

JJG

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Verification Regulation of Diaphragm Gas Meters (English Translation)

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1 Scope

This regulation is applicable to the first verification, subsequent verification and in-use inspection of diaphragm gas meters (hereinafter referred to as gas meters).

2 Normative references

This regulation refers to the following documents.

JJF 1001-2011 General terms in metrology and their definitions

GB/T 6968-2011 Diaphragm gas meters

OIML R137-1&2.2012 Gas meters

OIML D11.2004 General requirements for electronic measuring instruments

EN 1359.1998 + A1.2006 Diaphragm gas meters

For dated references, only the dated version applies to this regulation; for undated references, the latest version (including all amendments) applies to this regulation.

3.2 Unit of measurement

Volume unit. cubic meter, symbol m³; liter, symbol L; cubic decimeter, symbol dm³.

4.1 Principle and structure

The gas meter is a volumetric gas flow meter that uses a flexible diaphragm metering chamber to measure gas volume flow. Under the action of the pressure difference, the gas is alternately entered into the metering chamber through the distribution valve, and is filled to the gas outlet after being filled fully.

At the same time, the flexible diaphragm in the metering chamber is pushed to reciprocate, and the circulation process of the inflation and exhaust is converted into the corresponding gas volume flow by the conversion mechanism.

4.1.1 Anti-reverse device

The gas meter shall be equipped with means to prevent reversal. When the gas inflow direction is opposite to the specified flow direction, the gas meter shall be able to stop the metering or reverse counting is prohibited.

4.2 Use

The gas meter is mainly used to measure the cumulative volume flow of gas, it is widely used in gas metering applications for civil and industrial and commercial applications.

5 Metrological performance requirements

The accuracy grade of the gas meter is 1.5, the indication error shall meet the requirements of Table 1.

6.1 Nameplates and markings

The nameplate or body of the gas meter shall be marked of the following.

6.2 Appearance

The newly manufactured gas meter outer casing shall be evenly coated, there shall be no blisters, falling off, scratches, etc. Counters and markings shall be legible and mechanical seals shall be sound and reliable. Gas meter operation shall be stable, and it is not allowed to affect the metering performance and obvious intermittent pause.

6.3 Flow-rate range

The flow-rate range value of the gas meter shall comply with the requirements of Table 2.

6.4 Indicating device

The counter shall meet the requirement that the cumulative flow of the gas meter shall work for 6000 hours at the maximum flow-rate without returning to zero.

6.5 Sealing

The gas meter must be tested for tightness and input 1.5 times the maximum operating pressure for a duration of not less than 3 minutes. The gas meter must not leak.

6.6 Pressure loss

The maximum allowable value of gas meter pressure loss shall not exceed the requirements of Table 4.

6.7 Ancillary devices

If the gas meter is equipped with an ancillary device, its metering performance shall meet the requirements of clause 5. The function of the gas meter with ancillary device shall meet the corresponding functional testing requirements in

Appendix A.

7 Metering instrument control

The metering instrument control includes the first verification, subsequent verification and in-use inspection of the gas meter.

7.1.5 During the verification process, the difference between the temperature

at the standard device and the temperature at the gas meter (including room temperature, standard device liquid temperature, and verification medium temperature) shall not exceed 1 °C.

7.1.6 The verification medium is generally air.

7.1.7 The verification pressure shall not exceed the maximum operating pressure of the gas meter, and the verification system shall not leak air.

7.2 Verification item

The items for the first verification, subsequent verification and in-use inspection are as shown in Table 6.

7.3.1 Appearance

The appearance of routine inspection of gas meters shall comply with the requirements of 6.1, 6.2, 6.3 and 6.4 of clause 6 "General technical requirements" of this regulation.

7.3.4.5 The arbitration dynamics method is preferred for arbitration verification.

7.3.5 Refer to Appendix A for functional testing of gas meters equipped with ancillary devices.

7.4 Processing of verification results

The qualified gas meter shall be issued with the verification certificate or attached with the verification qualified mark (or seal mark); the unqualified gas meter shall be issued with the verification result notice, and the unqualified item shall be indicated.

7.5 Verification cycle

7.5.1

For the maximum flow-rate $q_{\max} \leq 10 \text{ m}^3/\text{h}$ and the gas meter used for trade settlement, only the first mandatory verification is performed, it is used within the specified time period, and replaced when it is expired.

7.5.2

For the gas meter with a maximum flow-rate $q_{\max} \geq 16 \text{ m}^3/\text{h}$, the calibration cycle is generally not more than 3 years.

Appendix A

Functional testing of gas meter ancillary device