[F1SCHEDULE 1D

Regulations 2 and 39(1)

GAS METERS (MI-002) (Annex IV to the Directive)

Textual Amendments

F1 Schs. 1A-1K inserted (E.W.S.) (31.12.2020) by The Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/696), reg. 1, **Sch. 27 para. 49** (with Sch. 27 para. 50(a)) (as amended by S.I. 2020/676, regs. 1(1), 2); 2020 c. 1, Sch. 5 para. 1(1)

The relevant requirements of Schedule 1A, the specific requirements of this Schedule and the conformity assessment procedures listed in this Schedule, apply to gas meters.

DEFINITIONS

Minimum flowrate (Q_{min})	The lowest flowrate at which the gas meter provides indications that satisfy the requirements regarding maximum permissible error (MPE).
Maximum flowrate (Q_{max})	The highest flowrate at which the gas meter provides indications that satisfy the requirements regarding MPE.
Transitional flowrate (Q_t)	The transitional flowrate is the flowrate occurring between the maximum and minimum flowrates at which the flowrate range is divided into two zones, the 'upper zone' and the 'lower zone'. Each zone has a characteristic MPE.
Overload Flowrate (Q_r)	The overload flowrate is the highest flowrate at which the meter operates for a short period of time without deteriorating.
Base conditions	The specified conditions to which the measured quantity of fluid is converted.

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	*Qmax/Qmin*	*Qmax/Qt*	*Qr/Qmax*
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.

The fuel/gas related conditions

1.3. The gas meter shall be designed for the range of gases and supply pressures of the United Kingdom. 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.

Maximum permissible error (MPEs)

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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.

Permissible effect of disturbances

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Electromagnetic immunity

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

— the change in the measurement result is no greater than the critical change value as defined in paragraph 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.

Effect of upstream-downstream flow disturbances

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

Durability

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

Class 1.5 Gas Meters

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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 paragraph 2.

Class 1.0 Gas Meters

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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 paragraph 2.

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

Suitability

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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.

Units

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

PART II

PUTTING INTO USE AND CONFORMITY ASSESSMENT

7. Putting into use

(a) The measurement of residential use must be performed by means of any Class 1.5 gas meter, or by Class 1.0 gas meters which have a Q_{max}/Q_{min} ratio equal to or greater than 150.

(b) Measurement of commercial and/or light industrial use must be performed by any Class 1.0 or Class 1.5 gas meter.

(c) The person responsible for installing a gas meter must have regard to the requirements under paragraphs 1.2 and 1.3 of Part I of this Schedule and must ensure that the gas meter is appropriate for the accurate measurement of consumption that is foreseen or foreseeable.

CONFORMITY ASSESSMENT The conformity assessment procedures specified in the modules in Schedule 1B applicable to gas meters that the manufacturer can choose between are:

(a) B and F;

(b) B and D; or

(c) H1.**]**

Changes to legislation:
There are currently no known outstanding effects for the The Measuring Instruments Regulations 2016, SCHEDULE 1D.