



BSI Standards Publication

Fixed firefighting systems — Foam systems

Part 1: Requirements and test methods for components

National foreword

This British Standard is the UK implementation of EN 13565-1:2019+A1:2025. It supersedes BS EN 13565-1:2019, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee FSH/18/7, Foam/Media Systems.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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à émulseurs - Partie 1 : Exigences et méthodes d'essais
relatives aux composants

Ortsfeste Brandbekämpfungsanlagen -
Schaumlöschanlagen - Teil 1: Anforderungen und
Prüfverfahren für Bauteile

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Contents	Page
European foreword.....	6
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions.....	9
4 General construction requirements	12
4.1 Connections.....	12
4.1.1 Permanent connections and joints	12
4.1.2 Bolting of pressure retaining parts	12
4.2 Parts intended for removal during routine field maintenance.....	12
4.2.1 Removal	12
4.2.2 Re-assembly	12
4.3 Hydrostatic strength.....	12
4.3.1 Leak test.....	12
4.3.2 Mechanical strength.....	13
4.4 Castings.....	13
4.5 Corrosion resistance of metal parts	13
4.5.1 Salt spray corrosion resistance of metal parts.....	13
4.5.2 Copper alloy components stress corrosion test.....	13
4.5.3 Internal corrosion.....	14
4.6 Elastomers	14
4.7 Plastics and reinforced resin materials.....	14
4.7.1 General.....	14
4.7.2 Resistance to ageing.....	14
4.7.3 Resistance to exposure to liquids.....	14
4.8 Heat and fire resistance.....	15
4.8.1 Sprayers and nozzles	15
4.8.2 Foam generators.....	15

4.9	Components for low expansion foam systems	15
4.9.1	Foam branchpipes.....	15
4.9.2	Foam sprayers	15
4.9.3	Foam pourers and foam chambers	15
4.9.4	Vapour seals	16
4.9.5	Low back pressure and high back pressure foam generators	16
4.9.6	Semi-subsurface hose units.....	16
4.10	Components for medium and high expansion foam systems.....	16
4.10.1	Nozzles and sprayers	16
4.10.2	High expansion foam generators.....	16
4.11	Tanks and pressure vessels for foam concentrates or solutions.....	17
4.11.1	General.....	17
4.11.2	Tanks at atmospheric pressure	17
4.11.3	Pressure vessels.....	17
5	Performance Characteristics of Foam Components.....	17
5.1	Discharge coefficients and characteristics of branchpipes, sprayers and low and high back pressure foam generators	17
5.1.1	Single orifice components.....	17
5.1.2	Multiple orifice components	18
5.2	Quality of foam from aspirating components.....	18
5.2.1	Low and medium expansion components.....	18
5.2.2	High expansion components	18
5.3	Accuracy of proportioning components	18
6	Documentation	18
6.1	Preparation and maintenance	18
6.2	Installation and user documentation	19
6.3	Design documentation	19
7	Marking	19

8	Evaluation of conformity - Initial type testing	19
8.1	Conformity.....	19
8.2	Modification.....	20
8.3	Prior testing.....	20
8.4	Grouping.....	20
8.5	Related components	20
8.6	Normal production.....	20
8.7	Reference samples.....	20
8.8	Test sequence.....	20
	Annex A (normative) Hydrostatic test.....	22
A.1	General.....	22
A.2	Leak test.....	22
A.3	Mechanical strength.....	22
	Annex B (normative) Ageing test for plastics, thermoplastics or thermosets; and reinforced resin materials	23
B.1	General.....	23
B.2	Tensile strength and elongation test.....	23
B.3	Impact test	23
	Annex C (normative) Liquid exposure test	24
	Annex D (normative) Heat and fire resistance test for foam generators.....	25
	Annex E (normative) Flow tests.....	26
E.1	General.....	26
E.2	Discharge coefficient.....	26
E.3	Discharge characteristic.....	26
	Annex F (normative) Quality of foam from aspirating components.....	27
F.1	General.....	27
F.2	Low expansion foams.....	27
F.3	Medium expansion foams.....	27

Annex G (normative) High expansion foam generator test	28
Annex H (normative) Range tests for branchpipes.....	29
Annex I (normative) Area coverage test for foam sprayers and nozzles	30
Annex J (normative) Maximum flow and back pressure.....	32
J.1 General.....	32
J.2 Flow	32
J.3 Back pressure	32
J.4 Vapour seals.....	32
J.4.1 Vapour seal – upstream (foam inlet side)	32
J.4.2 Vapour seal – downstream (tank side).....	32
Annex K (normative) Insertion and deployment of semi-subsurface hose	34
Annex L (normative) Salt spray corrosion test.....	35
Annex M (normative) Stress corrosion test.....	36
Annex N (normative) Internal corrosion test	37

European foreword

This document (EN 13565-1:2019+A1:2025) has been prepared by Technical Committee CEN/TC 191, “Fixed firefighting systems” the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2025, and conflicting national standards shall be withdrawn at the latest by December 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes A1 EN 13565-1:2019 A1.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

Compared to the previous edition, the following changes have been made:

- 1) the foreword has been updated;
- 2) normative references have been updated;
- 3) 4.1 revised;
- 4) 4.4 revised;
- 5) 4.5 revised;
- 6) 4.6 revised;
- 7) 4.9 replaces Clause 8;
- 8) 4.10 replaces Clause 9;
- 9) 4.11 replaces Clause 10;
- 10) Clause 5 changed to ‘performance characteristics of foam components’;
- 11) Clause 6, new clause ‘documentation’;
- 12) Clause 7 replaces Clause 11;
- 13) Clause 8 replaces Clause 12;
- 14) Annex A revised;
- 15) Annex E requirements clause reference added;
- 16) Annex F requirements clause reference added.
- 17) Annex G revised;

- 18) Annex H revised;
- 19) Annex I revised;
- 20) Annex J revised;
- 21) Annexes K, L, M, N added.

EN 13565, *Fixed firefighting systems — Foam systems*, is currently composed with the following parts:

- *Part 1: Requirements and test methods for components;*
- *Part 2: Design, construction and maintenance.*

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

1 Scope

The requirements of this document set out the materials, construction, and performance of components intended for use in fixed foam fire fighting systems, and using foam concentrates conforming to EN 1568-1 to EN 1568-4. The components covered are: proportioners, sprayers, semi-subsurface hose units, branchpipes, low/medium expansion foam generators, high expansion foam generators, foam chambers, tanks and pressure vessels. Methods of test are given in Annex A to Annex K.

Requirements are also given for the provision of the characteristic data needed for correct application of components.

NOTE 1 Unless otherwise stated pressures are gauge pressures expressed in bar.

The requirements of this document do not cover, except where stated, the use of combinations of components to form part, or the whole, of a fire fighting system.

NOTE 2 Components conforming to this document are not necessarily compatible one with another.

Requirements for pumps, motors and the functioning of mechanical components (i.e. remote control turrets) are outside the scope of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1568-1:2018, *Fire extinguishing media — Foam concentrates — Part 1: Specification for medium expansion foam concentrates for surface application to water-immiscible liquids*

EN 1568-2:2018, *Fire extinguishing media — Foam concentrates — Part 2: Specification for high expansion foam concentrates for surface application to water-immiscible liquids*

EN 1568-3:2018, *Fire extinguishing media — Foam concentrates — Part 3 Specification for low expansion foam concentrates for surface application to water-immiscible liquids*

EN 1568-4:2018, *Fire extinguishing media — Foam concentrates — Part 4: Specification for low expansion foam concentrates for surface application to water-miscible liquids*

EN 12259-1:1999+A1:2001, *Fixed fire fighting systems — Components for sprinkler and water spray systems — Part 1: Sprinklers*

EN 1092-1, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 12542, *LPG equipment and accessories — Static welded steel cylindrical tanks, serially produced for the storage of Liquefied Petroleum Gas (LPG) having a volume not greater than 13 m³ — Design and manufacture*

EN 13445 (all parts), *Unfired pressure vessels*

EN ISO 225, *Fasteners — Bolts, screws, studs and nuts — Symbols, designations and dimensions (ISO 225)*

EN ISO 175, *Plastics — Methods of test for the determination of the effects of immersion in liquid chemicals (ISO 175)*

EN ISO 179-1, *Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test (ISO 179-1)*

EN ISO 180, *Plastics — Determination of Izod impact strength (ISO 180)*

EN ISO 527-1, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1)*

EN ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread (ISO 898-1)*

EN ISO 898-2, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 2: Nuts with specified property classes — Coarse thread and fine pitch thread (ISO 898-2)*

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 888, *Fasteners — Bolts, screws and studs — Nominal lengths and thread lengths*

ISO 4633, *Rubber seals — Joint rings for water supply, drainage and sewerage pipelines — Specification for materials*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

Nordtest method NT Fire 042 Foam Concentrate Proportioner Performance Test

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1 component

item or piece of equipment intended for use in a fixed foam fire extinguishing system

3.2 aspirating component

component within which air and foam solution are mixed to make foam

3.3 non-aspirating component

components which discharge a spray of foam solution so that mixing with air and formation of foam takes place outside the component

3.4

proportioning component

component which controls the mixing of foam concentrate into a water flow, at a predetermined ratio, to produce a foam solution

Note 1 to entry: Proportioning components are variously described as inline, bypass and round the pump inductors, injectors, eductors, proportioners, venturis, constant and variable flow valves, orifice plates, water powered foam pumps and displacement proportioners.

3.5

single orifice component

component in which liquid flows through a single flow controlling orifice

3.6

multiple orifice component

component in which liquid flows simultaneously through more than one flow controlling orifice

3.7

branchpipe

component which projects foam in the form of a jet or spray

3.8

foam chamber

component that incorporates a vapour seal, a foam expansion chamber, and which delivers foam into a flammable or combustible liquid storage tank

Note 1 to entry: A foam generator can be connected to the foam chamber inlet.

3.9

foam generator

component which introduces air into the foam solution stream for delivery against a low back pressure, i.e. discharging against atmospheric pressure

3.10

high back pressure foam generator

component which introduces air into the foam solution stream for delivery against a high back pressure, for example, as is found in tank sub-surface injection

3.11

monitor

component consisting of a branchpipe or jet/fog nozzle and turret

Note 1 to entry: This standard is considering the mechanical properties and foam discharge performance only. Different types of operation (electrically, hydraulically, water motor oscillating) are not subject of this standard.

3.12

foam pourer (foam discharge outlet)

component which discharges foam gently and indirectly onto the fuel surface

Note 1 to entry: Some pourers are designed to discharge the foam tangentially in order to create a circular motion, and thus promote foam distribution.