

BS 5306-3:2009

Incorporating Corrigendum No. 1



BSI Standards Publication

Fire extinguishing installations and equipment on premises –

Part 3: Commissioning and maintenance of
portable fire extinguishers – Code of practice

bsi.

...making excellence a habit.[™]
AVA Documents
Document Sharing Hub

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© BSI 2011

ISBN 978 0 580 76935 1

ICS 13.220.10

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

Committee reference FSH/2

Draft for comment 07/30152563 DC

Publication history

First published February 1980

Second edition, August 1985

Third edition, October 2000

Fourth edition, November 2003

Fifth (present) edition, July 2009

Amendments issued since publication

Date	Text affected
October 2011	C1. Deletion of step 6 from the sequence of actions for carbon dioxide extinguishers in Table D.1.

Contents

Foreword *iii*

1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Process of commissioning	3
5	Visual inspection by the responsible person	4
6	Basic service, extended service and overhaul	4
7	Recharging of extinguishers	6
8	Replacement of components	7
9	Evaluation of fitness for service of extinguishers and actions to be taken	7

Annexes

Annex A (informative)	Training of competent persons	11
Annex B (normative)	Commissioning service procedures	13
Annex C (normative)	Safety precautions for extinguishers	16
Annex D (normative)	General basic service procedures	17
Annex E (normative)	Extended service procedures	20
Annex F (normative)	Overhaul, including periodic inspection and test procedures for CO ₂ and halon extinguishers	21
Annex G (informative)	Halon extinguishers	22
Annex H (informative)	Extinguishers manufactured in accordance with withdrawn British Standards	23

Bibliography 24

List of tables

Table 1	Maintenance intervals	5
Table B.1	Sequence of actions for commissioning service procedures for extinguishers	13
Table B.2	Commissioning service actions – Initial operations	13
Table D.1	Sequence of actions for basic service procedures for extinguishers	17
Table D.2	Basic service actions – Initial operations	17
Table E.1	Extended service procedures	20
Table F.1	Overhaul procedures for carbon dioxide (CO ₂) extinguishers	21
Table F.2	Overhaul procedures for halon extinguishers (see Annex G)	21

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 26, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 5306 is published by BSI and came into effect on 31 July 2009. It was prepared by Technical Committee FSH/2, *Fire extinguishers*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This part of BS 5306 supersedes BS 5306-3:2003, which is withdrawn.

Relationship with other publications

The other parts of BS 5306 published are as follows:

- Part 0: *Guide for selection of installed systems and other fire extinguishing equipment*;
- Part 1: *Hose reels and foam inlets*;
- Part 2: *Specification for sprinkler systems*;
- Part 4: *Specification for carbon dioxide systems*;
- Part 5: *Halon systems*:
 - Section 5.1: *Specification for Halon 1301 total flooding systems*;
 - Section 5.2: *Specification for Halon 1211 total flooding systems*;
- Part 6: *Foam systems*:
 - Section 6.1: *Foam systems – Specification for low expansion foam systems*;
 - Section 6.2: *Foam systems – Specification for medium and high expansion foam systems*;
- Part 7: *Extinguishing powder systems*;
- Part 8: *Selection and positioning of portable fire extinguishers*.

Information about this document

This is a full revision of the standard, and introduces the following principal changes:

- introduction of commissioning as a defined service activity;
- presentation of advice for those asked to provide maintenance of extinguishers without a CE mark and/or for which the main text is not in the English language;
- greater definition given of the procedures involving ageing and wear to plastics extinguisher headcaps;
- improvement of the layout of the standard to improve ease of reading and interpretation;
- recognition of changes in relevant legislation.

Hazard warnings

WARNING. This British Standard calls for the use of substances and/or procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Use of this document

As a code of practice, this part of BS 5306 takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this part of BS 5306 is expected to be able to justify any course of action that deviates from its recommendations.

Attention is drawn to environmental legislation, especially where this concerns the disposal of media that have been replaced during the course of the maintenance procedures given in this part of BS 5306.

Presentational conventions

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

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.

In particular, attention is drawn to the following statutory regulations and their associated Guidance Notes:

- Regulatory Reform (Fire Safety) Order 2005 [1]; ¹⁾
- Fire Safety (Scotland) Regulations 2006 [2];
- Fire Precautions (Workplace) Regulations (Northern Ireland) 2001 [3];
- Pressure Systems Safety Regulations 2000 [4];
- Transportable Pressure Vessels Regulations 2001 [5];
- Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2002 [6];
- Environmental Protection (Controls on Ozone-Depleting Substances) (Northern Ireland) Regulations 2003 [7];
- Health and Safety at Work etc. Act 1974 [8];
- Management of Health and Safety at Work Regulations 1999 [9].

¹⁾ An equivalent Regulatory Reform Order for Northern Ireland is currently in preparation.

1 Scope

This part of BS 5306 gives recommendations for the initial commissioning of portable fire extinguishers and schedules for the subsequent maintenance of extinguishers installed in all locations. It also gives recommendations for handling certain obsolescent types of extinguishers, for which no maintenance schedules are provided.

This part of BS 5306 gives recommendations for five levels of installation/maintenance: commissioning, basic service, extended service, overhaul procedures and recharge.

2 Normative references

The following referenced documents are indispensable for the application 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.

BS 5306-8, *Fire extinguishing installations and equipment on premises – Part 8: Selection and positioning of portable fire extinguishers – Code of practice*

BS 6643-1, *Recharging fire extinguishers (manufactured to BS 5423, 'Specification for portable fire extinguishers') – Part 1: Specification for procedure and materials*

BS EN 3 (all parts), *Portable fire extinguishers*

BS EN 25923, *Fire protection – Fire extinguishing media – Carbon dioxide*

BS EN 27201-1, *Fire protection – Fire extinguishing media – Halogenated hydrocarbons – Part 1: Specifications for halon 1211 and halon 1301*

3 Terms and definitions

For the purposes of this part of BS 5306, the terms and definitions given in BS EN 3 and the following apply.

3.1 additive

chemical added to an extinguishing medium for such purposes as corrosion inhibition, freezing point depression, penetration, enhanced wetting, and film or coating formation

3.2 body

extinguisher or gas cartridge, excluding its accessories but including its welded parts

3.3 body fittings

those parts of an extinguisher that, under normal working conditions, are permanently attached to the body shell and are subjected to the working pressure

3.4 body shell

outer case of an extinguisher

NOTE The body shell usually comprises a cylindrical case with dished ends, and apertures which are fitted with components such as nozzles, pressure gauges and closures.

3.5 charge

mass or volume of extinguishing medium contained in an extinguisher

NOTE The charge of a water-based medium is expressed as a volume in litres. Charges for other media are expressed as a mass in kilograms.

3.6 competent person

person with the qualifications, training and experience, with access to the relevant tools, equipment and information, manuals and knowledge of any special procedures recommended by the manufacturer of an extinguisher, to carry out the relevant maintenance procedures

NOTE Information on the training which a competent person is expected to undergo is given in Annex A.

3.7 extinguishing medium

substance contained in an extinguisher which causes extinction of a fire

3.8 fire legislation

current UK legislation relating to fire safety, i.e.

- Regulatory Reform (Fire Safety) Order 2005 [1];²⁾
- Fire Safety (Scotland) Regulations 2006 [2];
- Fire Precautions (Workplace) Regulations (Northern Ireland) 2001 [3]

3.9 gas cartridge

pressure container that fits into, or is attached to, an extinguisher and that contains an expellant gas that, on operation of the extinguisher, expels the extinguishing medium

3.10 gas cartridge extinguisher

extinguisher from which the extinguishing medium is expelled, on the actuation of the operating mechanism, by pressure released from a gas cartridge

3.11 plastics headcap

component manufactured from plastics designed to retain working pressure upon actuation of an extinguisher

NOTE This includes plastics headcaps retained by a metal collar, but excludes metal headcaps which have a plastics shroud where the plastics component does not retain working pressure.

3.12 portable fire extinguisher

extinguisher which is designed to be carried and operated by hand and which, in working order, has a mass of not more than 20 kg

NOTE Hereinafter referred to as an "extinguisher".

3.13 primary sealed stored pressure extinguisher

stored pressure extinguisher in which the operating head and the valves controlling the flow of extinguishing medium during discharge can be detached from the body of the extinguisher without releasing propellant or medium, which are retained in the body by a closure that is ruptured on operation

²⁾ An equivalent Regulatory Reform Order for Northern Ireland is currently in preparation.

3.14 recharging

maintenance procedure carried out after complete or partial discharge of an extinguisher, or as part of a scheduled maintenance procedure, to restore the extinguisher to its full operational condition

3.15 responsible person

person or persons responsible for, or having effective control over, fire safety provisions adopted in or appropriate to the premises or building or risk where an extinguisher is installed

NOTE For the purposes of this part of BS 5306, the term “responsible person” includes a nominated representative, and is the person defined by this term in the Regulatory Reform (Fire Safety) Order 2005 [1].³⁾

3.16 stored pressure extinguisher

extinguisher from which the extinguishing medium is expelled, on the actuation of the operating mechanism, by pressure stored within the body

3.17 test discharge

discharge of extinguishing medium under controlled conditions by, or under the supervision of, a competent person

4 Process of commissioning

4.1 Commissioning

The commissioning of an extinguisher should be carried out by a competent person as defined in 3.6. Upon removal from its packaging and transit protection, and immediately prior to placing in its designated place, the extinguisher should undergo the sequence of commissioning service actions described in Annex B, taking into account the safety precautions given in Annex C.

Additionally, if the manufacturer has not marked the mass of the extinguisher or a nominal range of mass for the extinguisher, the competent person should consult the manufacturer's workshop manual for that model or consult with the manufacturer to obtain this information.

Upon completion of the above procedures the extinguisher should then be installed and positioned in accordance with BS 5306-8.

4.2 Mounting

Small extinguishers with a total mass up to and including 4 kg should be mounted so as to position the handle approximately 1.5 m from the floor, but the carrying handle of larger, heavier extinguishers should be approximately 1 m from the floor.

WARNING. Care should be taken to ensure that a heavy extinguisher does not itself cause injuries by being dislodged and falling onto limbs or bodies. Extinguishers installed under conditions where they are subject to dislodgement should be installed in specifically designed brackets.

³⁾ An equivalent Regulatory Reform Order for Northern Ireland is currently in preparation.

Extinguishers sited in schools can be particularly susceptible to being dislodged. Where practicable, they should be installed in recessed housings, or in suitable cabinets appropriate to the specific location (e.g. no sharp edges or corners). Any mounting bracket used should conform to BS EN 3-7:2004+A1:2007, Clause 13.

5 Visual inspection by the responsible person

The responsible person should carry out visual inspections of all extinguishers regularly. These visual inspections should be carried out at least monthly. When circumstances require, inspections should be carried out more frequently.

NOTE 1 Fire legislation [1–3] and its associated Guidance Notes suggest that good practice is to determine whether the extinguisher has been operated and to check for damage on a weekly basis.

When carrying out these visual inspections, it should be ensured that:

- a) each extinguisher is correctly located in the designated place;
- b) each extinguisher is unobstructed and visible;
- c) the operating instructions of each extinguisher are clean and legible and face outwards;
- d) each extinguisher has not been operated and is not obviously damaged or has any missing parts;
- e) the reading of any pressure gauge or indicator fitted to an extinguisher is within operational and safety limits;
- f) the seals and tamper indicators of each extinguisher are not broken or missing.

The responsible person should record the results of these visual inspections and arrange for corrective action, where necessary, by a competent person. In the event of doubt, the responsible person should arrange for a competent person to examine the extinguisher.

NOTE 2 Responsible persons have obligations under fire legislation [1–3] to use a competent person to maintain extinguishing equipment in an efficient state, in efficient working order and in good repair, where it is necessary to provide such equipment to safeguard employees in the event of fire.

6 Basic service, extended service and overhaul

6.1 General

The responsible person should ensure that extinguishers, along with any spare gas cartridges and replacement charges, are maintained regularly. Basic service, extended service and overhaul should be carried out at intervals not less than those recommended in Table 1, in accordance with Annex D, Annex E and Annex F, respectively, taking into account the safety precautions given in Annex C.

NOTE 1 The Management of Health and Safety at Work Regulations 1999 [9] require this to be done by a competent person.

NOTE 2 It is good practice for the competent person to assess the suitability of the extinguishers provided for the local risks and to report any that are deemed unsuitable (see 9.4.1.1).

Table 1 Maintenance intervals ^{A)}

Type of extinguisher	Basic service ^{B), C), D), E)} (see Annex D)	Extended service ^{C), E)} (see Annex E)	Overhaul ^{E)} (see Annex F)
Water and water-based	12-monthly	Every 5 years	—
Powder	12-monthly	Every 5 years	—
Powder-primary sealed	12-monthly	Every 10 years ^{F)}	—
Halon ^{G)}	12-monthly	—	Every 10 years
CO ₂ ^{H)}	12-monthly	—	Every 10 years

^{A)} The intervals in this table disregard any recharging of the extinguisher.

^{B)} The maintenance intervals given for basic service have for practical purposes a tolerance of ± 1 month.

^{C)} Intervals (other than CO₂ extinguishers) should be taken from:

- basic service: the date of commissioning or the last service;
- extended service:
 - water, water-based and powder: 5 years from the date of commissioning or 6 years from the date of manufacture of the extinguishers, whichever is sooner, and subsequently every 5 years from the date of the last extended service;
 - powder-primary sealed: 10 years from the date of commissioning or 11 years from the date of manufacture of the extinguisher, whichever is sooner, and subsequently every 10 years from the date of the last extended service.

^{D)} Intervals may be shortened on the recommendation of the competent person where inspection reveals environmental and/or special hazards, or at the request of the responsible person.

^{E)} Replacement of parts does not affect these intervals. For example, if the hose of a water-based extinguisher is replaced after the extinguisher has been in service for 6 months from commissioning then the basic service should be carried out after a further 6 months.

^{F)} Primary sealed stored pressure extinguishers should be returned to the manufacturer/supplier for recharging.

^{G)} Service of this type of extinguisher may only be carried out if the extinguisher meets the criteria of the "critical uses" in Annex VII of EC Regulation 2037/2000 [10] (see Annex G).

^{H)} Intervals for CO₂ extinguishers: BS EN 1802:2002 (Clause 5), BS EN 1803:2002 (Clause 5), and BS EN 1968:2002 (Clause 5) require that the stamped date of manufacture or last overhaul be used.

6.2 Labelling

6.2.1 General

Any labelling that is applied to the extinguisher should not obscure any marking required by BS EN 3.

6.2.2 Maintenance label

The maintenance record should be indelibly marked on a durable label that is fixed firmly to the extinguisher without obscuring any of the manufacturer's markings and instructions. Where there is no more space on the maintenance label and a new label is affixed, the date of commissioning and the last extended service/overhaul should be marked on the new label.

The following information should be given on the maintenance label:

- a) type of action (commissioning, basic service, extended service, recharge, overhaul, condemned, not maintained);
- b) name and postal address of the maintenance supplier;
- c) a mark clearly identifying the competent person;