CHANGES IN METROLOGICAL SUPERVISION OVER GAS METERS

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## METROLOGICAL SUPERVISION OVER GAS METERS

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas meters and their applications</td>
<td></td>
</tr>
<tr>
<td>Implementation of the MID Directive in national law</td>
<td></td>
</tr>
<tr>
<td>Existing differences between MID and legal metrological control</td>
<td></td>
</tr>
<tr>
<td>Legal metrological control today</td>
<td></td>
</tr>
<tr>
<td>Verification vs calibration</td>
<td></td>
</tr>
<tr>
<td>Proposed metrological supervision (TNC)</td>
<td></td>
</tr>
<tr>
<td>Gas Meter Calibration Laboratory</td>
<td></td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
</tr>
</tbody>
</table>
GAS METER APPLICATIONS

0 – 16 m3/h

1 – 400 m3/h
GAS METER APPLICATIONS

6 – 25,000 m³/h

10 – 150,000 m³/h
GAS METER APPLICATION SCOPES

- Ultrasonic (10 ÷ 150,000 m³/h)
- Turbine (6 ÷ 25,000 m³/h)
- Rotary (0.83 ÷ 400 m³/h)
- Bellows (0.016 ÷ 160 m³/h)

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METROLOGICAL SUPERVISION - LEGAL

MID Directive

Act on conformity assessment

Law on Measures Act

Regulation on the types of measuring instruments subject to legal metrological control

Energy Law Act

Regulation on the Polish Classification of Activities

Maintenance

Provision of gas transportation services
METROLOGICAL SUPERVISION – PREVIOUS LEGAL SITUATION

**MID**
- Calibration under pressure similar to the operating pressure

**Regulation**
- Verification under atmospheric pressure

Lack of consistency between approval for use and operation
WHY GAS METER CALIBRATION LABORATORY?

Error curve for turbine gas meter DN300 G2500
NEW GAS METERS – MID
PREVIOUS LEGAL SITUATION

Until 8 May 2017, all types of gas meters were subject to initial verification and reverification.

CURRENT LEGAL SITUATION

Currently, according to the provisions of the Regulation, only gas meters with maximum volumetric flow $Q_{\text{max}}$ not higher than 100 m$^3$/h installed in a gas network in which the maximum operating pressure does not exceed 0.5 MPa are subject to reverification.

What about other gas meters?
The amendment of the Regulation on the types of measuring instruments subject to legal metrological control and scope of such control releases most of settlement gas meters from the verification obligation.

Metrological supervision over gas meters will be the responsibility of TSO/DSO.


Calibration with natural gas at a pressure similar to the operating pressure may be done by, among others, the Gas Meter Calibration Laboratory in Hołowczyce.
**VERIFICATION VS CALIBRATION**

*Verification* and *calibration* are analogous processes which consist in the determination of the characteristics of the tested gas meter’s in comparison to the standard gas meter.
<table>
<thead>
<tr>
<th><strong>VERIFICATION</strong></th>
<th><strong>CALIBRATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verification</strong> obligation with respect to gas meters is imposed by Regulation on the types of measuring instruments subject to legal metrological control and scope of such control.</td>
<td>The obligation to calibration gas metres has not yet been defined.</td>
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<tr>
<td><strong>Verification</strong> of a gas meter (in Poland) is currently carried out with air as working medium, under atmospheric pressure.</td>
<td>Calibration of a gas meter is carried out under conditions agreed by the interested parties (pressure, medium).</td>
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<tr>
<td><strong>Verification</strong> has legal significance and requires a confirmation by the Central Office of Measures – verification certificate, protective seals affixed on the gas meter.</td>
<td>Calibration of a gas meter does not have legal significance – calibration certificate and gas meters are not subject to any confirmation issued by administration authorities.</td>
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<td><strong>Verification</strong> is concluded with issuance of a verification certificate.</td>
<td><strong>Calibration</strong> of a gas meter is concluded with issuance of a calibration certificate.</td>
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<td><strong>Verification</strong> is carried out at Verification Points, i.e. laboratories certified by the Central Office of Measures.</td>
<td><strong>Calibration</strong> is carried out at measurement laboratories fit for this purpose but not necessarily accredited.</td>
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**METROLOGICAL SUPERVISION**

**GAS METER METROLOGICAL CONTROL**

- **Verification**
  - MOP < 0.5 MPa, Qmax≤ 100m³/h
  - 5%

- **Metrological supervision (calibration)**
  - Qmax>100m³/h
  - 95%

- **MOP < 0.5 MPa**
  - Air calibration under atmospheric pressure or natural gas at a pressure similar to the operating pressure:
    - turbine gas meters
    - ultrasonic gas meters
    - rotary gas meters
  - 60%

- **MOP > 0.5 MPa**
  - Natural gas calibration under pressure similar to the operating pressure:
    - turbine gas meters
    - ultrasonic gas meters
  - 40%

**Providers of air calibration services:**
- Central Measurement and Testing Laboratory of PGNiG S.A. (CLPB)
- COMMON S.A.
- INTERGAZ SP ZO.O.

**Providers of natural gas calibration services:**
- LWG Hołowczyce (Poland)
- PIGSAR (Germany)
- FORCE TECHNOLOGY (Denmark)
- EUROLOOP (Netherlands)
- TRANSCANADA (Canada)

Bellows gas meters (800 pcs) also subject to VERIFICATION

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GAS METER CALIBRATION LABORATORY (LWC)

- Pressure range:
  - from 3.5 to 45 bars in closed cycle
  - up to 55 bars in open cycle

- Volumetric flow:
  - from 5 to 4000 m³/h in closed cycle
  - up to 6500 m³/h in open cycle

- Stability of gas temperature in a closed cycle at the level of 0.1 K

- Calibration of gas meters from DN 50 to DN 400
GAS METER CALIBRATION LABORATORY (LWC)
GAS METER CALIBRATION LABORATORY (LWG)
LWG IN HOŁOWCZYCE – ACCREDITATION UNTIL DECEMBER 2018
1. New gas meters should have a declaration of conformity (MID)
2. Gas meters in operation are subject to verification or metrological supervision
3. Verification – “small” gas meters – in accordance with the applicable legal requirements
4. Metrological supervision – “large” gas meters – according to the Network Code:
   • Calibration with natural gas at operating pressure (turbine, ultrasonic)
   • Calibration with natural gas at operating pressure, or with air (rotary)
   • Calibration every five (5) years or after a repair
   • Use of calibration characteristics for billing
THANK YOU!

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