BRITISH STANDARD

BS 567:1973
Incorporating Amendment No. 1

Specification for

Asbestos-cement flue pipes and fittings, light quality

UDC 621.643.2 – 183.3:666.961:697.81

Confirmed January 2010

Co-operating organizations

The Fibre Reinforced Cement Products Standards Committee, under whose supervision this British Standard was prepared consists of representatives of the following Government departments and scientific and industrial organizations:

Asbestos Cement Manufacturers' Association*
Concrete Society
Department of the Environment — Building Research Station
Department of the Environment, Public Buildings and Works*
Incorporated Association of Architects and Surveyors
Institution of Civil Engineers
Institution of Municipal Engineers*
Institution of Structural Engineers
National Federation of Builders' and Plumbers' Merchants
National Federation of Building Trades Employers
National Federation of Roofing Contractors
Royal Institute of British Architects*
Royal Institution of Chartered Surveyors
Royal Society of Health
An individual manufacturer

The Government department 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 British Standard:

Gas Council
Institute of Plumbing
Institution of Gas Engineers
National Federation of Plumbers and Domestic Heating Engineers
Society of British Gas Industries
Individual manufacturers

This British Standard, having been approved by the Asbestos and Asbestos-Cement Building Products Industry Standards Committee, was published under the authority of the Executive Board on
14 March 1973

First published October 1934
First revision January 1945
Second revision October 1948
Third revision December 1954
Fourth revision October 1963
Fifth revision March 1968
Sixth revision (metric)
March 1973

The following BSI references relate to the work on this standard:
Committee reference FRB/3
Draft for approval 71/11577

ISBN 0 580 07026 3

Amendments issued since publication

Amd. No.	Date of issue	Comments
5963	April 1989	Indicated by a sideline in the margin

Contents

Foreword

This British Standard has been prepared under the authority of the Fibre Reinforced Cement Products Standards Committee. It has been revised in metric terms as part of that Committee's programme of metrication and supersedes the 1968 edition. The metric values are given in SI units. For further information on SI units reference should be made to BS 3763, "*The International System of units (SI)*".

The range of available diameters of flue pipes and fittings has been reduced by the deletion from this standard of the old 2½ in (63.5 mm) diameter size.

There are several different designs of terminals available, and approved by the Gas Council, for use with flues for gas-fired appliances. The Gas Council should be consulted as to suitable designs of terminals for this purpose.

Recommendations on methods of fixing and jointing flues for gas appliances are given in the appropriate sections of CP 337, "*Flues for gas appliances up to 150 000 Btu/h rating*".

The clause defining sampling, inspection and acceptance has been amended to agree with the description standardized in ISO/R 390, "*Sampling and inspection of asbestos-cement products*", drawn up by Technical Committee 77 of the International Organization for Standardization responsible for products in asbestos-cement.

The detailed description of the apparatus and procedures for the testing of flue pipes and fittings have been omitted from this standard as these are given in the appropriate sections of BS 4624, "*Methods of test for asbestos and asbestos-cement building products*".

The recommendations for the co-ordination of dimensions in building are embodied, where appropriate, in this standard. The terminology used in this standard is in accordance with the definitions in BS 6100-1.5.1.

The manufacture of all asbestos based products is covered by the requirements of the Control of Asbestos at Work Regulations 1987, introduced on 1 March 1988. These set out comprehensive provisions covering work activities involving exposure to asbestos. Advice on how to comply with these regulations can be obtained from the manufacturers of the material, from the Asbestos Information Centre, St. Andrew's House, 22-28 High Street, Epsom, Surrey KT19 8AH, from the local area office of the Health and Safety Executive or from the Environmental Health Department of the Local Authority.

WARNING. Breathing asbestos dust is dangerous to health and precautions have to be taken during the manufacture and use of these products.

Particular note has to be taken of the Asbestos Products (Safety) Regulations 1985, made under the Consumer Safety Act 1978 and of the Asbestos (Prohibitions) Regulations 1985[1)] made under the Health and Safety at Work etc. Act 1974, which prohibit the supply of products containing amosite or crocidolite and set out requirements for the labelling of all products containing asbestos.

All the above legislation implements European Directives

[1)] Parallel regulations for Northern Ireland came into force on 6 March 1986.

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 to iv, pages 1 to 14, 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.

blank

1 Scope

This British Standard specifies requirements for light quality asbestos-cement flue pipes and fittings of diameters 50 mm, 75 mm, 100 mm, 125 mm and 150 mm, with or without internal acid-resisting coating, intended primarily for use with gas-fired appliances having an input rating not exceeding 45 kW.

They may also be used for ventilation and other purposes. Where it is expected that the material will be subjected to a flue temperature exceeding 260 °C the advice of the manufacturer should be sought.

It is important that there shall be no direct flame impingement on the wall of the flue pipe. Light quality pipes and fittings are not suitable for use with solid fuel and oil-fired appliances.

NOTE 1 For diameters exceeding 150 mm for use with gas appliances and for asbestos-cement flue pipes and fittings for use with solid fuel or oil-fired appliances, see BS 835.

NOTE 2 The titles of the British Standards referred to in this standard are listed on the inside back cover.

2 Composition

Asbestos-cement flue pipes and fittings shall be made from a close and homogeneous mixture consisting essentially of a suitable inorganic hydraulic binder[2)], asbestos fibre (except fibers of crocidolite and amosite which are not permitted) and water, and shall exclude any materials liable to cause ultimate deterioration in the quality of the pipes and fittings. They shall be left in their natural colour, or colouring matter conforming to the requirements of BS 1014 shall be added in the composition.

NOTE Pipes and fittings may also be supplied with adherent coloured or uncoloured coatings on their surfaces.

3 Manufacture

The materials used in the manufacture of the pipes and fittings shall be intimately mixed by mechanical means.

The finished pipes and fittings shall be smooth and of good appearance, their inner and outer surfaces being as nearly as practicable concentric; the ends of the pipes or fittings shall be finished square to their axes. They shall be in all respects sound, homogeneous and free from excrescences or other imperfections detrimental to their performance.

4 Dimensions and tolerances

4.1 Dimensions. Dimensions of pipes and fittings shall be as shown in Figure 1 to Figure 10 and in Table 1 to Table 10.

4.2 Nominal length. The nominal length of pipes shall be the total length, exclusive of the internal depth of the socket. Nominal lengths shall be 900 mm, 1 200 mm and 1 800 mm subject to the tolerance given in Table 11.

4.3 Nominal size. The nominal size of a pipe or fitting shall be its internal diameter.

4.4 Spigots and sockets of pipes and fittings. Spigots and sockets of pipes and fittings shall conform to the dimensions laid down in Table 1.

In all cases dimension *C* in Table 1 shall be the minimum internal diameter for the socket.

4.5 Tolerances. Permissible variations in length, thickness, internal and external diameter are shown in Table 11.

5 Standard tests

5.1 Straightness, regularity of thickness, and diameter. The deviation of straightness of pipes when tested in the manner described in BS 4624 shall not be more than 3 mm in any 600 mm and not more than 6 mm in 1 800 mm.

The regularity of thickness and diameter when tested with gauges and callipers provided and maintained by the manufacturer in proper condition for the purpose shall be in accordance with Table 11.

5.2 Water tightness. Pipes and fittings, when subjected to a test of 400 mbar internal hydraulic pressure by the method described in BS 4624 shall not show any defects.

5.3 Bursting strength. The strength of the pipes shall be such that, when tested in the manner described in BS 4624 they will withstand the minimum hydraulic pressure shown in Table 12.

5.4 Water absorption. The mean water absorption of pipes and fittings, when specimens are tested in the manner described in BS 4624 shall not exceed 30 % of the dry weight of the material.

5.5 Chemical resistance. The mean amount of acetic acid neutralized, when specimens selected from pipes and fittings are tested in the manner described in BS 4624 shall not exceed 0.115 g/cm^2.

6 Protection and means of checking it

6.1 Protective coatings. Where required, taking into consideration the purpose of the installation, a suitable protective coating as agreed between the purchaser and the manufacturer shall be applied.

When such a coating is required, the whole of the internal surface, including the socket and edge of the spigot end, shall be coated.

[2)] Cement complying with the requirements of BS 12, satisfies this requirement.

6.2 Identification and tests. In those instances where a protective coating is required for pipes and fittings for flueing gas-fired appliances, (see CP 337), it shall be identifiable by colour and the following additional tests shall apply.

6.2.1 Test for acid resistance (24 h). When tested in accordance with the method described in BS 4624 there shall be no peeling or formation of white deposits.

6.2.2 Test for acid resistance (100 h). When tested in accordance with the method described in BS 4624 there shall be no peeling or formation of white deposits.

6.2.3 Test for temperature susceptibility. When tested in accordance with the method described in BS 4624 there shall be no visual signs of cracking or of significant blistering of the internal coating.

6.2.4 Test for adhesion. When tested in accordance with the method described in BS 4624 there shall be no flaking or lifting of the exposed edges of the coating.

7 Sampling and arrangements for proving samples

7.1 All items in a consignment shall meet the requirements of Clauses **2**, **3**, **4**, **5** and, where applicable, **6**.

7.2 If the purchaser requires the manufacturer to test the products in a particular consignment in accordance with Clauses **5** and **6**, this shall be stated in the enquiry and order. Specimens for testing for compliance with these clauses shall be selected by sampling in accordance with Appendix A. If tests are to be made in the presence of the purchaser, or his representative, this also shall be stated.

7.3 When the number of specimens required to be tested exceeds the numbers laid down in Table 13 the cost of such additional tests, unless otherwise stipulated shall be borne

1) by the manufacturer if the results show that the material does not comply with the specification,

2) by the purchaser if the results show that the material complies with the specification.

7.4 Independent tests may be carried out by agreement between the manufacturer and the purchaser, and attention is drawn to the Note following Clause **8**.

8 Marking

Every pipe and fitting shall be marked legibly with the following:

1) the manufacturer's name or trade mark,

2) nominal size of the pipe or fitting,

3) the number of this British Standard, i.e. BS 567.

Appendix A Method of sampling

A.1 Division of a consignment

Divide the consignment into inspection lots.

A.1.1 Homogeneous consignments. Homogeneous consignments are divided in the following manner.

1) Any homogeneous consignment (or sub-consignment), (see **A.1.2**), is divided by the manufacturer into inspection lots, the maximum size of which is given in Table 13.

2) Any fraction of a consignment remaining after taking out the highest possible number of maximum inspection lots and any homogeneous consignment (sub-consignment) smaller than the maximum lot size, forms an inspection lot if larger than the minimum lot size given in Table 13.

3) Consignments or fractions of consignments smaller than the minimum lot size given in Table 13 are not submitted for sampling and testing.

A.1.2 Non-homogeneous consignments. Any consignment which is known to be or is expected to be non-homogeneous as regards any of the properties to be tested by sampling is divided by the manufacturer into assumed homogeneous sub-consignments prior to the division into inspection lots, as in **A.1.1**.

A.2 Sampling

Procedure for sampling is as follows.

A.2.1 From each inspection lot [see **A.1.1** 1) and 2) above] the purchaser may draw a sample, the size of which is indicated in Table 13 [see **A.1.1** 2)].

A.2.2 The entry to Table 13 is the number of units of products in the inspection lot (Column 1), the sample size being indicated in Column 2.

A.2.3 When test pieces are cut from the units of the sample, the cutting is carried out by the manufacturer in the presence of the purchaser.

A.2.4 The sample size is appropriately multiplied so as to secure for each test a number of test pieces equal to the sample size (see **A.2.2**). From one unit of a sample one test piece only is cut for a particular test, but for different tests the relative test pieces may be cut from the same unit of the sample.

A.3 Determination of acceptability of inspection lots. Inspection by attributes

A.3.1 When there are no non-conforming units found in the sample, the inspection lot from which the sample was drawn is considered acceptable.

A.3.2 When the number of non-conforming units found in the sample is equal to or greater than the rejection number Re_1, indicated in Column 4 of Table 13, this may justify rejection of the inspection lot.

A.3.3 When the number of non-conforming units found in the sample lies between the acceptance number and the rejection number (Columns 3 and 4 of Table 13), a second sample of the same size as the initial sample (see **A.2.2**) is drawn and examined.

A.3.3.1 Inspect the second sample as indicated in **A.2.3** and **A.2.4**.

A.3.3.2 Total the number of non-conforming units found in the initial and in the second samples.

A.3.3.3 If the total number of non-conforming units is equal to or less than the acceptance number Ac_2 indicated in Column 5 of Table 13, the inspection lot is considered acceptable.

A.3.3.4 If the total number of non-conforming units is equal to or greater than the second rejection number Re_2 indicated in Column 6 of Table 13, this may justify rejection of the inspection lot.

A.3.3.5 When this standard calls for more than one property to be tested, the second sample taken (see **A.3.3**) should only be inspected in accordance with those tests which at the inspection of the initial sample gave numbers of non-conforming units between the acceptance number Ac_1 and the rejection number Re_1.

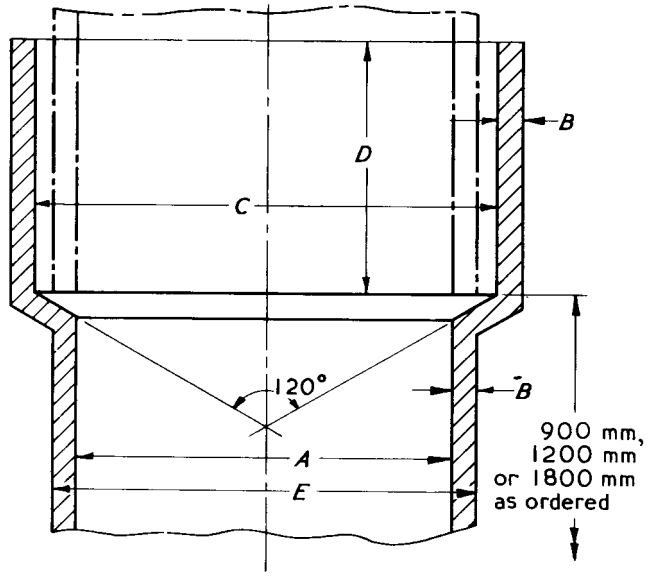


Figure 1 — Straight pipe

Table 1 — Straight pipes

All sizes in millimetres

Dia. *A*	50	75	100	125	150
B	4.5	4.5	4.5	6.0	6.0
C	67	92	117	146	171
D	38	51	63	76	89
E	59	84	109	137	162

NOTE 1 These dimensions of socket and spigot apply as standards to all pipes and fittings.
NOTE 2 For dimensional tolerances see Table 11.

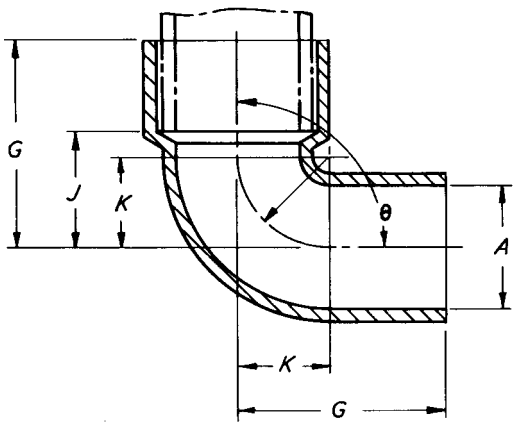


Figure 2a — Square and obtuse bend

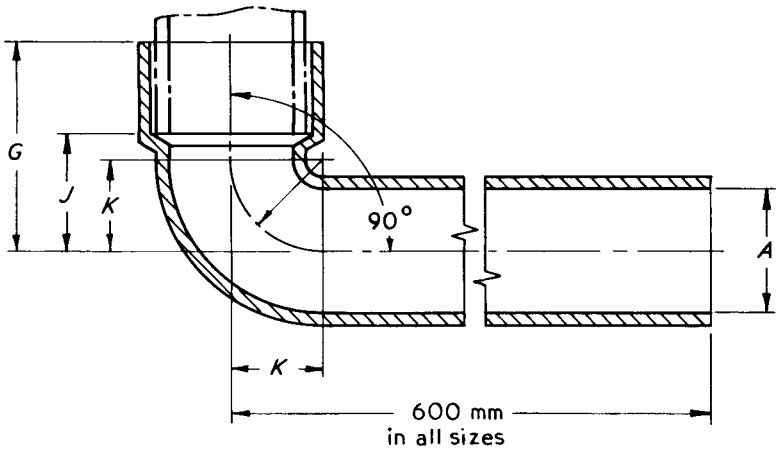


Figure 2b — Square long-arm bend

Table 2 — Square and obtuse bends, square long-arm bend

All sizes in millimetres

Standard range of angles θ	Dia. A	50	75	100	125	150
90°, 110°, 120°, 135°	G	86	117	149	184	216
	J	48	67	86	108	127
	K	38	57	76	95	114

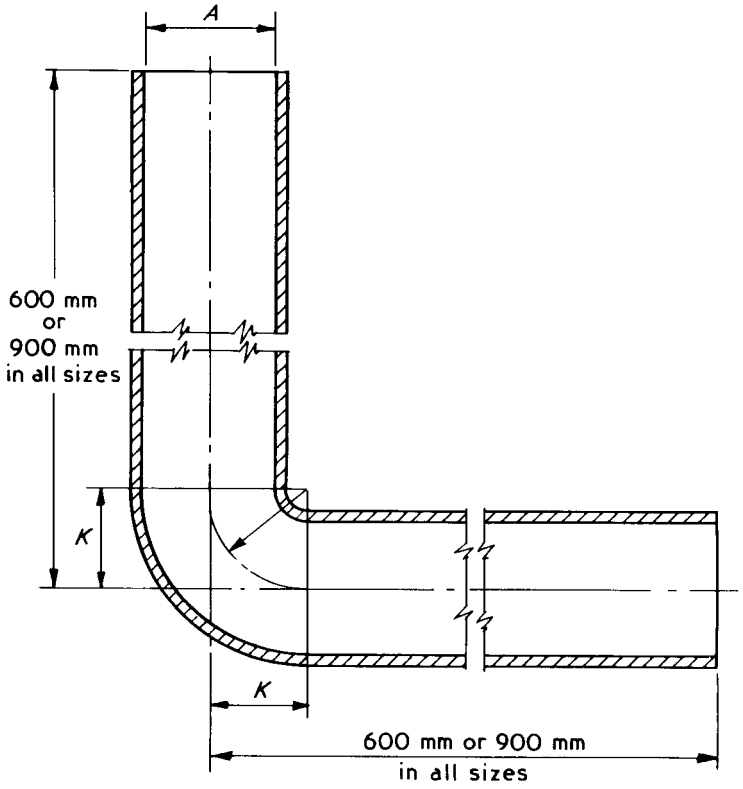


Figure 3 — Square eaves-bend, double spigot

Table 3 — Square eaves-bends, double spigot

All sizes in millimetres

Dia. *A*		50	75	100	125	150
	K	38	57	76	95	114

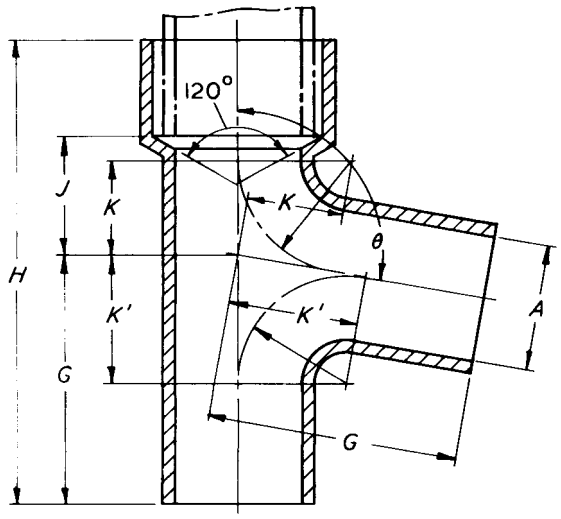


Figure 4 — Equal square and obtuse tee

Table 4 — Equal square and obtuse tees

All sizes in millimetres

Dia.		*A*	50	75	100	125	150
		J	48	67	86	108	127
		K	38	57	76	95	114
Angle θ	90°	*G*	86	117	149	184	216
		H	171	235	298	368	432
		K′	38	57	76	95	114
	110°	*G*	111	156	200	248	292
		H	197	273	349	432	508
		K′	63	95	127	159	190
	120°	*G*	124	175	225	279	330
		H	210	292	375	464	546
		K′	76	114	152	190	229
	135°	*G*	137	194	251	311	368
		H	222	311	400	495	584
		K′	89	133	178	222	267

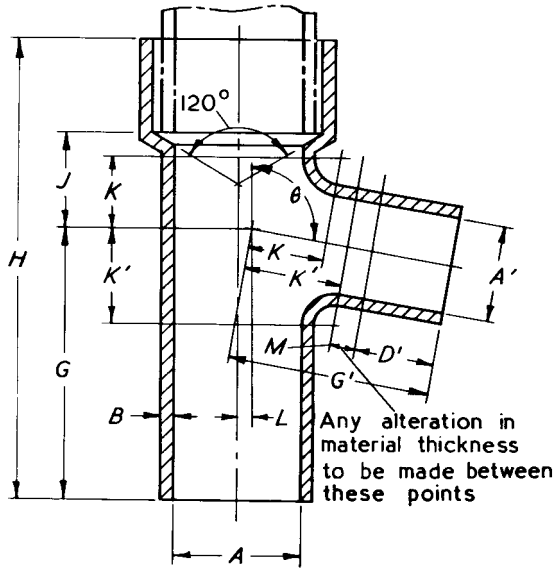


Figure 5 — Unequal square and obtuse tee

Table 5 — Unequal square and obtuse tees

All sizes in millimetres

Dia. A			150				125			100		75
Dia. A'			50	75	100	125	50	75	100	50	75	50
		D'	38	51	63	76	38	51	63	38	51	38
		J	51	70	89	108	51	70	89	48	67	48
		K	38	57	76	95	38	57	76	38	57	38
		L	51	38	25	13	38	25	13	25	13	13
		M	10	10	10	13	10	10	10	10	10	10
Angle θ	90°	G	292	273	254	235	241	222	203	187	168	136
		G'	86	117	149	184	86	117	148	86	117	86
		H	432	432	432	432	368	368	368	298	298	235
		K'	38	57	76	95	38	57	76	38	57	38
	110°	G	368	349	330	311	305	286	267	238	219	175
		G'	111	156	200	248	111	156	200	111	156	111
		H	508	508	508	508	432	432	432	349	349	273
		K'	63	95	127	159	63	95	127	63	95	63
	120°	G	406	387	368	349	337	317	298	363	244	194
		G'	124	175	225	279	124	175	225	124	175	124
		H	546	546	546	546	464	464	464	375	375	292
		K'	76	114	152	190	76	114	152	76	114	76
	135°	G	444	425	406	387	368	349	330	289	270	213
		G'	136	194	251	311	136	194	251	136	194	136
		H	584	584	584	584	495	495	495	400	400	317
		K'	89	133	178	222	89	133	178	89	133	89

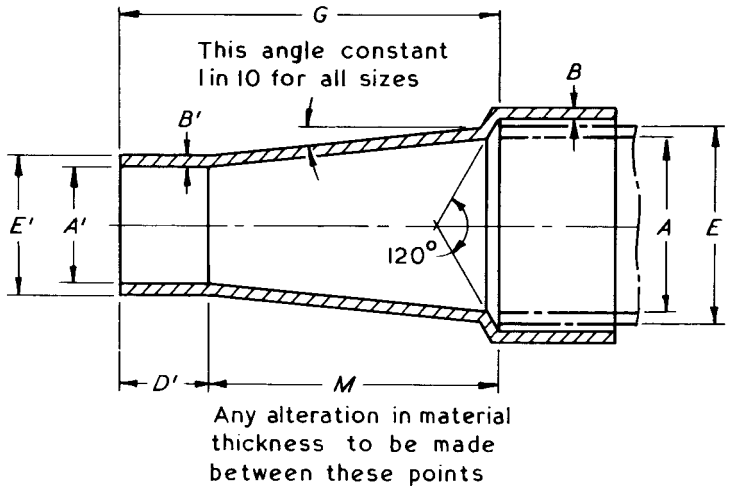


Figure 6 — Taper piece

Table 6 — Taper pieces

All sizes in millimetres

Dia.	*A*	150				125			100		75
Dia.	*A*	50	75	100	125	50	75	100	50	75	50
	B	6	6	6	6	6	6	6	4.5	4.5	4.5
	B'	4.5	4.5	4.5	6	4.5	4.5	4.5	4.5	4.5	4.5
	D'	38	51	63	76	38	51	63	38	51	38
	E	165	165	165	165	140	140	140	111	111	86
	E'	59	84	109	137	59	84	109	59	84	59
	G	546	432	317	203	419	305	190	292	178	165
	M	508	381	254	127	381	254	127	254	127	127

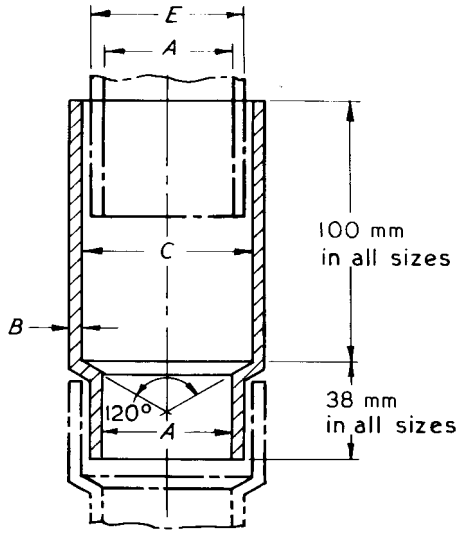


Figure 7 — Slip socket

Table 7 — Slip sockets

All sizes in millimetres

Dia. *A*	50	75	100	125	150
B	4.5	4.5	4.5	6	6
C	67	92	117	146	171
E	59	84	109	137	162

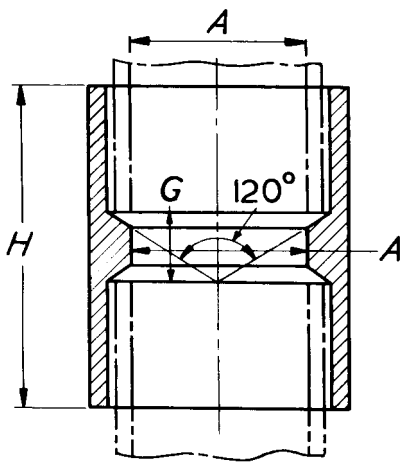
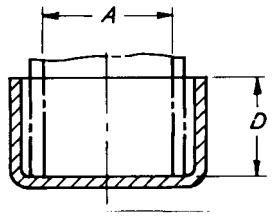


Figure 8 — Loose socket

Table 8 — Loose sockets

All sizes in millimetres

Dia. *A*	50	75	100	125	150
G	19	19	19	25	25
H	95	121	146	178	203



NOTE This blank cap may be used for condensation collection by drilling at a suitable point and fitting a plug or tap.

Figure 9 — Blank cap

Table 9 — Blank caps

All sizes in millimetres

Dia. *A*	**50**	**75**	**100**	**125**	**150**
D	38	51	63	76	89

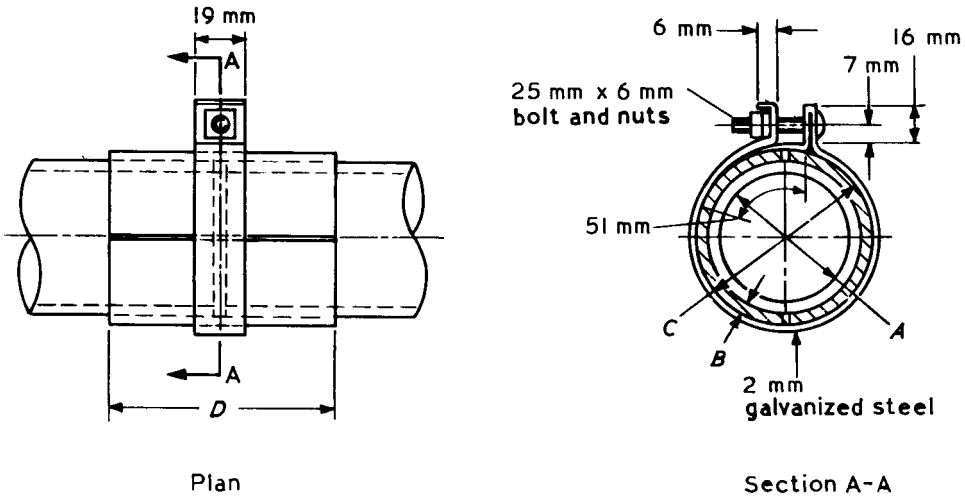


Figure 10a — Split socket with metal connecting strap

Table 10a — Split sockets with metal connecting strap

All sizes in millimetres

Dia.	*A*	50	75	100	125	150
	B	4.5	4.5	4.5	6.0	6.0
	C	68	93	118	149	174
	D	89	114	140	165	191

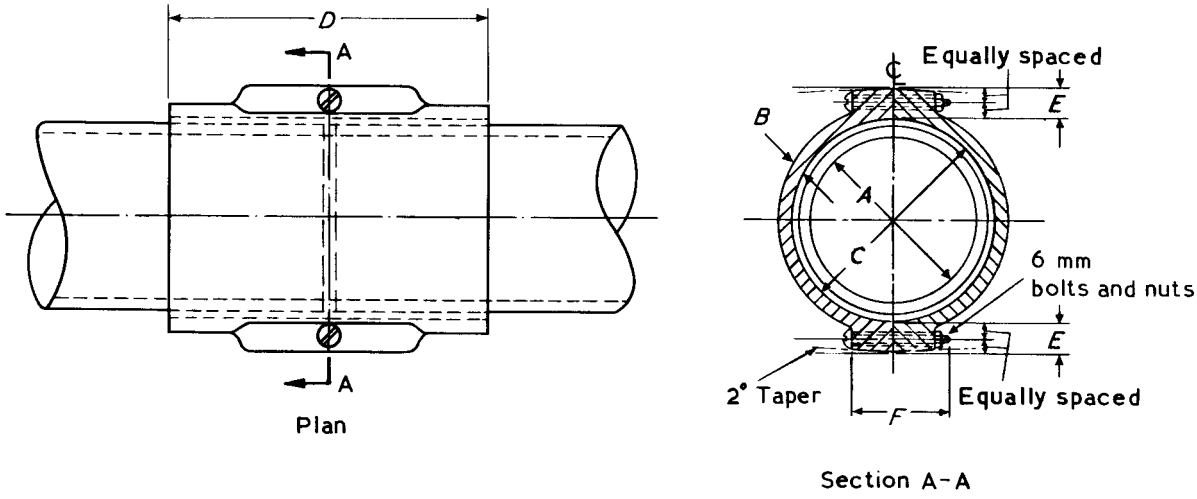


Figure 10b — Split socket

Table 10b — Split socket

All sizes in millimetres

Dia.	*A*	75	100	125	150
	B	4.5	4.5	6.0	6.0
	C	92	117	146	171
	D	127	127	178	178
	E	13	13	17	17
	F	38	38	51	51
No. of bolts		2	2	4	4

Table 11 — Tolerances

All sizes in millimetres

Nominal size	Nominal length	Thickness of pipe or fitting	Permissible variation			
			internal diameter of pipe or fitting	thickness of pipe or fitting	external diameter of pipe or fitting	length of pipe
50		4.5				
75	900, 1 200	4.5				
100	and 1 800	4.5	± 3.0	± 1.0	± 3.0	+ 0
125	in all sizes	6.0	in all sizes	in all sizes	in all sizes	−12
150		6.0				in all sizes

Table 12 — Minimum hydraulic bursting pressure

Nominal size of pipe	Minimum bursting pressure
mm	mbar[a]
50	5 150
75	3 450
100	2 750
125	2 750
150	2 400

[a] 1 mbar = 0.1 kPa

Table 13 — Sampling (see Appendix A)

1	2	3	4	5	6
Size of inspection lot	Sample size	Initial sample		Initial + second samples	
		Acceptance number Ac_1	Rejection number Re_1	Acceptance number Ac_2	Rejection number Re_2
400	5	0	2	1	2
401 – 800	7	0	2	1	2
801 – 1500	10	0	2	2	3
1501 – 3000	15	0	3	3	4

NOTE Minimum inspection lot size = 400. Maximum inspection lot size = 3000.

Publications referred to

This Standard makes reference to the following British Standards:
BS 12, *Portland cement (ordinary and rapid-hardening).*
BS 835, *Asbestos-cement flue pipes and fittings, heavy quality.*
BS 1014, *Pigments for cement, magnesium oxychloride and concrete.*
BS 4624, *Methods of test for asbestos and asbestos-cement building products.*
CP 337, *Flues for gas appliances up to 150 000 Btu/h rating.*
BS 6100, *Glossary of building and civil engineering terms.*
BS 6100-1.5.1, *Co-ordination of dimensions; tolerances and accuracy.*

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL