

Specification for

Cast iron spigot and socket flue or smoke pipes and fittings

UDC 697.81:621.643:669.13

Confirmed
January 2010

Co-operating organizations

The Hardware and Ironmongery Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives of the following Government departments and scientific and industrial organizations:

| | |
|---|---|
| Association of Builders' Hardware Manufacturers | Guild of Architectural Ironmongers |
| British Ironfounders' Association* | Institution of Municipal Engineers* |
| British Lock and Latch Manufacturers' Association | Metal Window Federation of Great Britain |
| British Plastics Federation | Metropolitan Police |
| British Steel Industry | National Federation of Builders' and Plumbers' Merchants* |
| British Waterworks Association | National Federation of Building Trades Employers |
| Copper Development Association | National Federation of Ironmongers |
| Department of the Environment* | Royal Institute of British Architects* |
| Department of the Environment — Building Research Station | The Royal Institution of Chartered Surveyors* |
| Greater London Council* | Zinc Development Association |

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the Committee entrusted with the preparation of this standard:

| | |
|--|--|
| Association of Public Health Inspectors | Institution of Public Health Engineers |
| British Cast Iron Pressure Pipe Association | National Association of Iron and Steel Stockholders |
| British Cast Iron Research Association | National Federation of Plumbers and Domestic Heating Engineers |
| British Constructional Steelwork Association | |
| Institute of Plumbing | |

The British Standard, having been approved by the Hardware and Ironmongery Industry Standards Committee, was published under the authority of the Executive Board on 30 April 1973

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First published 1908
First revision March 1946
Second revision October 1964
Metric edition April 1973

The following BSI references relate to the work on this standard:

Committee reference HIB/3
Draft for approval 71/12412

ISBN 0 580 07358 0

Amendments issued since publication

| Amd. No. | Date of issue | Comments |
|----------|---------------|----------|
| | | |
| | | |
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Foreword

This standard is a metric version of BS 41:1964 and has been prepared under the authority of the Hardware and Ironmongery Industry Standards Committee as part of BSI's programme of metrication. For further information on the metric terms used reference should be made to BS 3763, "*The International System of units (SI)*".

The values given represent the equivalent of the previous imperial unit values, but have been rounded to convenient numbers and are in accordance with the recommendations prepared under the aegis of Technical Committee B/94 (Modular Co-ordination in Building) for the metrication of pipe diameters. Although the values are not exact equivalents of the imperial ones this metric version is not a technical revision of the standard.

This standard supersedes the imperial version so that henceforth only articles in metric sizes will strictly conform to it. However, imperial sized pipes and fittings conforming to BS 41:1964 will meet the requirements of this standard. This standard covers pipes of up to 300 mm nominal bore and provides an alternative A or B Type socket profile to allow interchangeability between pipes manufactured by the sandcast or by the spun process. Fittings are common to both types. To ensure interchangeability between metric sized pipes of different manufacture it is essential that the number of this British Standard i.e. BS 41 is quoted on the order.

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 6, 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 provides for cast iron spigot and socket flue or smoke pipes, and bends, of 100 mm to 300 mm nominal bore and for offsets of 100 mm to 150 mm nominal bore.

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

2 Quality of material

The metal used for the manufacture of cast iron flue or smoke pipes and fittings shall be suitable for the method of manufacture and shall be of a quality not less than that specified for Grade 10 of BS 1452.

3 Freedom from defects

Castings shall be sound and free from defects which render them unsuitable for their purpose.

Every pipe and fitting shall ring clearly when tested for soundness by being struck with a light hammer.

4 Dimensions, weights and tolerances

4.1 Straight pipes shall be available in overall lengths of 610 mm, 915 mm, 1 220 mm and 1 830 mm and, subject to the following permissible deviations, shall comply with the dimensions and weights laid down in Table

| | |
|--------------------|-----------|
| weight (fine cast) | – 10 % |
| thickness | ± 1.0 mm |
| length | ± 15.0 mm |

Double socketed lengths of pipe shall comply with the requirements and tests prescribed for the corresponding spigot and socket pipe.

4.2 Fittings and their sockets and spigots shall conform to the relative dimensions specified for the corresponding parts of straight pipes and to the dimensions in Table 2 and Table 3, subject to the following permissible deviations.

| | |
|-----------|----------|
| thickness | ± 1.0 mm |
| length | ± 3.5 mm |

5 Soot doors

Smoke bends and offsets may be provided with a soot door for cleaning purposes. The method of attachment of doors shall be such that they can be effectively opened and closed. The soot door shall be secured by studs and non-ferrous nuts and shall be of the dimensions specified in Table 4.

Soot door seatings shall be flat and smooth to ensure an adequate seal.

6 Finish

Pipes and fittings shall be supplied fine cast. Pipes and fittings can be supplied coated with vitreous enamel if so ordered.

The vitreous enamel finish (see BS 1344) shall be free from chipping and crazing and suitably resistant to “heat” and “abrasion”. Nuts used for the attachment of the soot doors on vitreous enamel fittings shall be chromium plated (see BS 1224) unless otherwise ordered.

7 Inspection

The representative of the purchaser shall have free access to the works of the manufacturer at all reasonable times; he shall be at liberty to inspect the manufacture at any stage and to reject any material, finished pipe or fitting that does not conform to the terms of this specification.

The manufacturer shall, at his own cost, supply labour and appliances for such inspection as may be carried out on his premises.

Should the metal used in casting or manufacture of the pipes and fittings included in this British Standard not comply with the requirements laid down, or should any of the products not conform to the dimensions or other requirements the product so failing may be deemed not to comply with the requirements of this British Standard, and any marking indicating the compliance shall be obliterated.

8 Marking

Every pipe and fitting shall be clearly marked with the nominal bore of the pipe, the manufacturer’s name or trade mark and the number of this British Standard, e.g.

100
 Manufacturer’s name or trade mark
 BS 41

In the case of spun pipe the letter “S” shall be added to the marking.

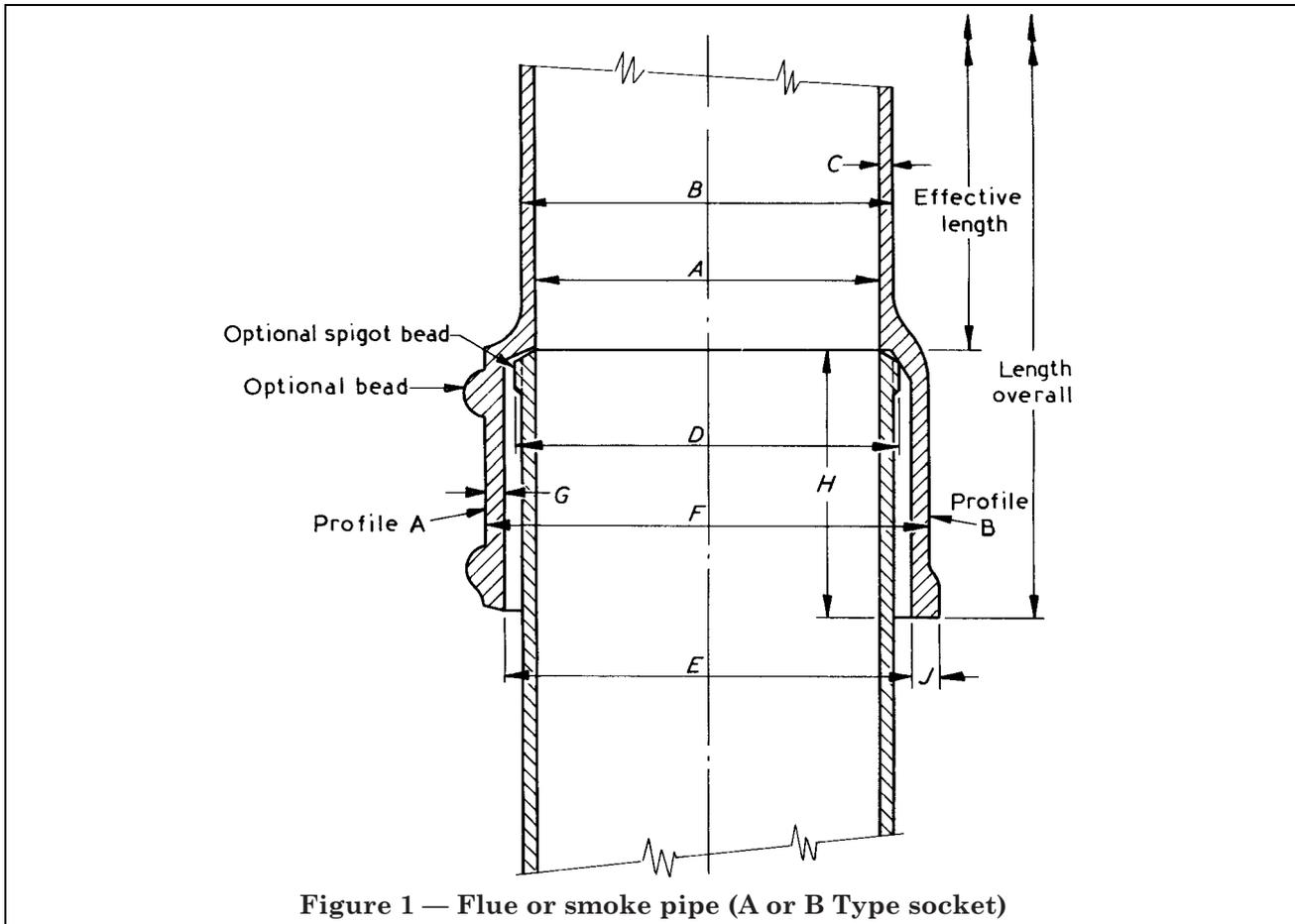


Figure 1 — Flue or smoke pipe (A or B Type socket)

Table 1 — Dimensions of fine cast straight flue and smoke pipes and sockets, (A and B Type socket) (see Figure 1)

| Dimensions | | Nominal bore of pipe (mm) | | | | | | | | |
|---|---|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 100 | 115 | 125 | 150 | 200 | 225 | 250 | 300 | |
| Pipe | Internal dia. min. | A (mm) | 98 | 111 | 124 | 150 | 200 | 225 | 250 | 300 |
| | External dia. max. | B (mm) | 108 | 121 | 134 | 162 | 215 | 242 | 265 | 320 |
| | Thickness nom. | C (mm) | 3 | 3 | 3 | 4 | 5.5 | 6.5 | 7 | 8 |
| | Dia. over spigot ^a bead max. | D (mm) | 111 | 124 | 137 | 165 | 219 | 246 | 272 | 324 |
| Socket | Internal dia. min. | E (mm) | 117 | 130 | 143 | 172 | 227 | 257 | 286 | 338 |
| | External dia. max. | F (mm) | 131 | 144 | 157 | 188 | 247 | 278 | 308 | 362 |
| | Thickness min. | G (mm) | 4 | 4 | 4 | 5 | 7 | 7 | 8 | 9 |
| | Internal depth nom. | H (mm) | 75 | 75 | 82 | 88 | 100 | 100 | 108 | 108 |
| | Thickness of beads min. | J (mm) | 7 | 7 | 7 | 9 | 12 | 14 | 15 | 17 |
| Caulking space min. (mm) | | | 3 | 3 | 3 | 3.5 | 4 | 5.5 | 7 | 7 |
| Effective length of 1 830 mm O/A pipe ^b (mm) | | | 1 755 | 1 755 | 1 748 | 1 742 | 1 730 | 1 730 | 1 722 | 1 722 |
| Nominal weight of 1 830 mm pipes (kg) | | | 15 | 16 | 20 | 28 | 50 | 65 | 80 | 111 |
| Nominal weight of 915 mm pipes (kg) | | | 8 | 9 | 11 | 15 | 27 | 34 | 42 | 58 |

^a Optional

^b Double socket pipes shall be 1 830 mm overall.

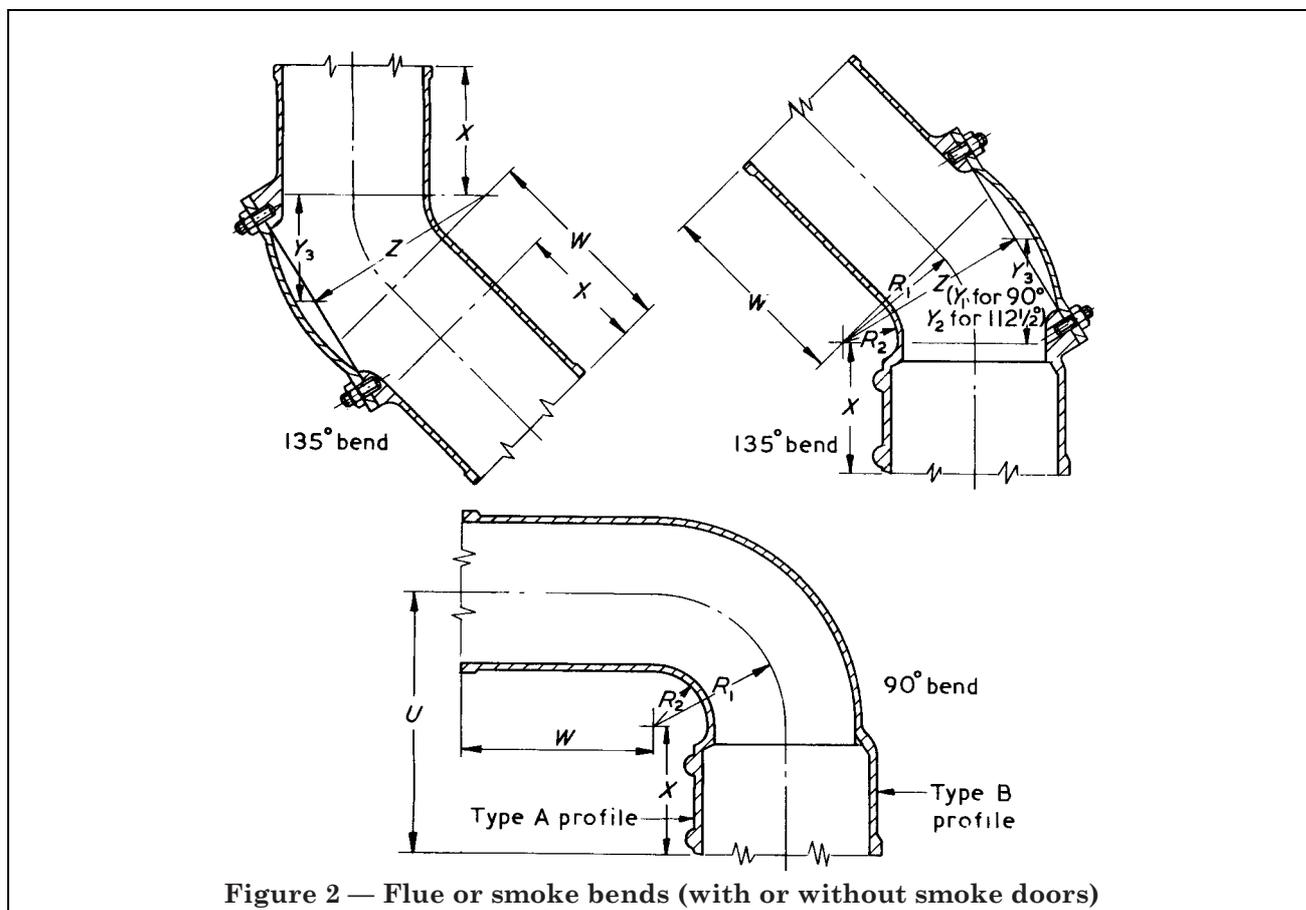


Figure 2 — Flue or smoke bends (with or without smoke doors)

Table 2 — Dimensions of bends (see Figure 2)

| Dimensions | | Nominal bore of pipe (mm) | | | | | | | | |
|--------------------------------|------------|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 100 | 115 | 125 | 150 | 200 | 225 | 250 | 300 | |
| Length of socket | U | 181 | 187 | 200 | 226 | 250 | 292 | 318 | 347 | |
| Length of spigot | W | 136 | 142 | 149 | 158 | 175 | 184 | 193 | 214 | |
| Length) socket of) spigot | X | 89 | 89 | 95 | 105 | 120 | 120 | 130 | 130 | |
| Centre of soot door opening | 90° bend | Y_1 | 98 | 108 | 114 | 136 | 181 | 200 | 222 | 260 |
| | 112½° bend | Y_2 | 76 | 86 | 89 | 108 | 143 | 155 | 178 | 203 |
| | 135° bend | Y_3 | 73 | 76 | 89 | 98 | 124 | 140 | 150 | 171 |
| | All bends | Z | 140 | 152 | 162 | 193 | 254 | 282 | 314 | 368 |
| Radius of centre line of bend | R_1 | 92 | 98 | 105 | 121 | 155 | 171 | 188 | 217 | |
| Internal radius of bend | R_2 | 38 | 38 | 38 | 41 | 48 | 51 | 54 | 57 | |

NOTE For other dimensions see Table 1.

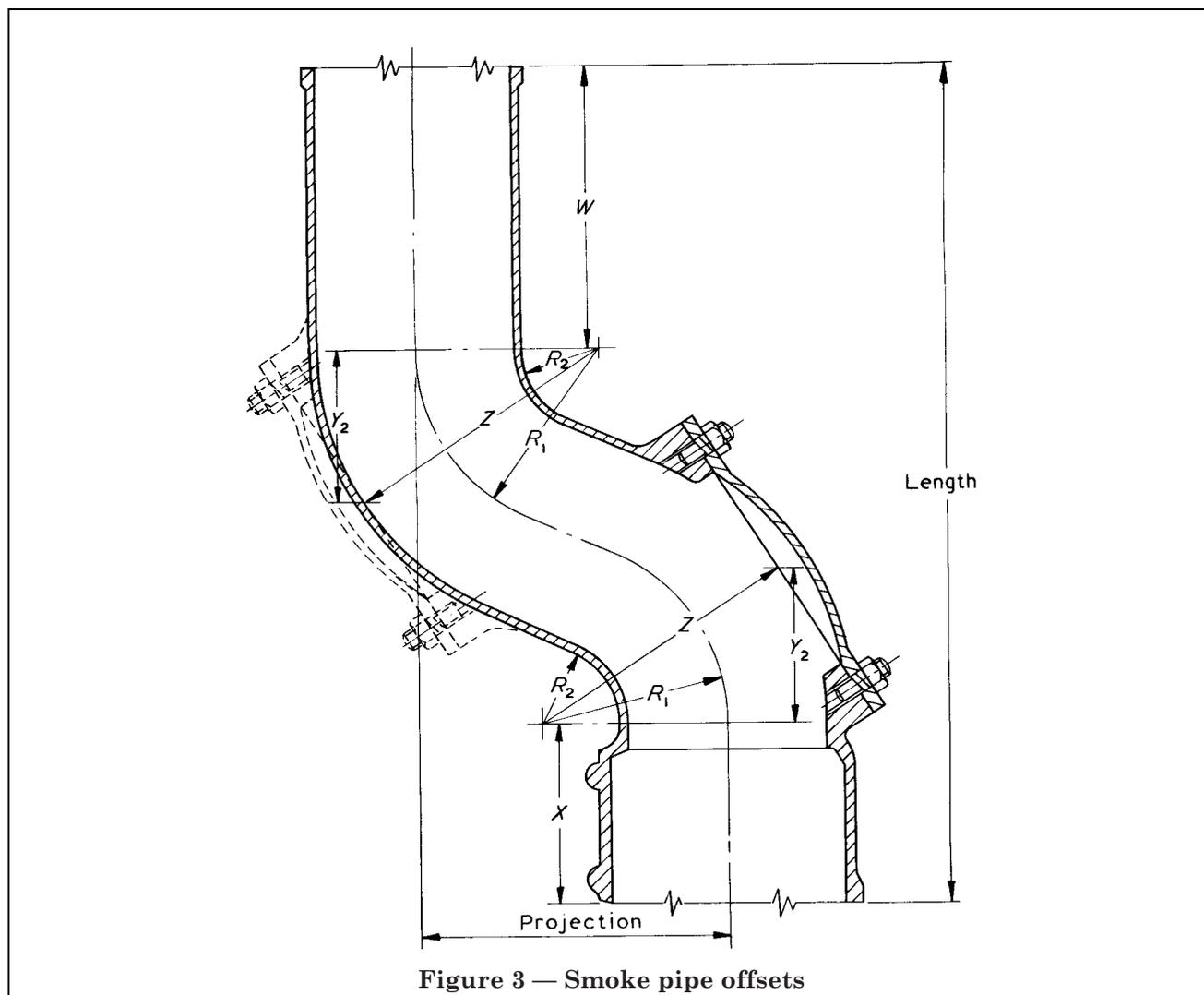


Figure 3 — Smoke pipe offsets

Table 3 — Lengths of offsets (see Figure 3)

| Projection | Nominal bore of pipe (mm) | | | |
|------------|---------------------------|-----|-----|-----|
| | 100 | 115 | 125 | 150 |
| mm | mm | mm | mm | mm |
| 150 | 413 | 425 | 448 | 487 |
| 225 | 444 | 457 | 479 | 519 |
| 300 | 476 | 489 | 511 | 551 |

NOTE For lettered dimensions see Table 1 and Table 2.

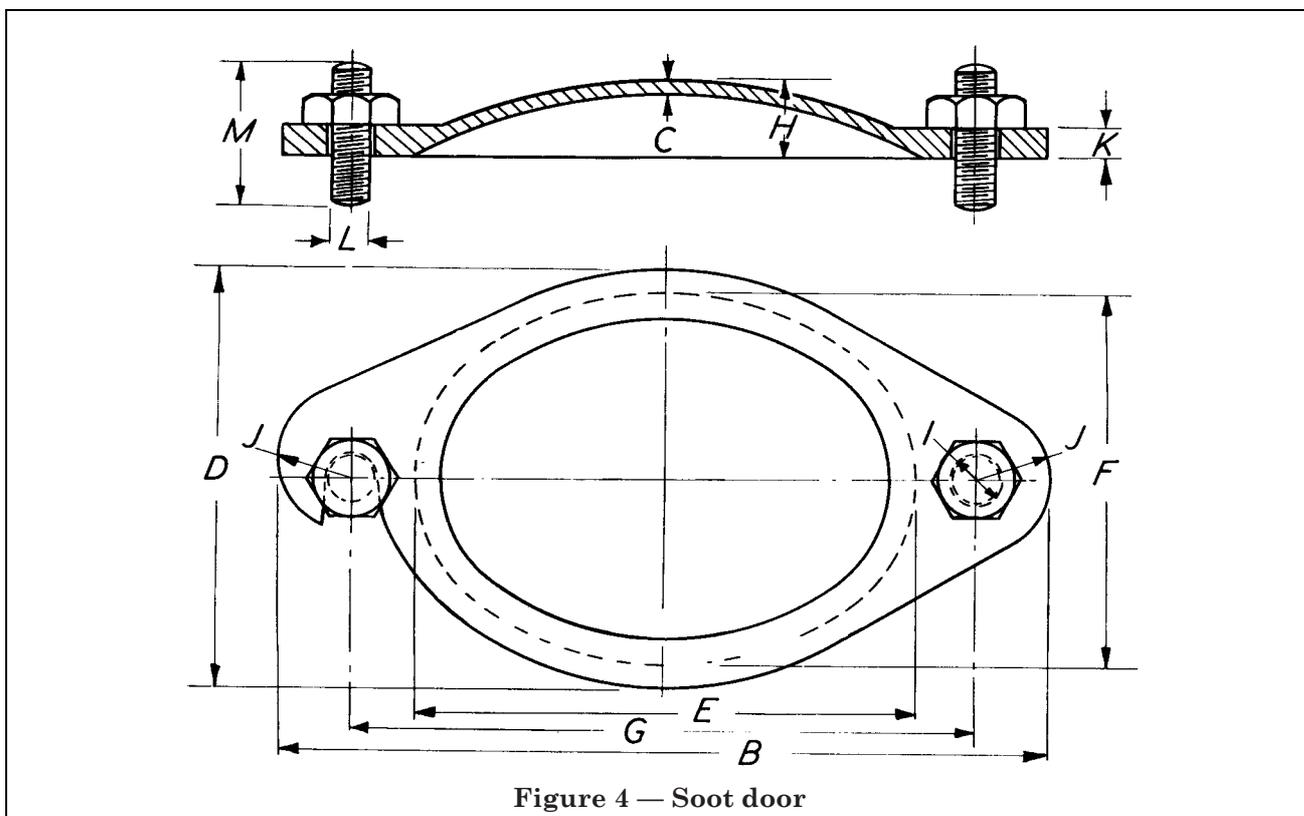


Figure 4 — Soot door

Table 4 — Dimensions of soot door (see Figure 4)

| Dimensions | | Nominal bore of pipe A (mm) | | | | | | | |
|------------------------|----------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|
| | | 100 | 111 | 125 | 150 | 200 | 225 | 250 | 300 |
| Length over lugs | <i>B</i> | 171 | 171 | 197 | 197 | 229 | 254 | 254 | 279 |
| Thickness of lid | <i>C</i> | 3 | 3 | 3 | 4 | 5 | 6 | 7 | 8 |
| Width of lid | <i>D</i> | 92 | 92 | 111 | 112 | 135 | 155 | 157 | 178 |
| Length of opening | <i>E</i> | 114 | 114 | 140 | 140 | 165 | 190 | 190 | 216 |
| Width of opening | <i>f</i> | 86 | 92 | 105 | 105 | 124 | 143 | 143 | 162 |
| Centres of holes | <i>G</i> | 140 | 140 | 165 | 165 | 190 | 216 | 216 | 241 |
| Projection of lid | <i>H</i> | 16 | 16 | 16 | 19 | 22 | 22 | 25 | 25 |
| Diameter of holes | <i>I</i> | 11 | 11 | 11 | 11 | 13 | 13 | 14 | 14 |
| Radius of lugs | <i>J</i> | 16 | 16 | 16 | 16 | 19 | 19 | 19 | 19 |
| Thickness of lugs | <i>K</i> | 6 | 6 | 6 | 6 | 8 | 9 | 9 | 9 |
| Diameter of studs | <i>L</i> | 9 | 9 | 9 | 9 | 11 | 11 | 12 | 12 |
| Length of studs (min.) | <i>M</i> | 28 | 28 | 28 | 28 | 33 | 38 | 38 | 38 |

Publications referred to

This standard makes reference to the following British Standards:

BS 1224, *Electroplated coatings of nickel and chromium.*

BS 1344, *Methods of testing vitreous enamel finishes.*

BS 1452, *Grey iron castings.*

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