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Archive number of report: GM-5101-1275/13
Internal order number: 4215/GM

REPORT NUMBER 11/GM/2014
from the Laboratory Tests on Diaphragm Gas Meters Indexes
produced by APATOR METRIX

DIRECTOR OF INSITUTE

Zastępca Dyrektora
ds. Gazownictwa
Instytutu Nafty i Gazu
Państwowego Instytutu Badawczego

dr inż. Jacek Jaworski

Cracow, June 26th, 2014

Copy number 1 / 4

TESTING LABORATORY OF FLOW METROLOGY

Accredited for testing diaphragm, turbine and rotary displacement gas meters, couplers for gas-fittings,
gas-volume conversion devices, pressure and temperature transmitters
and platinum resistance thermometer sensors

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Krakow
26.06.14

Technical Report No. 11/GM/20014

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Product name:	Diaphragm Gas Meter Indexes used in open locations
Name of manufacturer	APATOR-METRIX S.A. Piaskowa 3 83-100 Tczew
Customer	APATOR-METRIX S.A. Piaskowa 3 83-100 Tczew
Internal order number INiG-PIB	4215/GM

The tests were carried by



M. Sc Eng. Paweł Kułaga

Responsible for technical legality of this Report:
Head of the Flow Metrology Laboratory

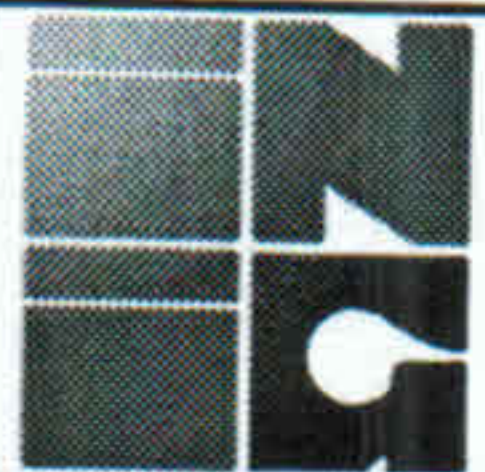


M. Sc Eng. Paweł Kułaga

*This Report consist of the title page and 5 numbered and signed pages.
The above Report regards only to the tested sample and is not technical opinion on the product
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1. SCOPE OF THE ORDER

The Technical Report concerns the complementary tests of the diaphragm gas meters indexes designed for use in open environment, according to PN-EN 1359:2004+A1:2006 – “H3” mark.

2. DOCUMENTS REFERENCES FOR THE TESTS

- 2.1. Act of 30th August 2002 concerning conformity assessment system (Polish Official Journal Dz. U. of 2002 No. 166, item 1360 with later amendments)
- 2.2. Regulation of Minister of Economy of 18th December 2006 concerning essential requirements for measuring instruments (Polish Official Journal Dz. U. of 2007 No. 3, item 27)
- 2.3. Measurement management systems - Requirements for measurement processes and measuring equipment PN-EN ISO 10012:2004
- 2.4. General Requirements for the Competence of Calibration and Testing Laboratories PN-EN ISO/IEC 17025:2005, PN-EN ISO/IEC 17025:2005/Ap1:2007, PN-EN ISO/IEC 17025:2005/Ap1:2007, PN-EN ISO/IEC 17025:2005/AC:2007
- 2.5. PN-EN 1359:2004 Gas meters - Diaphragm gas meters
- 2.6. PN-EN 1359:2004/A1:2006 Gas meters - Diaphragm gas meters
- 2.7. Assembly drawing no. UN062000 of the Apator Metrix index
- 2.8. Test Report no. LK00-02691/13/Z00NK regard to artificial weathering test
- 2.9. Test Report no. BOS/2350/BE/14 regard to Haze test
- 2.10. Order (email) from 22.11.2013.

3. PRODUCTS SELECTION

- 3.1. Selection type: choose by Customer
- 3.2. Type of supply: supply by Customer
- 3.3. Date of supply: 29.11.2013
- 3.4. Type of storage: according to PN-81/M-42009 art. 3.2.

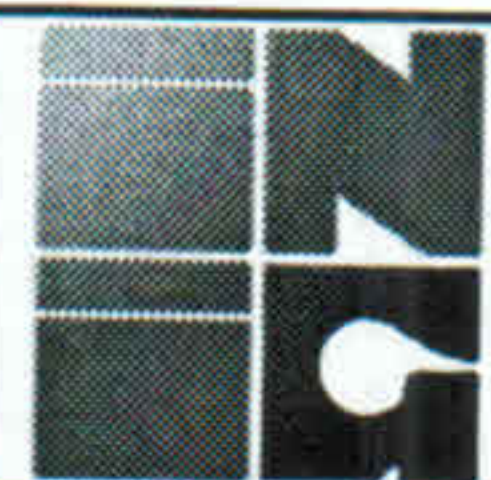
4. TESTING CONDITIONS

- 4.1. Testing methods:
 - PN-EN 1359:2004 and PN-EN 1359:2004/A1:2006 Gas meters – Diaphragm gas meters art. 8.1, 8.3.1, D.1 and D.2
- 4.2. Accuracy of measurements in compliance with the Testing Procedures, which are confirmed by the Authentication Certificates and by the internal checking at the Flow Metrology Laboratory.
- 4.3. The Testing Reports and the Testing Results are kept at the Flow Metrology Laboratory.

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5. IDENTIFICATION OF THE TESTING SUBJECTS

- 5.1. Manufacturer: APATOR METRIX S.A
Piaskowa 3
83-100 Tczew
Poland
- 5.2. Identification mark: UG diaphragm gas meter index
- 5.3. Year of manufacture: 2013
- 5.4. Serial Numbers: 000001, 000002, 000003
- 5.5. Characteristics:
- mechanical index used for diaphragm gas meters produced by Apator Metrix according to Assembly drawing no. UN062000
 - index made from polycarbon
 - index window made from polycarbon transparent

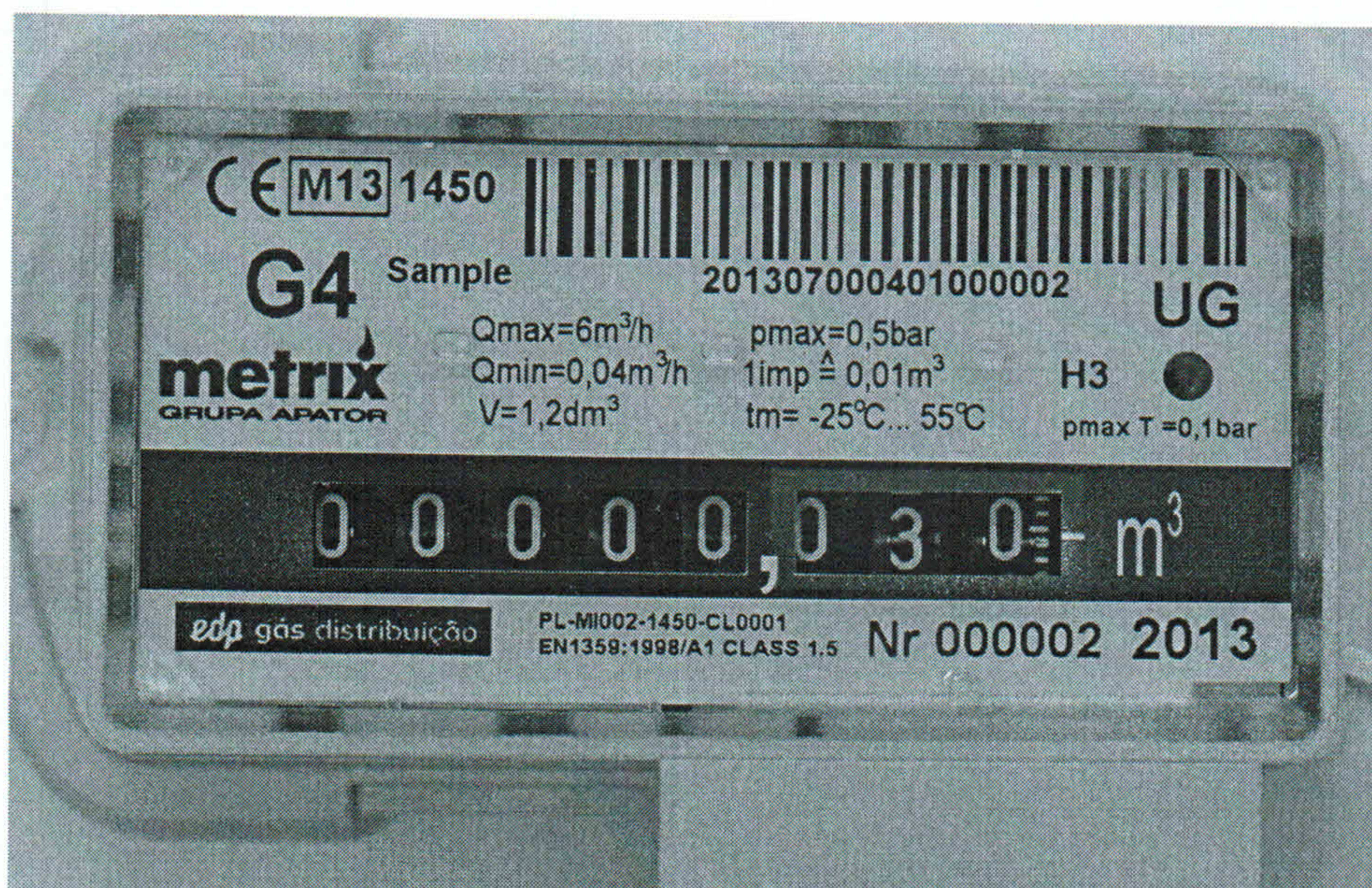


Photo 1. Gas meter index no. 0000002

The indexes delivered to tests was packed in cardboard box.

6. TESTING PROGRAMME

Detailed testing programme, requirements and method of testing are given in table 1.

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Table 1. Testing programme

Type of test	Requirements acc. to PN-EN 1359:2004 and PN-EN 1359:2004/A1:2006	Tests acc. to PN-EN 1359:2004 and PN-EN 1359:2004/A1:2006	Compliance confirmation (positive YE/SNO)	Page in Technical report
Resistance to humidity ¹⁾	D.1.1	D.1.2	YES	2)
Weathering test ^{1) 3)}	D.2.1	D.2.2	YES	-
Colour difference test		Acc. to PN-EN ISO 7724-3:2003	YES	4)
Haze test		Acc. to ASTM D1003:2011e1	YES	5)
Marking ¹⁾	8.1	---	YES	4
Durability and legibility of marking	8.3.1 D.1.1 D.2.1	---	YES	4

¹⁾ performed out of scope of PCA accreditation

²⁾ Table 2 in Technical Report No. 34/GM/2009 (page 5)

³⁾ Exposure to artificial weathering and to artificial radiation were carried out in Building Research Institute acc. to PN-EN ISO 4892-3:2006, out of the scope of accreditation

⁴⁾ Tests were carried out in Accredited Laboratory of Building Structures laboratory (AB 023) - Test Report no. LK00-02691/13/Z00NK

⁵⁾ Tests were carried out in Accredited Laboratory of Bosmal (AB 128) - Test Report no. BOS/2350/BE/14

Start of testing:
02.12.2013

End of testing:
25.06.2014

7. TESTS RESULTS

Test results of the diaphragm gas meter are given in tables 2 ÷ 3.

Base for preparation of tables present Protocols from tests stored in Laboratory of Flow Metrology INiG-PIB in Krakow.

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**Table 2. Marking**

Parametr, property, feature	Valuation (YES/NO)
Additional marking "H3" if the meter is declared suitable for use in an open environment	YES
Protocol number and compliance confirmation	1/Znakowanie/GM/14 in compliance

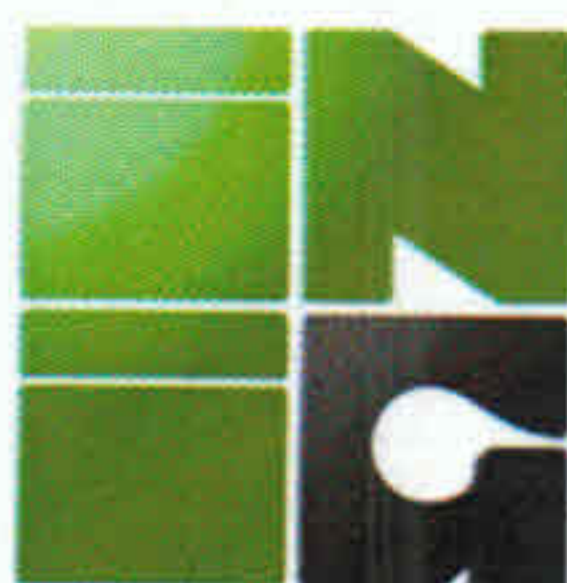
Table 3. Durability and legibility of marking

Parametr, property, feature	Valuation (YES/NO) / Index No.		
	000001	000002	000003
After testing acc. to D.1.2 (humidity) the index and markings remain legible	YES	YES	YES
After exposure acc. to D.2.2 all markings on the index and index plate remain easily legible	YES	YES	YES
Protocol number and compliance confirmation	1/Trwałość_Znakowania/GM/14 in compliance		

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**INSTYTUT NAFTY I GAZU
PAŃSTWOWY INSTYTUT BADAWCZY**

**OIL AND GAS INSTITUTE
NATIONAL RESEARCH INSTITUTE**

LABORATORIUM METROLOGII PRZEPŁYWÓW

Testing Laboratory of Flow Metrology

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Krakow
26.06.2014

**FINAL REPORT CONFIRMATION
TO REPORT NUMBER 11/GM/2014**

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The Oil and Gas Institute – National Research Institute in Krakow, based on the tests results, technical documentation and producer's declaration confirms that the product:

Product name: **Diaphragm gas meter index used in open location**

Marking: **H3**

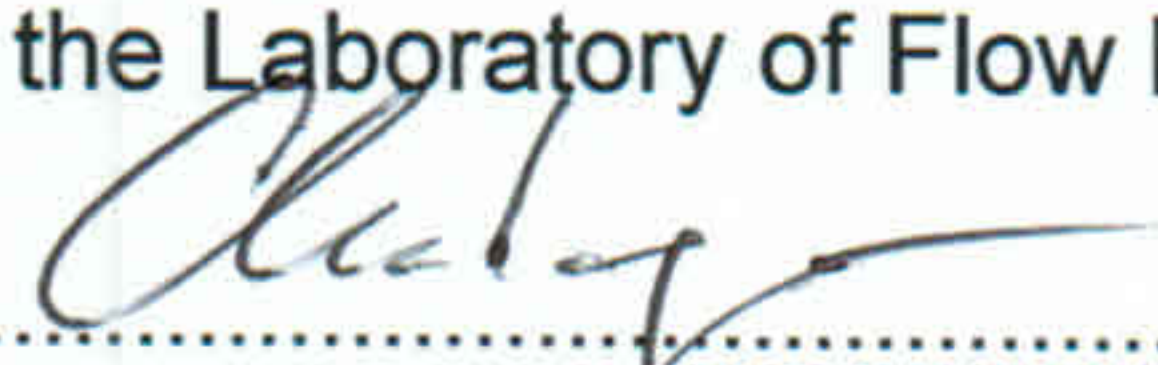
Manufacturer: **APATOR METRIX S.A.
Piaskowa 3
83-100 Tczew
Poland**

fulfils the requirements listed in the PN-EN 1359:2004 and PN-EN 1359:2004/A1:2006
Gas meters - Diaphragm gas meters, article 8.1, 8.3.1, D.1 and D.2 regard to gas meters to be
used in open locations

The requirements and the test results are presented in tables from 1 to 3 of the Report No.
11/GM/2014.


Presented test results solely regard the product tested.

Head of the Laboratory of Flow Metrology


M. Sc Eng. Paweł Kułaga

General Director of the Institute




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