



OPERATING MANUAL

Fire hydrant water meters 275/03

Thank you for purchasing this product. This Operating Manual for the fire hydrant meters manufactured by Fabryka Wodomierzy PoWoGaz SA in Poznań, pursuant to the manufacturer's procedures of the Integrated Environmental, Health and Safety Management System. Before installing this water meter, please read and understand this entire Operating Manual to assure the intended use.

1. Subject

This Operating Manual specifies the criteria for proper selection, the requirements for proper operation and maintenance and the rules for safety, environmental protection and disposal of the fire hydrant water meters intended for incidental or periodic measurement of the volume of cold water at a maximum temperature of 50°C and MOP (maximum operating pressure) at 1.0 MPa (10 bar), drawn from water mains via buried DN 80 fire hydrant systems specified in the Polish Standard PN-89/M-74092.

Table 1

Water meter size Nominal diameter DN (mm)	Volumetric flow Maximum operating q_p (m ³ /h)
50	15
65	25

This Operating Manual applies to the following types of fire hydrant water meters:

MH50-01

MH65-01

┌────────── Design version
┌────────── Rated diameter
┌────────── Type

Water meter type	Mounting orientation	Counter position
MH-01	Vertical inlet, horizontal outlet	Upward

2. Technical data: reference standards and regulations

The technical data is specified in the Technical Data Sheets issued for specific water meter types.

The water meters meet the following standards and regulations:

- **PN-ISO 4064** — Measurement of water volume in pipes. Cold water meters. Requirements.
- Metrological regulations for water meters (Directive 102 of the Chairman of the Central Office of Measures dated 28 August 1995, published in Dziennik Urzędowy Miar i Probiernictwa no. 19/95).
- Official Decisions of the Chairman of the Central Office of Measures concerning type approvals for specific water meter types.
- PN-88/M-54911 — Fire hydrant water meters

The checks and verification of water meters are subject to the Instruction for Checks of Water Meters, Directive 1 of the Chairman of the Central Office of Measures dated 5 January 1996 (published in Dziennik Urzędowy Miar i Probiernictwa no. 3/1996). The following standards specify the basic requirements for installation of the water meters:

- PN-ISO 4064-2 — Measurement of water volume in pipes. Cold water meters. Installation requirements.
- PN-B-10720 — Water pipelines. Installation of water meter sets in water meter systems. Acceptance requirements and tests.

3. Selecting the proper size of the water meter

The sizing criterion (for DN, the nominal diameter) of the water meters shall always be the operating conditions, i.e. the mean and maximum operating volumetric flow of water. Hence, to have your water meter perform properly within its measurement range limits and maximum indication error limits, its operating range must be precisely determined; this can be done based on the maximum water demand, considering maximum transient volumetric flow values. The maximum operating volumetric flow of the water meter are specified in *Table 1*. It is recommended to choose a water meter size respective to the 0.6–0.8 of the maximum operating volumetric flow. The application of the water meter also depends on the temperature and pressure of water. Another criterion for selection of the water meter size is the pressure loss caused in the system by installation of the water meter.

4. Delivery inspection

Inspect the water meter upon delivery from the manufacturer for external damage of the body and the counter shield.

Verify that the seals match the verification or security markings, that the seals are secure, and the water meter markings. The following markings are affixed to the counter dial, the nameplate, or the body of each water meter:

- Manufacturer's name or logo
- Type approval mark
- Type trademark
- Water meter production year and serial number, where the two last digits of the year can be the first two characters of the serial number
- Direction of the flow, shown with an arrow
- The letter V, a designation of water meters for vertical piping, or the letter H, a designation of water meters of horizontal piping, or the letters H V, a designation of the water meters which can be installed in either orientation
- Metrological class: A, B or C
- Nominal volumetric flow, q_P in m^3/h
- Measurement unit designation: m^3 (see the counter graduation)
- Maximum pressure loss Δp

5. Water meter installation requirements

5.1. The installation location of the water meter shall accommodate the installation of the fire hydrant standpipe at the location of the buried fire hydrant.

5.2. The water meter at its installation location shall not be exposed to shocks or vibration from nearby equipment in operation or excessively high ambient air temperatures, or contaminants, or flooding with water, or corrosive ambient agents.

5.3. Prevent overstressing of the water meter by the attached equipment.

5.4. The water flow through the water meter shall be as shown by the direction of flow arrow affixed to both sides of the water meter body.

5.5. The fire hydrant water meter is intended to be installed on the standpipe.

5.6. Use the standard seals included with the water meter to install the latter.

6. Priming and commissioning

6.1. Prior to its installation do a functional test of the water meter: spin its rotor and inspect for proper rotation of the rotor or the counter pointers. Verify the seals and verification markings. Verify that the water to be passed via the water meter is free of contaminants and that the installation port of the fire hydrant is clean.

6.2. Having installed the water meter, open the water supply slowly to prevent damage of the water meter.

6.3. Having completed the aforementioned commissioning tasks, verify that the water meter is operable: its reading should increase as the water flows.

6.4. During the operating stage, periodically check that the actual operating conditions meet the intended use of the water meter, especially the maximum operating pressure, temperature and flow rate values.

7. Maintenance, inspection and repairs

The measurement performance of the water meter will become reduced throughout its operating life. The reduction of measurement performance is most often caused by aggressive action of water, which is the more intensive the more sediments (ferrous and manganese) precipitate from water, resulting in accelerated wear of mechanical components.

The water meter will have to be removed from the water system periodically, and most often after its verification expiry, and pass a scheduled overhaul or regeneration. The verification expiry dates are specified in the metrological regulations for water meters. Every time the water meter is removed from a water system, it must pass a reference indication accuracy before its disassembly and cleaning. Do not clean with agents detrimental to the materials of water meter parts. Do not clean the water meter parts with any corrosive agents or solvents (this applies specifically to plastic parts) or agents which accelerate ageing of seals.

The water meter shall be repaired only by competent water meter repair facilities or authorized service agents.

Whenever a repair requires replacement of any parts, use only the genuine spare parts from Fabryka Wodomierzy PoWoGaz SA. After each repair, the water meter requires testing and verification pursuant to the Instruction for Checks of Water Meters issued by the Central Office of Measurements.

8. Storage and transport

The brand-new or repaired water meter shall be kept with the counter upwards or to the side in an indoor room free from all corrosive vapour, odours, etc. agents which might be detrimental to the water meter. The indoor storage temperature shall be between +5°C and +50°C at a relative air humidity not exceeding 90%. Protect the water meter in storage and during transport from vibration and shock which may damage the enclosure or internal components.

Transport the water meter in sheltered vehicles, in its original packaging or its substitute, whichever fully protects the water meter from damage.

9. Troubleshooting

If the counter fails to indicate despite water is flowing through the water meter, check that the rotor is not jammed by dirt. If the water meter still fails to work after cleaning or displays other defects, return it for repairs with a clear description of all faults. If the troubleshooting is ineffective despite any instructions received from the supplier, have the water meter repaired.

10. Safety and environmental requirements

10.1. The water meter is a measuring instrument which is safe to use, provided it is installed properly and operated according to its intended use.

10.2. Direct residual hazards exist during installation, servicing and operation of the water meter:

a) Mechanical hazards:

- fall of the water meter by improper handling;
- water leaks, leading to flooding of the water meter due to improper installation or a water pressure exceeding the rated MOP.

10.3. The mechanical hazards are reduced by the outer geometry of the water meter which facilitates handling.

10.4. The installation and servicing of the water meter requires a suitable location with a firm ground that will not cause a hazard of falling.

10.5. The water meter components are not harmful to human health or the environment. All cold water meters are delivered with hygiene certificates for use with drinking water.

11. Disposal of waste products and packaging

The packaging is made of corrugated board, which can be reused. Otherwise, you can dispose it at a waste paper collection point. Consult the Service Manuals or the manufacturer for details on recycling of materials this water meter is made from and on proper waste disposal.

12. User's feedback

The Operating Manuals for our products are subject to continuous improvement. Your improvement suggestions are most welcome and allow us to optimise the Operating Manuals according to your needs.

Please communicate all your feedback about this Operating Manual and the operation of water meters to the manufacturer.

CAUTION!

Due to the continuous development, the manufacturer has the right to modify its products in ways not reflected in the issued Operating Manuals without altering the primary type characteristics. Our Spare Parts Catalogue is available on request.