BRITISH STANDARD

BS 5041-3: 1975

Incorporating Amendment No. 1

Fire hydrant systems equipment —

Part 3: Specification for Inlet breechings for dry riser inlets

UDC 614.842.62:621.643.4.064

Co-operating organizations

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

Association of County Councils
Association of Metropolitan Authorities*
British Constructional Steelwork Association
British Fire Protection Systems Association
Chief and Assistant Fire Officers' Association
Concrete Society
Confederation of British Industry
Department of the Environment*
Department of the Environment and Fire Offices Committee — Joint Fire Research Organization*
Department of Trade*
Fire Extinguishing Trades Association*
Fire Offices' Committee*
Fire Protection Association
Greater London Council
Greater London Council (London Fire Brigade)*
Health and Safety Executive, HM Factory Inspectorate
Home Office*
Industrial Fire Protection Association of Great Britain
Institute of Heating and Ventilation Engineers
Institution of Civil Engineers
Institution of Fire Engineers*
Institution of Municipal Engineers
Ministry of Defence*
National Council of Building Material Producers
Royal Institute of British Architects

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 British Standard.

Aluminium Federation
British Fire Services Association
British Plastics Federation
British Valve Manufacturers' Association
Copper Development Association
Light Metal Founders' Association
National Coal Board
Representatives of manufacturers of equipment and components

This British Standard, having been approved by the Fire Standards Committee, was published under the authority of the Executive Board on 29 August 1975

The following BSI references relate to the work on this standard:
Committee reference FSM/6
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Amendments issued since publication

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5504	March 1987	Indicated by a sideline in the margin

Contents

Foreword

This Part of this British Standard specifies requirements for 2-way and 4-way inlet breechings for use with dry risers (see definition **3.1**). It applies to fittings provided to enable the fire brigade to make multiple connections with fire hoses to charge these dry risers.

It is published as part of a general standard specification for fire hydrant systems equipment the other parts of which are:

— *Part 1: Landing valves for wet risers;*

— *Part 2: Landing valves for dry risers*[1)]*;*

— *Part 4: Boxes for landing valves for dry risers;*

— *Part 5: Boxes for foam inlets and dry riser inlets (formerly BS 3980).*

This general standard specification has been prepared under the authority of the Fire Standards Committee to provide detailed requirements for most of the special items required for wet and dry risers described in BS 5306-1.

As part of BSI's programme of metrication this standard is expressed in metric terms. The metric values are given in SI units; for further information reference should be made to BS 3763 "The International System of units (SI)". Inches have however been retained in certain cases to describe pipes and valves by their nominal bore or thread sizes so as to accord with the descriptions retained in the latest versions of the standards for these items.

Certification. Attention is drawn to the certification facilities described on page 4 of this standard.

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 4, 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)] In course of preparation.

Section 1. General

1 Scope

This Part of this British Standard specifies the requirements for 2-way and 4-way inlet breechings intended for dry risers only. They are to be fitted with male instantaneous connections complying with the requirements of BS 336, drain valves complying with the requirements of BS 5154, rating PN 16, and non-return valves.

2 References

The titles of the British Standards referred to in this standard are listed on page 4.

3 Definitions

For the purposes of this British Standard the following definitions apply.

3.1
dry riser (dry rising main)

a vertical pipe installed in a building for fire fighting purposes, fitted with inlet connections at fire brigade access level and outlet connections at specified points, which is normally dry but capable of being charged with water by pumping from fire service appliances

3.2
breeching

a unit at an inlet of a dry riser, fitted with either two or four connections leading to a common pipe. This unit is usually contained in a box as described in BS 5041-5

4 Overall requirements

4.1 Basic design of breeching

4.1.1 The size of the breeching shall be such that it can readily be accommodated in boxes for dry risers conforming to the requirements of BS 5041-5. To this end the maximum size of the breeching from the back face, or flange, to the extremity of the chain retaining lug on the blank cap shall be 260 mm.

4.1.2 The breeching shall be designed to ensure that the water flow within it is not subjected to undue restriction at any point.

4.2 Breeching outlets. The outlet fitted to the breeching shall be a nominal 100 mm screwed outlet, a nominal 100 mm flanged outlet or a nominal 150 mm flanged outlet.

4.3 Pressure rating and temperature range. The breeching and its fittings shall be suitable for a normal working pressure of 10 bar[2)] and for a working temperature range of from 0 °C to 38 °C.

4.4 Interchangeability of parts. All valves, connections and parts of the breeching shall be interchangeable between units from any one manufacturer.

5 Marking

Each breeching which has satisfactorily completed the test given in clause **11** and which in all respects conforms to the requirements of this standard shall be marked with the number of this standard, i.e. BS 5041-3.[3)]

Section 2. Design and manufacture

6 Breeching body

6.1 The body wall thickness at any point shall be not less than 3.5 mm.

6.2 The body shall be so constructed that it will withstand the test pressure (see section 5).

6.3 The inlet connections shall be spaced at not less than 115 mm (4½ in approx.) centres for the 2-way inlet breeching, and at not less than 150 mm (6 in approx.) centres for the 4-way type.

6.4 The outlet shall be as follows.

a) For 2-way breeching, either a female screwed outlet with 4 in threads complying with the requirements of BS 21 or a 100 mm flanged outlet complying with the requirements of Table 16/21 of BS 4504-2:1974.

b) For 4-way breeching, a 150 mm flanged outlet complying with the requirements of Table 16/21 of BS 4504-2:1974.

6.5 The casting surrounding the bolt holes on any flange shall be cast smooth and level, or machined, or spot faced, to ensure satisfactory bolting.

7 Inlet connections

7.1 Inlet connections shall be attached to the body by screwed ends or flanges.

7.2 The inlet connection for attaching the hose shall be a male instantaneous connector complying with the requirements of BS 336.

7.3 Each inlet connection shall be fitted with a non-return valve of either spring loaded mushroom type, or of flap type.

[2)] 1 bar = 10^5 N/m^2 = 100 kPa.

[3)] Marking BS 5041-3 on or in relation to a product is a claim by the manufacturer that the product has been manufactured to the requirements of the standard. The accuracy of such a claim is therefore solely the manufacturer's responsibility. Enquiries as to the availability of third party certification should be addressed to the appropriate certification body.

7.4 When flap type non-return valves are used, the three following conditions shall be observed.

a) The breeching shall be fitted so that the flap valves are top hung.

b) The flap shall be prevented from opening beyond a horizontal position or to any position where the flap can jam.

c) The opening of the flap valve shall be not less than 60° of movement.

7.5 The inlet connections shall be capped with a female blank cap in accordance with the requirements of clause **9**.

8 Drain valves

8.1 Each breeching shall be fitted with a drain valve in the form of a 1 in gate valve complying with the requirements of BS 5154, rating PN 16.

8.2 For ease of attaching a drain hose, the drain valve outlet shall be positioned so that it faces in the same direction as, and is at a lower level than, the inlet connections to the breeching.

8.3 The outlet of the drain valve shall have 1 in male threads complying with the requirements of BS 21, and shall be fitted with a female blank cap and chain.

Section 3. Special attachments

9 Blank caps

Each inlet shall be provided with a female instantaneous blank cap complying with the requirements of BS 336 or, if approved by the purchaser, a plastics cap or rubber cap.

Every blank cap shall be attached to the breeching by a suitable lug, S hook and chain.

Section 4. Materials

10 Choice for components

The materials for each component of the breeching shall be chosen from the list of permitted materials given in Table 1.

Section 5. Tests

11 Test requirements

11.1 The finished breeching and valves shall be subjected to an internal pressure of 20 bar[4)] in such a way as to ensure that all parts of the body and inlet connections are subjected to the full test pressure. During this test no form of external restraint shall be placed upon the body, and no non-return valve, part of the body or fitting shall show any signs of leakage from the interior to the atmosphere.

11.2 The non-return valves shall also be capable of holding 1.7 bar test pressure without showing any sign of leakage.

[4)] 1 bar = 10^5 N/m^2 = 100 kpa.

Table 1 — Choice of materials for components

Component	Permitted materials
Body	a) Spheroidal graphite iron to BS 2789 b) Malleable iron to BS 310
Inlet connections and non-return valves	a) Copper alloy to BS 1400 — LG2 or LG4 b) Copper alloy to BS 2872 — CZ122 or CZ114
Valve facings	a) Rubber to BS 1154 b) Chloroprene to BS 2752 (both to minimum nominal hardness level of 70 IRHD)
Blank caps for valve inlets	a) Copper alloy to BS 1400 — LG2 or LG4 b) Copper alloy to BS 2872 — CZ122 or CZ114 c) Aluminium alloys to BS 1490 and all anodized: type LM6 — M or type LM25 — TB or type LM25 — F d) Suitable plastics, if approved by the purchaser e) Suitable rubber, if approved by the purchaser
Drain valve	a) Copper alloy to BS 1400 — LG2 or LG4 b) Copper alloy to BS 2782 — CZ121, CZ122 or CZ132
Blank caps for drain valves	a) Copper alloy to BS 1400 — LG2 or LG4 b) Copper alloy to BS 2872 — CZ121 or CZ114 c) Malleable iron to BS 310 d) Suitable plastics, if approved by the purchaser e) Suitable rubber, if approved by the purchaser

12 Test certificate

If the purchaser specifies a requirement for a test certificate the manufacturer shall issue one to confirm that the breeching has been tested and has satisfactorily met the requirements of clause **11** of this standard. It shall also state the medium used in the tests.

Publications referred to

This standard makes reference to the following British Standard:

BS 21, *Pipe threads for tubes and fittings where pressure tight joints are made on the threads.*

BS 310, *Blackheart malleable iron castings.*

BS 336, *Fire hose couplings and ancillary equipment.*

BS 1154, *Vulcanized natural rubber (high quality).*

BS 1400, *Copper alloy ingots and copper and copper alloy castings.*

BS 1490, *Aluminium and aluminium ingots and castings.*

BS 2752, *Vulcanized chloroprene rubber compounds.*

BS 2789, *Iron castings with spheroidal or nodular graphite.*

BS 2872, *Copper and copper alloys. Forging stock and forgings.*

BS 4504, *Flanges and bolting for pipes, valves and fittings — Metric series.*

BS 5041-2, *Copper alloy and composite flanges.*

BS 5041, *Fire hydrant systems equipment.*

BS 5154-5, *Boxes for foam inlets and dry risers.*

BS 5154, *Copper alloy globe, globe stop and check, check, and gate valves for general purposes.*

BS 5306, *Fire extinguishing installations and equipment on premises*[5)].

BS 5306-1, *Hydrant systems, hose reels and foam inlets.*

[5)] Referred to in the foreword only.

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