisation

Production.

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

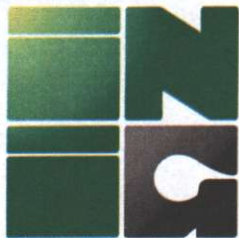
- 100% inspection of incoming goods (the quantity inspection), statistical quality inspection;
- tests during production: measurement check, 100% leak test, statistical check of torque and statistical check of bending moment,
- final tests: checking internal and external tightness, marking, checking 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/A1:2006.

Installation, utilisation and repair.

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

8



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.

3) 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.

Marking requirements

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

- identification mark or manufacturer's name;
- CE mark, additional metrology marking, identifying number of notified body
- accuracy class of the meter;
- meter's serial number and year of production;
- maximum flowrate Q_{max} (m^3/h);
- minimum flowrate Q_{min} (m^3/h);
- maximum working pressure, p_{max} (bar);
- nominal cyclic volume, V (dm^3);
- number and issue year of standard of object;
- ambient temperature range, if higher than $-10^\circ C$ to $40^\circ C$;
- gas temperature range, if different from ambient temperature range;
- 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.



INSTYTUT NAFTY I GAZU – Państwowy Instytut Badawczy
OIL AND GAS INSTITUTE – National Research Institute
PL 31-503 Kraków, ul. Lubicz 25 A
tel.: +48 12 421 00 33 www.inig.pl office@inig.pl

BIURO CERTYFIKACJI
CERTIFICATION OFFICE
tel.: +48 12 430 38 64 e-mail: swat@inig.pl

PL-MI002-1450CN0007

Labelling and inscriptions

Gas-meter marking

× CE M14 1450		14MUGG4 13000214852		×	
G4	$Q_{max}=6m^3/h$	$p_{max}=50kPa$	UG		
metrix GRUPA APATOR	$Q_{min}=0,04m^3/h$	$1imp \hat{=} 0,01m^3$	H3 ○ T		
	$V=2,2dm^3$	$t_m = -25^\circ C \dots 55^\circ C$	$p_{max T} = 10kPa$		
				m³	
Informacja klienta Customer info	PL-MI002-1450-CN0007 EN1359:1998/A1 Class 1.5	Nr 214852	2014		



Manufacturer's mark

Kraków, 18.10.2016

Certification Office
Manager

Magdalena Swat