

Technical Bulletin

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PIPE SIZING / LOW GAS PRESSURE REQUIREMENTS



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PURPOSE

The purpose of **Technical Bulletin No. 19** is to focus on gas pipe sizing. Delivering the correct inlet pressure at the appliance is **critical** for its safe operation. When upgrading an installation (e.g., Boiler replacement), consideration should be given to other appliances which may not always be in operation, but the operating pressure may be affected.

Occasionally RGII Inspectors have identified non-conformances to IS813 and associated problems involving boiler replacements where the RGI may not have completed a survey of the existing pipework or checked its operating pressure at the appliance.

Gas inlet pressure issues have created problems for customers and disputes with boiler manufacturers on appliance warranties.

The issue of undersized pipework often originates and becomes a problem whereby an existing installation has a long run of pipework and older appliances may have worked within safety limits at lower operating pressures. Upgrading the original pipework is difficult, and the additional works will contribute to significant extra cost for a customer.

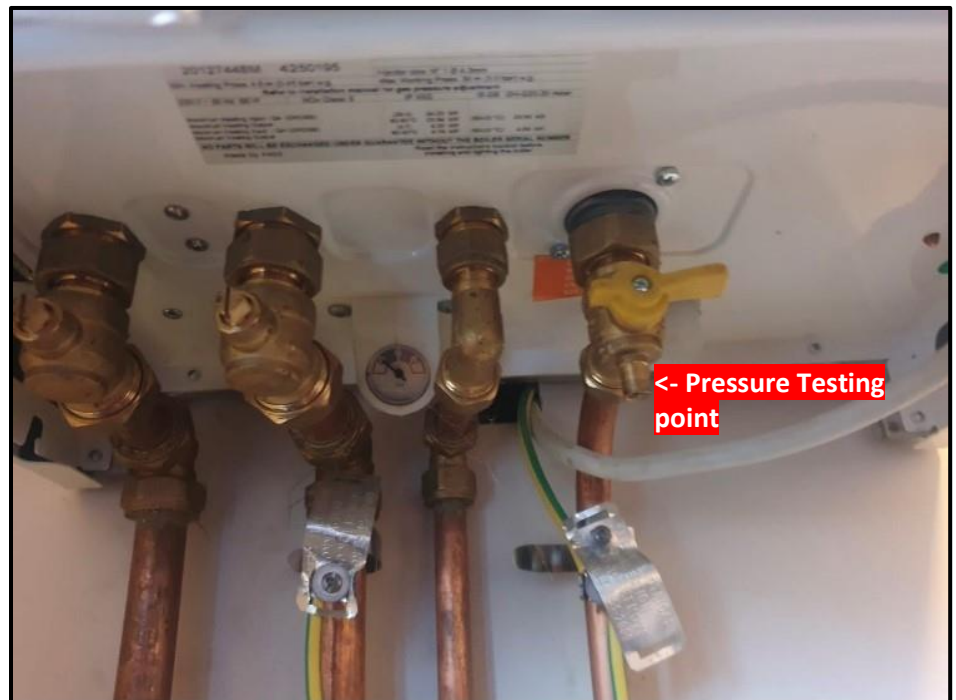


Figure 1

MEASURING GAS PRESSURE



Figure 2



Figure 3



ENSURING CORRECT PIPE SIZING

Gas pipework shall be sized to ensure that the operating pressure at the inlet of an appliance is compatible with their safe operation.

In accordance with **Section 4.5.6 of I.S.813**, the operating pressure at the inlet of a gas appliance(s) shall remain within the limit specified i.e., **19 mbar** for Natural Gas and **34 mbar** for LPG.

For **Natural Gas**, the maximum permitted pressure loss between the meter and any appliance is **1mbar** or less. Therefore, the required operating pressure at the inlet of the appliance shall be **19 mbar**.

For **LPG**, the maximum permitted pressure loss between the second stage regulator or a single stage regulator and any appliance is **3mbar** or less. Therefore, the required operating pressure at the inlet of the appliance shall be **34 mbar**.

It is important to refer to pipe sizing tables (**IS813 Annex L (pages 111-114)**), but one should also refer to manufacturer's instructions.

One should ideally measure pressure from an operating pressure measuring point such as shown in figures 1 and 2. If these are not in place, the alternative is to measure using gas valve inlet pressure test point, shown in figure 3.

Example:

One 6 metre length of 15mm copper piping supplied with Natural Gas at 20 mbar with no fittings or bends attached can only deliver a maximum of 2.1 m³/Hr or 24 KW at its outlet. As there is a 1 mbar pressure drop allowance to any offtake point under I.S. 813, the actual delivered volume will then only supply 22.8 kW so not sufficient to supply a 24-kW boiler

NOTE

In open flued gas fires and flueless appliances (e.g., cookers, hobs, ovens), carbon monoxide (CO) can be produced when desired gas pressures are not achieved.