

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**

Status: EU Directives are being published on this site to aid cross referencing from UK legislation. After IP completion day (31 December 2020 11pm) no further amendments will be applied to this version.

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.