

BS 750:2012



BSI Standards Publication

Specification for underground fire hydrants and surface box frames and covers

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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 September 2012. It was prepared by Subcommittee FSH/17/8, *Hydrants, hoses and associated water delivery equipment*, under the authority of Technical Committee FSH/17, *Fire and rescue service equipment*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 750:2006, which is withdrawn.

Information about this document

This British Standard includes specific national requirements that are not specified in BS EN 14339 and BS EN 1074-6.

It has been assumed in the drafting of this British Standard that the execution of its provisions is entrusted to appropriately qualified and experienced people, for whose guidance it has been prepared.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Introduction

A fire hydrant is installed primarily for use by the Fire and Rescue Service (FRS) to quickly secure a supply of water to extinguish a fire in the vicinity. A fire hydrant may also be installed for other purposes that allow a water supplier access to the pressurized water network.

NOTE A fire hydrant installed for non-fire fighting purposes is commonly known as a washout.

The water supplier is responsible for installing and maintaining fire hydrants for both purposes.

It is advisable to consult the FRS and the water supplier during the development of products conforming to this standard. In general terms, the FRS requires quick access to a supply of water from a fire hydrant using an operating key/bar and a standpipe. The water supplier does not require such quick access but carries a wider range of tools and equipment for operation and maintenance.

1 Scope

This British Standard specifies the operational and health and safety requirements for underground fire hydrants conforming to the dimensional, material and performance requirements of BS EN 14339 and BS EN 1074-6. It also includes specific national requirements not included in BS EN 14339 and BS EN 1074-6.

This British Standard applies to underground fire hydrants:

- a) to be installed in a water supply system;
- b) size DN80;
- c) suitable for a maximum allowable operating pressure (PFA) of 1.6 MPa or 2.5 MPa (16 bar or 25 bar);
- d) with operating valves; and
- e) with one outlet.

It also specifies requirements for their surface box frames and covers.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Standards publications

BS 336:1989, *Specification for fire hose couplings and ancillary equipment*

BS 5163-1, *Valves for waterworks purposes – Part 1: Predominantly key-operated cast iron gate valves – Code of practice*

BS 5163-2, *Valves for waterworks purposes – Part 2: Stem caps for use on isolating valves and associated water control apparatus – Specification*

BS 5834-2:2011, *Surface boxes, guards and underground chambers for the purposes of utilities – Part 2: Specification for surface boxes*

BS 6001-3, *Sampling procedures for inspection by attributes – Part 3: Skip-lot sampling procedures*

BS 6920-1, *Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water – Part 1: Specification*

BS EN 736 (all parts), *Valves – Terminology*

BS EN 1074-1:2000, *Valves for water supply – Fitness for purpose requirements and appropriate verification tests – Part 1: General requirements*

BS EN 1074-2, *Valves for water supply – Fitness for purpose requirements and appropriate verification tests – Part 2: Isolating valves*

BS EN 1074-6:2008, *Valves for water supply – Fitness for purpose requirements and appropriate verification tests – Part 6: Hydrants*

BS EN 1092-2, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 2: Cast iron flanges*

BS EN 1092-3, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated – Part 3: Copper alloy flanges*

BS EN 1561, *Founding – Grey cast irons*

BS EN 1563, *Founding – Spheroidal graphite cast iron*

BS EN 1982, *Copper and copper alloys – Ingots and castings*

BS EN 10088-1, *Stainless steels – Part 1: List of stainless steels*

BS EN 12163, *Copper and copper alloys – Rod for general purposes*

BS EN 12164, *Copper and copper alloys – Rod for free machining purposes*

BS EN 12165, *Copper and copper alloys – Wrought and unwrought forging stock*

BS EN 12167, *Copper and copper alloys – Profiles and bars for general purposes*

BS EN 12168, *Copper and copper alloys – Hollow rod for free machining purposes*

BS EN 14339:2005, *Underground fire hydrants*

BS EN ISO 7500-1, *Metallic materials – Verification of static uniaxial testing machines – Part 1: Tension/compression testing and machines – Verification and calibration of the force-measuring system*

Other publications

[N1] WATER UK. *WIS 04-52-01, Specification for polymeric anti-corrosion (barrier) coatings (as amended)*. Swindon: WRc plc, 1994. ISSN 1353-2510.¹⁾

[N2] WATER UK. *WIS 04-52-02, The use of polymeric anti-corrosion (barrier) coatings*. Swindon: WRc plc, 1993. ISSN 0267-0305.¹⁾

[N3] WATER UK. *WIS 04-52-03, Specification for anti-corrosion coatings on threaded fasteners (as amended)*. Swindon: WRc plc, 1995. ISSN 1353-2510.¹⁾

3 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in BS EN 14339 and BS EN 736 (all parts) apply.

¹⁾ Available from <http://www.water.org.uk/>

4 Fire hydrants

4.1 General

As a minimum, fire hydrants conforming to this British Standard shall conform to BS EN 14339.

Fire hydrants shall have a design life of a minimum of 50 years. This shall be determined by reference to:

- a) the properties of the materials used in the construction;
- b) the engineering design of the fire hydrant;
- c) the normal situation of installation; and
- d) the conditions of use.

Where materials have time-dependent properties, these shall be selected with reference to the manufacturer's data on such properties to determine their suitability for the function and life span.

Where components of the fire hydrant are designed to be serviceable, this shall not be regarded as a reason to design for a shorter operating life.

Serviceable components shall include those having potential for accidental damage and wear from abnormal use.

The manufacturer shall ensure that parts that are considered to be subject to wear shall be available for the lifetime of the valve.

Fire hydrants shall be one of the following two types:

- 1) type 1 (see 4.2 and Figure 1);
- 2) type 2 (see 4.3 and Figure 2).

4.2 Type 1 fire hydrant

Type 1 fire hydrants shall conform to the dimensions shown in Figure 1.

The operating valve shall conform to BS EN 1074-1, BS EN 1074-2, BS 5163-1 and BS 5163-2 for PFA 16 or PFA 25 valves.

Materials for duckfoot bends shall conform to BS EN 1561 or BS EN 1563.

The Y and Z flanges DN50, PN 16 or PN 25, as shown in Figure 1, shall be compatible with the mating dimensions given in BS EN 1092-2 and BS EN 1092-3 as appropriate, using the bolts, studs or set screws specified.

NOTE 1 They are not required to be circular and are not required to have raised faces.

NOTE 2 Y or Z flanges may have a groove in the face to accommodate an "O" ring. The bolt holes may be slotted and the slots may extend to the periphery of the flange.

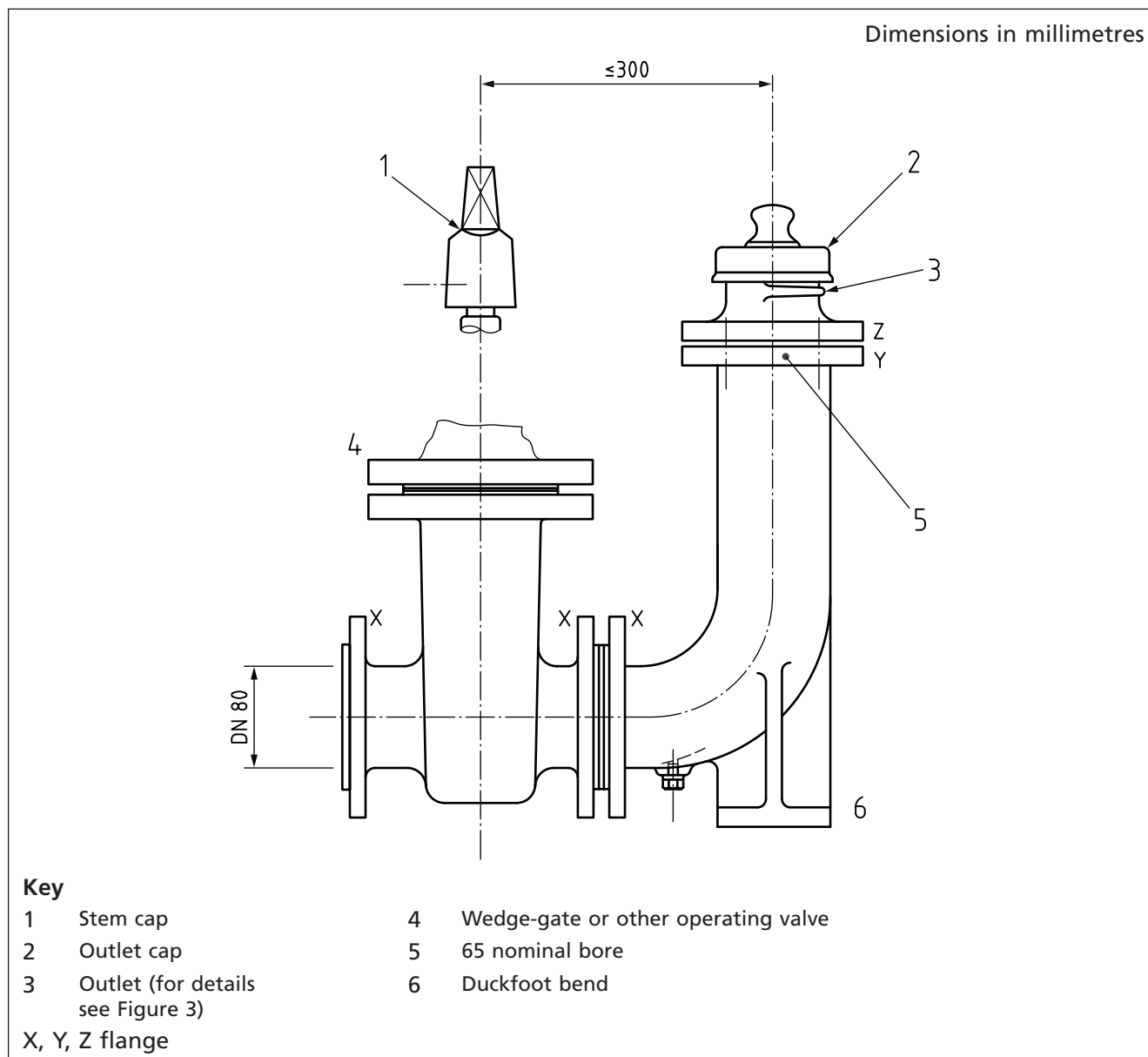
4.3 Type 2 fire hydrant

4.3.1 Classification

Type 2 fire hydrants shall conform to one of the following patterns.

- a) Type 2a: The bonnets and/or outlets of this pattern shall be secured in such a manner that they cannot be removed when installed in a pipeline. With the exception of stem sealings, it shall be made clear in the manufacturer's literature that the fire hydrant cannot be maintained while in situ.

Figure 1 Example of type 1 fire hydrant showing required dimensions



- b) Type 2b: This shall be designed to facilitate maintenance of the obturator, stem, outlet and their seals, in situ, while mounted in a chamber with a surface box frame and cover in accordance with Clause 14. They shall have:

- 1) Y and Z flanges DN50, PN 16 or PN 25, compatible with the mating dimensions given in BS EN 1092-2 and BS EN 1092-3 as appropriate, using bolts, studs or set screws specified; and

NOTE 1 They are not required to be circular and are not required to have raised faces.

NOTE 2 Y or Z flanges may have a groove in the face to accommodate an "O" ring. The bolt holes may be slotted and the slots may extend to the periphery of the flange.

- 2) a bolted connection at the body/bonnet joint with a minimum of three bolts.
- c) Type 2c: This shall be designed to facilitate maintenance as type 2b. They shall have bolted connections between both the outlet and body, and the bonnet and body. These connections shall each have a minimum of three bolts.

- d) Type 2d: This shall be designed to facilitate maintenance as type 2b, but shall have a means of connection of the outlet and/or bonnet to the fire hydrant body other than type 2c (see 5.4, 5.5 and 4.3.5).

Type 2b, type 2c and type 2d fire hydrants shall be capable of being dismantled in situ using standard, readily available tools.

4.3.2 Dimensions

Type 2 fire hydrants shall conform to the dimensions shown in Figure 2.

The clearance between the back of flange X (where used), see Figure 2, and the body shall be not less than 17 mm at the position of any bolt hole.

The mating dimensions of flange X (where used), see Figure 2, shall be in accordance with BS EN 1092-2, DN80 and PN 16 or PN 25.

NOTE It is not required to be circular or full-form and may be provided with additional holes, which may be slotted, to suit other flange designs.

Figure 2 Example of type 2 fire hydrant showing required dimensions

