

THE INSTITUTION OF GAS ENGINEERS AND MANAGERS

GAS MEASUREMENT SERIES

AMENDMENTS AT JULY 2019

These Amendments apply to the following publications:

- **IGEM/GM/PRS/3. Communication 1805**
Meter regulators for gas flow rates not exceeding $6 \text{ m}^3 \text{ h}^{-1}$ and inlet pressures not exceeding 75 mbar
Amendments: July 2019 (2 sides)

Contents Delete 5 and 6. Substitute Figures

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Clause 5.2.4(a) Delete entirely. Substitute:
Outlet pressure at flow rates $5\% Q_{\max}$ to Q_{\max} .

At air flow rates from $0.23 \text{ m}^3 \text{ h}^{-1}$ to $4.65 \text{ m}^3 \text{ h}^{-1}$ and at any inlet pressure from 25 mbar to 75 mbar the outlet pressure shall lie between the upper and lower limits as indicated in Figure 4.

Clause 7.2.1 Delete entirely. Substitute:

Unless otherwise specified by the purchaser, the regulator shall be adjusted to a set point of 22.0 mbar +0, -0.5 mbar, so that with inlet pressures in the range specified in clause 5.2.4, the regulator outlet pressure will remain within the performance envelope specified in clause 5.2.4.

Clause 7.2.2 Delete entirely. Substitute:

The regulators shall be set with the diaphragm in the horizontal plane, with an inlet pressure of 30 mbar \pm 1 mbar, and set to give a pressure at the outlet of the regulator of 22.0 mbar +0, -0.5 mbar. For most regulators, an airflow rate of $2.7 \text{ m}^3 \text{ h}^{-1} \pm 0.05 \text{ m}^3 \text{ h}^{-1}$ (equivalent to a gas flow rate of $3.5 \text{ m}^3 \text{ h}^{-1}$) will be satisfactory for achieving compliance with clause 7.2.1. If required, where the design of the regulator and the shape of its performance curve necessitate a different flowrate being used, this is acceptable provided the requirements of clause 7.2.1 are met.

Note: The regulator pressure is pre-set at the above value to take account of the pressure absorption of the meter and achieve a pressure at the outlet of the meter consistent with BS 6400-1 (nominally 21 mbar).

Clause 7.2.3 Insert new

Following adjustment of the set point, the regulator shall be sealed to confirm compliance with clause 7.2.1, and prevent its setting from being interfered with without breaking of the seal. The seal shall incorporate the manufacturer's specific mark, e.g. trademark or initial letter(s) of company name in a distinctive font.

Appendix A5.2.1 Delete entirely. Substitute:

Test setting conditions

Before carrying out the tests in clauses A5.2.2, A5.2.3 and A5.2.4, the regulator (with the diaphragm in the horizontal plane) is to be adjusted to a set point, so that with inlet pressures in the range specified in clause 5.2.4, the regulator outlet pressure will remain within the performance envelope specified in clause 5.2.4.

The regulator is not to be adjusted in-between tests.

The manufacturer is to declare the set-point used; inlet pressure, outlet pressure and the flowrate.

Appendix A5.2.2 a) Delete entirely. Substitute:

a) Method

Air is supplied to the apparatus shown in Figure 5. Straight lengths of smooth bore pipe are used for connections to the regulator under test.

The accuracy of measurement of pressure and flow is to be $\pm 2\%$.

For the performance criteria in clause 5.2.4 a) with an inlet pressure of 25 mbar, the outlet pressure of the regulator is to be measured at flow rates increasing from zero to $6 \text{ m}^3 \text{ h}^{-1}$ and then decreasing from $6 \text{ m}^3 \text{ h}^{-1}$ to zero. The outlet pressure is to be recorded for both rising and falling flow rates at flow rates of 0, 0.25, 0.4, 0.8, 2.0, 3.1 and $4.65 \text{ m}^3 \text{ h}^{-1}$ of air.

Repeat this test with an inlet pressure of 40 mbar and then 75 mbar.

Performance curves are to be plotted for the results with increasing flowrate, decreasing flowrate, and the mean of the two results at each flowrate.

The spread of the outlet pressure results at each flow rate are to be within 1.0 mbar of each other.

The upper and lower curves are to be used for verifying the performance of the regulator, all points are to remain within the defined control envelope (see Figure 5).

New
Figure 5

Add new Figure 5:

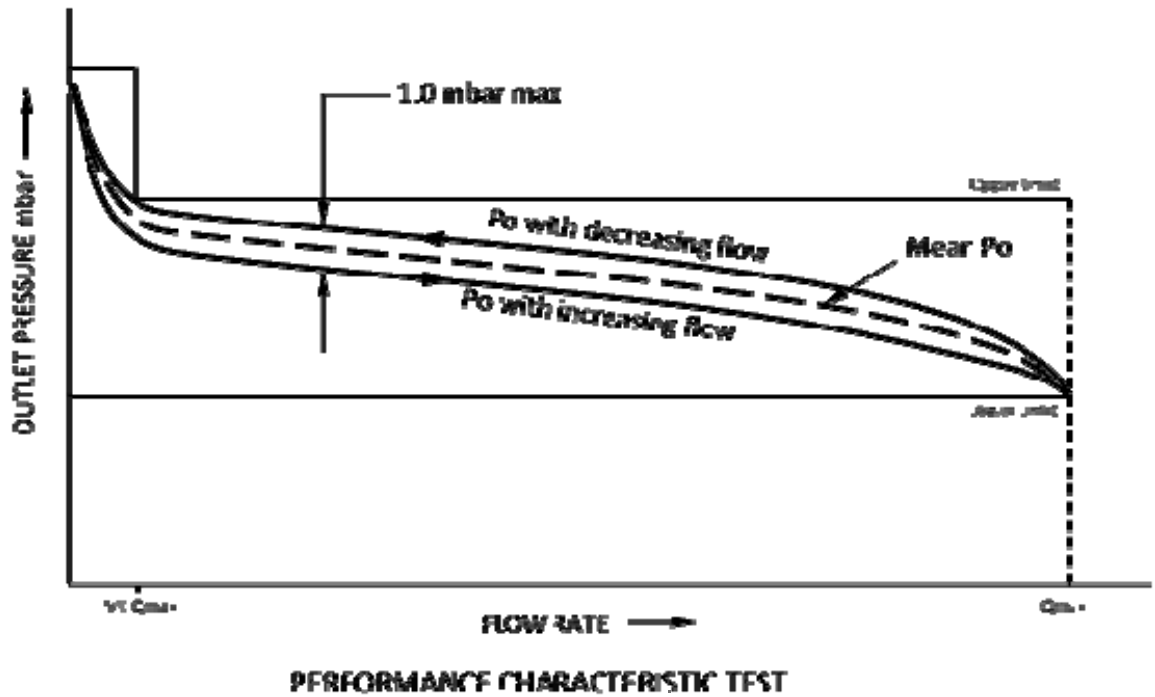


FIGURE 5: IGEM/GM/PRS/3 PERFORMANCE CHARACTERISTIC GRAPH

Previous
Figure 5

Delete title. Substitute:

FIGURE 6 - PERFORMANCE CHARACTERISTICS TEST RIG

Previous
Figure 6

Delete title. Substitute

FIGURE 7 - LOCK-UP AND SPEED OF RESPONSE TEST RIG

If the user copies these amendments onto A4 labels, the Amendments can be cut out and applied to the appropriate places within the relevant technical publications i.e. the individual Amendments are tailored to fit over the existing text.

END OF AMENDMENTS