

Fibre cement flue pipes, fittings and terminals —

**Part 2: Specification for heavy quality
fibre cement flue pipes, fittings and
terminals**

Committees responsible for this British Standard

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- British Gas plc
- Fibre Cement Manufacturers' Association Limited
- Glassfibre Reinforced Cement Association
- Institution of Water and Environmental Management

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Foreword

This Part of BS 7435, which has been prepared under the direction of the Fibre Reinforced Cement Products Standards Policy Committee, contains dimensional, performance and test requirements for heavy quality fibre cement flue pipes, fittings and freestanding terminals. BS 7435-1 contains requirements for light quality fibre cement flue pipes, fittings and terminals.

Tests for transverse crushing strength, flow resistance of terminals and acid resistance are given in Appendix B, Appendix C and Appendix D.

The standard relates to products composed of cement based compounds including particulate fillers, reinforced with selected fibres excluding asbestos, and includes methods of test for transverse crushing strength, flow resistance of freestanding terminals and acid resistance.

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 a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, 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 Part of BS 7435 specifies dimensional, performance and test requirements for heavy quality fibre cement (excluding fibres of asbestos) flue pipes, fittings and freestanding terminals of nominal sizes from 100 mm to 600 mm inclusive. This quality of pipe, which is unsuitable for use where there is direct flame impingement, is intended for use with the following.

- a) Oil burning equipment (for industrial installations such as furnaces, kilns and ovens) with a waste gas temperature not exceeding 230 °C.

NOTE 1 For further information reference should be made to BS 5410-3.

- b) Gas burning appliances.

NOTE 2 For further information reference should be made to BS 5440-1, BS 6230 or BS 6644, as appropriate.

- c) Incinerators having a refuse combustion chamber capacity not exceeding 0.03 m³.

NOTE 3 For further information on incinerators using gas as a means of igniting refuse, reference should be made to BS 5440-1.

- d) Ventilation ducts and other purposes.

NOTE 4 For fibre cement (excluding fibres of asbestos) flue pipes, fittings and terminals of nominal sizes of 150 mm and under, for use with oil burning appliances with a rated output up to 44 kW and a flue gas temperature not exceeding 260 °C and gas burning appliances with a rated input up to 60 kW, see BS 7435-1.

NOTE 5 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 7435, the definitions given in BS 6100-2.8, BS 1179:1967¹⁾ and BS 1179-6¹⁾ apply, together with the following.

2.1

freestanding terminal

terminal, other than a ridge terminal, designed for fitting directly to the outlet of a flue system

2.2

ridge terminal

terminal designed for fitting at the ridge of a building

3 Composition and materials

3.1 Composition

Fibre cement (excluding fibres of asbestos) flue pipes, fittings and freestanding terminals shall be made from a close and homogeneous mixture consisting of a suitable inorganic hydraulic binder, fibre, fillers and water; they shall exclude any materials liable to cause deterioration in the quality of the pipes, fittings and freestanding terminals, which shall be left in their natural colour.

NOTE 1 Cement complying with BS 12 is a suitable binder.

NOTE 2 Pipes, fittings and freestanding terminals can also be supplied with adherent sealant on their surfaces. Sealant is only applied for purposes of dust suppression.

3.2 Materials

Except for fastenings and other components that do not come into direct contact with flue gases, metal parts that are to be incorporated in a terminal or fitting shall be manufactured from highly corrosion resistant stainless steel complying with grade 316S11, 316S13, 316S31, 316S33 or 320S31 of BS 970-1 or with grade 315S16, 316S11, 316S13, 316S31, 316S33, 317S12, 317S16, 320S31 or 320S33 of BS 1449-2.

4 Fire properties

When tested in accordance with BS 476-4, pipes, fittings and freestanding terminals shall be classified as non-combustible.

5 Manufacture

5.1 General

Pipes, fittings and freestanding terminals shall be in all respects sound, homogeneous and free from excrescences or other imperfections detrimental to their performance.

NOTE Finished pipes, fittings and freestanding terminals should be smooth and of good appearance, their inner and outer surfaces being as nearly as practicable concentric.

5.2 Construction of freestanding terminals

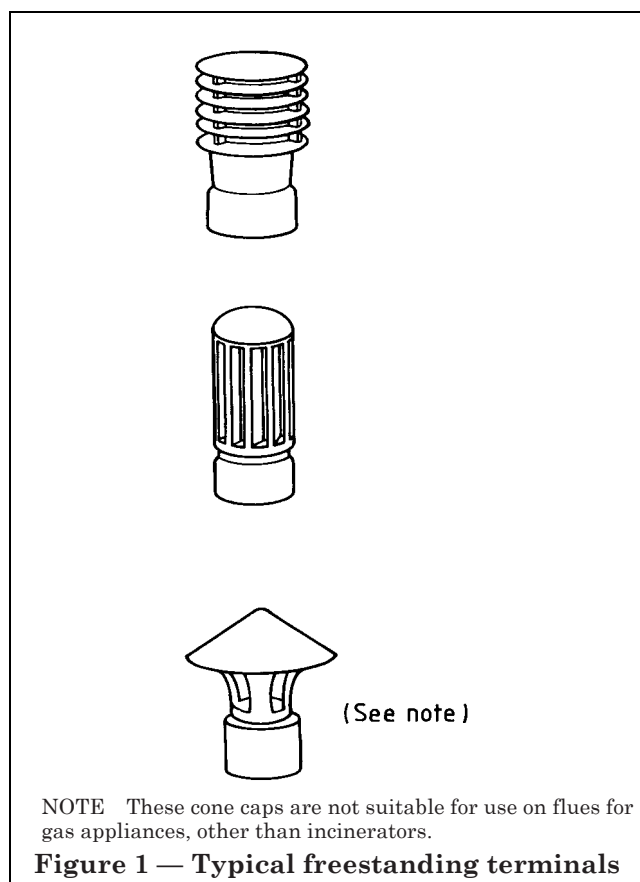
A freestanding terminal shall be so designed that it cannot be inadvertently pushed onto a flue pipe or fitting of the same nominal size in such a manner that the terminal outlet free area is restricted.

NOTE 1 Freestanding terminals should be designed so that they are unlikely to be blocked by leaves and/or snow and so that they minimize entry of birds, rain, snow or condensate to the flue.

NOTE 2 The end of the freestanding terminal that is to be connected to the flue pipe can be either a spigot or a socket type.

NOTE 3 Typical freestanding terminals are shown in Figure 1.

¹⁾ Applicable to gas only.



6 Sizes and tolerances

6.1 General

Sizes of pipes, fittings and freestanding terminals (cone caps) shall be as shown in Appendix A.

Tolerances on internal and external diameters, thicknesses and effective lengths shall be as shown in Table 1.

6.2 Effective length

The effective length of pipes shall be the length exclusive of the internal depth of a socket. Effective lengths shall be 900 mm, 1 200 mm and 1 800 mm (for nominal sizes from 100 mm to 300 mm inclusive) subject to the tolerances given in Table 1.

6.3 Spigots and sockets of pipes, fittings and freestanding terminals

Spigots and sockets of pipes, fittings and freestanding terminals shall conform to the sizes given in Table 2 in Appendix A.

6.4 Freestanding terminals

Openings in a freestanding terminal shall be such that they will admit without distortion a 6 mm diameter ball but not a 16 mm diameter ball, except for openings in a freestanding terminal serving an incinerator which shall admit without distortion a ball of at least 25 mm diameter.

7 Performance criteria

7.1 Density

Pipes, fittings and freestanding terminals, when tested as described in clause 14 of BS 4624:1981, shall have a minimum density of 1 100 kg/m³.

7.2 Frost resistance

Pipes and fittings, when tested as described in clause 17 of BS 4624:1981, shall not exhibit signs of cracking or other defects likely to impair their performance. The specimen to be tested shall be a 250 mm length of the pipe or fitting.

7.3 Straightness, regularity of thickness, and diameter

The deviation from straightness of pipes when tested as described in clause 18 of BS 4624:1981 shall be not more than 3 mm in any 600 mm and shall be not more than 6 mm in 1 800 mm.

The regularity of pipe thickness and diameter shall be in accordance with Table 1.

7.4 Water permeability

Pipes and fittings, when subjected to a test of 0.04 N/mm² internal hydraulic pressure by the method described in clause 19 of BS 4624:1981, shall not show any defects.

7.5 Transverse crushing strength

When tested as described in Appendix B, pipes shall have a minimum transverse crushing strength of 6 N/mm².

7.6 Flow resistance of freestanding terminals

When tested for flow resistance as described in Appendix C, a freestanding flue terminal shall have a resistance factor *K* not greater than 5. The tests shall be repeated whenever there is a change in design of the terminal.

7.7 Acid resistance

When tested for acid resistance as described in Appendix D, the mass loss from any test piece shall not exceed 1.5 %.