

Specification for

Installation of low pressure gas pipework of up to 28 mm (R1) in domestic premises (2nd family gas)

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Gas Standards Committee (GSE/-) to Technical Committee GSE/30, upon which the following bodies were represented:

- British Flue and Chimney Manufacturers' Association
- British Gas plc
- Confederation for the Registration of Gas Installers
- Consumer Standards Advisory Committee of BSI
- Department of Energy (Gas and Oil Measurement Branch)
- Department of Trade and Industry (Consumer Safety Unit, CA Division)
- Health and Safety Executive
- Institute of Domestic Heating and Environmental Engineers
- Institution of Gas Engineers
- Liquefied Petroleum Gas Industry Technical Association (UK)
- Society of British Gas Industries
- Trades Union Congress

This British Standard, having been prepared under the direction of the Gas Standards Committee, was published under the authority of the Board of BSI and comes into effect on 29 February 1988.

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Contents

	Page
Committees responsible	Inside front cover
Foreword	2
1 Scope	3
2 Definitions	3
3 Exchange of information and time schedule	3
4 Design considerations	4
5 Materials	7
6 Joints	7
7 Installation	9
8 Corrosion	12
9 Testing for soundness	13
10 Purging	14
Appendix A Method for the calculation of pipe sizes	15
Figure 1 — Thread wrapping method	8
Figure 2 — Schematic line diagram	16
Figure 3 — Typical test tee	17
Table 1 — Discharge in a straight horizontal steel pipe with 1.0 mbar (0.4 in w.g.) differential pressure between the ends, for gas of relative density 0.6	5
Table 2 — Discharge in a straight horizontal copper tube with 1.0 mbar (0.4 in w.g.) differential pressure between the ends, for gas of relative density 0.6	6
Table 3 — Maximum interval between pipe supports	10
Table 4 — Maximum permissible pressure drop during a 2 min test period for existing gas installations	13
Publications referred to	18

Foreword

This British Standard has been prepared under the direction of the Gas Standards Committee to meet the need for a standard specifying the installation requirements for low pressure gas pipes for domestic dwellings.

It supersedes CP 331-3:1974 which is withdrawn. drawn.

During the preparatory work the committee responsible for this standard considered that many of the operations for installation of low pressure gas pipework in domestic premises, formerly the subject of CP 331-3, should be made requirements if a safe installation were to result. The opportunity therefore has been taken to replace the code of practice by a practice specification in accordance with clause 6 of PD 6501-1:1982.

NOTE To comply with this specification, the user has to comply with all its requirements. He may depart from recommendations, but this would be on his own responsibility and he would be expected to have good reasons for doing so.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with this British Standard does not of itself confer immunity from legal obligations.

In particular attention is drawn to the following.

- a) Statutory instrument 1358:1984: The Gas Safety (Installation and Use) Regulations 1984
- b) Statutory Instrument 1065:1985 (as amended): Building Regulations 1985
- c) Statutory Instrument 1596:1981 (as amended): The Building Standards (Scotland) Regulations 1981
- d) Statutory Instrument 149:1977 (as amended): Building Regulations (Northern Ireland) 1977
- e) Statutory Instrument 1709 NI16:1979 (as amended) Building Regulations (Northern Ireland) Order 1979

Summary of pages

This document comprises a front cover, an inside front cover, pages 1 to 18, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies design parameters, materials and methods of installing steel or copper low pressure gas pipework, in sizes not exceeding DN 25 or 28 mm respectively for the supply of 2nd family gas in domestic dwellings.

This standard applies to low pressure gas installations having a maximum pressure of 75 mbar¹⁾ (30 in w.g.).

COMMENTARY AND RECOMMENDATIONS on clause 1.

Steel pipework of nominal size DN 25 is that size which is threaded to R1 in accordance with BS 21.

The provision of service pipes to the consumer's gas meter is covered by the Institution of Gas Engineers' Recommendations IGE/TD/4: Edition 2.

The installation of low pressure gas meters (2nd family gases) is covered in BS 6400.

Liquefied petroleum gas installations are covered in BS 5482.

Installation pipework in larger sizes or at higher gas pressures are detailed in British Gas publication IM/16.

Gas, as defined in BS 1179, is normally supplied to the public in accordance with statutory requirements. The provisions of this standard apply to installations supplied with 2nd family gases including natural gas and mixtures of liquefied petroleum gases (LPG) and air.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard the definitions given in BS 1179:1967 and in BS 1179-6:1980 apply, together with the following.

2.1

installation pipes

that or any part of the installation pipework from the first fitting or joint after the primary meter outlet union connection to points at which appliances are to be connected

COMMENTARY AND RECOMMENDATIONS on 2.1. *This definition varies from that given in the Gas Safety (Installation and Use) Regulations 1984*

2.2

duct

a purpose designed enclosure to contain gas pipes and having a cross-sectional area greater than 10 000 mm²

COMMENTARY AND RECOMMENDATIONS on 2.2. *This definition is in accordance with BS 8313²⁾*

2.3

emergency control

a cock or valve for shutting off the supply of gas in an emergency

COMMENTARY AND RECOMMENDATIONS on 2.3. *The application of such valves is given in 7.11*

2.4

meter control

the valve fitted upstream of, and adjacent to, a meter to shut off the supply of gas to it

COMMENTARY AND RECOMMENDATIONS on 2.4. *This defines the term "meter control" in relation to a primary meter. A similar control may be fitted before the inlet to a secondary meter (see BS 6400)*

2.5

primary meter

a meter connected to the service pipe, the index reading of which constitutes the basis of charge for all gas used on the premises

2.6

service pipe

a pipe connected to a main to provide a supply of gas to one or more consumers and terminating at and including the primary meter control(s)

2.7

sleeve

a duct, tube or pipe embedded in the structure for the reception of an installation pipe

3 Exchange of information and time schedule

3.1 At the initial stages of building design and planning the interested parties shall verify that the installation pipes will be adequate for both immediate and probable future requirements.

A time schedule for fixing the installation pipes shall be agreed as early as possible and any subsequent changes be notified to interested parties at the earliest opportunity.

¹⁾ 1 mbar = 100 N/m² = 100 Pa.

²⁾ In preparation.

3.2 All necessary information regarding the routing of installation pipes and positions of controls and installation points to serve the appliances shall be made available to those concerned as early as possible by means of drawings, specifications and consultations.

COMMENTARY AND RECOMMENDATIONS on **3.2**. *The drawings should also include:*

- a) *the position of ducts and chases when installation pipes are to be concealed;*
- b) *special requirements of a precautionary nature, e.g. limitations on proximity to other services;*
- c) *sizes and materials and position of all installation pipes and controls.*

3.3 Any installation pipe fitted as erection of a building progresses, and which will subsequently be inaccessible, shall be tested for soundness before being buried, covered or wrapped.

3.4 Any work to be done by the gas installer that requires attendance by other trades shall be clearly defined.

4 Design considerations

4.1 Sizes

4.1.1 When designing an installation, the sizes of all installation pipes shall be determined from the maximum gas rate of the appliances to be connected, allowance being made for the maximum demand likely to occur at any time.

COMMENTARY AND RECOMMENDATIONS on **4.1.1**.

Allowance should also be made for the possibility of future extensions, especially if the pipes are to be buried. Appendix A gives a method of calculating pipe sizes in a system.

4.1.2 The pressure drop between the outlet of the meter and the points to be connected shall not exceed 1 mbar at maximum flow conditions (see Table 1 and Table 2).

Table 1 — Discharge in a straight horizontal steel pipe with 1.0 mbar (0.4 in w.g.) differential pressure between the ends, for gas of relative density 0.6 (air = 1)

(a) Piping in accordance with Table 4 (medium) of BS 1387:1985																	
Nominal size		Length of pipe (m)															
		3		6		9		12		15		20		25		30	
		Discharge															
mm	in	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h
6	1/8	0.29	10	0.14	4.9	0.09	3.2	0.07	2.5	0.05	1.8	—	—	—	—	—	—
8	1/4	0.8	28	0.53	19	0.49	17	0.36	13	0.29	10	0.22	7.8	0.17	6.0	0.14	4.9
10	3/8	2.1	73	1.4	49	1.1	39	0.93	33	0.81	30	0.70	29	0.69	24	0.57	20
15	1/2	4.3	150	2.9	100	2.3	82	2.0	70	1.7	61	1.5	52	1.4	46	1.3	44
20	3/4	9.7	340	6.6	230	5.3	190	4.5	160	3.9	140	3.3	120	2.9	100	2.6	93
25	1	18	650	12	440	10	350	8.5	300	7.5	260	6.3	220	5.6	200	5.0	180
NOTE When using this table to estimate the gas flow rate in pipework of a known length, this length should be increased by 0.5 m (2 ft) for each elbow and tee fitted, and by 0.3 m (1 ft) for each 90 ° bend fitted.																	
(b) Piping in accordance with Table 5 (heavy) of BS 1387:1985																	
Nominal size		Length of pipe (m)															
		3		6		9		12		15		20		25		30	
		Discharge															
mm	in	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h
6	1/8	0.11	3.9	0.055	2.0	0.037	1.3	0.028	0.98	0.022	0.78	0.017	0.59	0.013	0.47	0.011	0.39
8	1/4	0.56	20	0.43	15	0.28	10	0.21	7.5	0.17	6.0	0.13	4.5	0.10	3.6	0.085	3.0
10	3/8	1.6	56	1.1	38	0.85	30	0.79	28	0.77	27	0.59	21	0.47	17	0.40	14
15	1/2	3.5	120	2.3	83	1.9	68	1.6	56	1.4	49	1.2	41	1.0	36	0.92	32
20	3/4	8.3	290	5.6	200	4.5	160	3.8	130	3.3	120	2.8	100	2.5	88	2.2	79
25	1	15	550	11	370	8.4	300	7.1	250	6.3	220	5.3	190	4.7	170	4.2	150
NOTE When using this table to estimate the gas flow rate in pipework of a known length, this length should be increased by 0.5 m (2 ft) for each elbow and tee fitted, and by 0.3 m (1 ft) for each 90 ° bend fitted.																	