

ANNEX IV

PART I

SPECIFIC REQUIREMENTS

GAS METERS

1. **Rated operating conditions**

The manufacturer shall specify the rated operating conditions of the gas meter, taking into account:

1.1. The flowrate range of the gas shall fulfil at least the following conditions:

Class	Q_{\max}/Q_{\min}	Q_{\max}/Q_t	Q_r/Q_{\max}
1,5	≥ 150	≥ 10	1,2
1,0	≥ 20	≥ 5	1,2

1.2. The temperature range of the gas, with a minimum range of 40 °C.

1.3. *The fuel/gas related conditions*

The gas meter shall be designed for the range of gases and supply pressures of the country of destination. In particular the manufacturer shall indicate:

- the gas family or group;
- the maximum operating pressure.

1.4. A minimum temperature range of 50 °C for the climatic environment.

1.5. The nominal value of the AC voltage supply and/or the limits of DC supply.

2. **Maximum permissible error (MPEs)**

2.1. Gas meter indicating the volume at metering conditions or mass

TABLE 1

Class	1,5	1,0
$Q_{\min} \leq Q < Q_t$	3 %	2 %
$Q_t \leq Q \leq Q_{\max}$	1,5 %	1 %

The gas meter shall not exploit the MPEs or systematically favour any party.

2.2. For a gas meter with temperature conversion, which only indicates the converted volume, the MPE of the meter is increased by 0,5 % in a range of 30 °C extending symmetrically around the temperature specified by the manufacturer that lies between 15 °C and 25 °C. Outside this range, an additional increase of 0,5 % is permitted in each interval of 10 °C.

3. **Permissible effect of disturbances**

3.1. *Electromagnetic immunity*

3.1.1. The effect of an electromagnetic disturbance on a gas meter or volume conversion device shall be such that:

- the change in the measurement result is no greater than the critical change value as defined in point 3.1.3, or
- the indication of the measurement result is such that it cannot be interpreted as a valid result, such as a momentary variation that cannot be interpreted, memorised or transmitted as a measuring result.

3.1.2. After undergoing a disturbance, the gas meter shall:

- recover to operate within MPE, and
- have all measurement functions safeguarded, and
- allow recovery of all measurement data present just before the disturbance.

3.1.3. The critical change value is the smaller of the two following values:

- the quantity corresponding to half of the magnitude of the MPE in the upper zone on the measured volume;
- the quantity corresponding to the MPE on the quantity corresponding to one minute at maximum flowrate.

3.2. *Effect of upstream-downstream flow disturbances*

Under installation conditions specified by the manufacturer, the effect of the flow disturbances shall not exceed one third of the MPE.

4. **Durability**

After an appropriate test, taking into account the period of time estimated by the manufacturer, has been performed, the following criteria shall be satisfied:

4.1. *Class 1,5 §3*

4.1.1. The variation of the measurement result after the durability test when compared with the initial measurement result for the flow rates in the range Q_t to Q_{max} shall not exceed the measurement result by more than 2 %.

4.1.2. The error of indication after the durability test shall not exceed twice the MPE in point 2.

4.2. *Class 1,0 §3*

4.2.1. The variation of the measurement result after the durability test when compared with the initial measurement result shall not exceed one-third of the MPE in point 2.

4.2.2. The error of indication after the durability test shall not exceed the MPE in point 2.

5. **Suitability**

5.1. A gas meter powered from the mains (AC or DC) shall be provided with an emergency power supply device or other means to ensure, during a failure of the principal power source, that all measuring functions are safeguarded.

5.2. A dedicated power source shall have a lifetime of at least five years. After 90 % of its lifetime an appropriate warning shall be shown.

- 5.3. An indicating device shall have a sufficient number of digits to ensure that the quantity passed during 8 000 hours at Q_{\max} does not return the digits to their initial values.
- 5.4. The gas meter shall be able to be installed to operate in any position declared by the manufacturer in its installation instruction.
- 5.5. The gas meter shall have a test element, which shall enable tests to be carried out in a reasonable time.
- 5.6. The gas meter shall respect the MPE in any flow direction or only in one flow direction clearly marked.

6. **Units**

Metered quantity shall be displayed in cubic metre, or in kilogram.