BRITISH STANDARD

BS EN
3-2:1996

Portable fire extinguishers —

Part 2: Tightness, dielectric test, tamping test, special provisions

The European Standard EN 3-2:1996 has the status of a British Standard

ICS 13.220.30

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee FSH/2, Fire extinguishers, upon which the following bodies were represented:

Association of Metropolitan Authorities
British Compressed Gases Association
British Fire Protection Systems Association
British Fire Services' Association
Chief and Assistant Chief Fire Officers' Association
Convention of Scottish Local Authorities
Fire Brigades Union
Fire Extinguishing Trades Association
Home Office
Institution of Fire Engineers
London Fire and Civil Defence Authority
Loss Prevention Council
Society of Motor Manufacturers and Traders Ltd.
Trades Union Congress

This British Standard, having been prepared under the direction of the Health and Environment Sector Board, was published under the authority of the Standards Board and comes into effect on 15 May 1996

The following BSI references relate to the work on this standard:
Committee reference FSH/2
Draft for comment 93/301890 DC

ISBN 0 580 25854 8

Amendments issued since publication

Amd. No.	Date	Comments

Contents

National foreword

This British Standard has been prepared by Technical Committee FSH/2 and is the English language version of EN 3-2:1996 *Portable fire extinguishers — Part 2: Tightness, dielectric test, tamping test, special provisions,* published by the European Committee for Standardization (CEN). EN 3-2 was produced as a result of international discussion in which the United Kingdom took an active part.

Together with BS EN 3-1 to BS EN 3-6, BS 7863 and BS 7867^ it supersedes BS 5423:1987, which will be withdrawn on January 1st 1997.

The Parts of BS EN 3 *Portable fire extinguishers* are as follows:

— *Part 1: Description, duration of operation, class A and B fire test;*

— *Part 2: Tightness, dielectric test, tamping test, special provisions;*

— *Part 3: Construction, resistance to pressure, mechanical tests;*

— *Part 4: Charges, minimum required fire;*

— *Part 5: Specification and supplementary tests;*

— *Part 6: Provisions for the attestation of conformity of portable fire extinguishers in accordance with EN 3-1 to EN 3-5.*

Cross-reference

Publication referred to	Corresponding British Standard
EN 3-1:1996	BS EN 3 *Portable fire extinguishers* Part 1:1996 *Description, duration of operation, class A and B fire test*

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, the EN title page, pages 2 to 6, 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.

^ In preparation.

EUROPEAN STANDARD EN 3-2

NORME EUROPEENNE

EUROPAISCHE NORM February 1996

ICS 13.220.30 Supersedes EN 3-2:1978

Descriptors: Fire fighting, fire equipment, fire extinguishers, movable extinguishers, portable equipment, tests, leak tests, dielectric strength tests, compression tests

English version

Portable fire extinguishers — Part 2:Tightness, dielectric test, tamping test, special provisons

Extincteurs d'incendie portatifs— Partie 2: Etancheite essai dielectrique, essai de tassement dispositions speciales

Tragbare Feuerloscher— Teil 2: Dichtheidspriifung, priifung der elektrischen Leitfahigkeit, Verdichtungspriifung, Besondere Anforderungen

This European Standard was approved by CEN on 1995-09-14. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comite Europeen de Normalisation
Europaisches Komitee fur Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 70, Manual means of fire fighting equipment, the secretariat of which is held by IBN.

This European Standard supersedes EN 3-2:1978.

This European Standard is one part of EN 3 prepared by CEN/TC 70.

This European Standard EN 3 consists of 6 Parts and has the generic title *Portable fire extinguishers* and the following different subtitles:

— *Part 1: Description, duration of operation, class A and B fire test;*

— *Part 2: Tightness, dielectric test, tamping test, special provisions;*

— *Part 3: Construction, resistance to pressure, mechanical tests;*

— *Part 4: Charges, minimum required fires;*

— *Part 5: Specification and supplementary tests;*

— *Part 6: Provisions for the attestation of conformity of portable fire extinguishers in accordance with EN 3-1 to EN 3-5.*

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 August 1996, and conflicting national standards shall be withdrawn at the latest by January 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Contents

1 Scope

This Standard specifies the tightness, the dielectric test, the tamping test and special provisions applicable to portable fire extinguishers.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 3-1:1995, *Portable fire extinguishers — Part 1: Description, duration of operation, class A and B fire test.*

3 Tightness

All extinguishers and gas cartridges shall be designed in such a way as to permit their retention of charge to be verified at regular intervals.

3.1 Verification

3.1.1 Retention of charge shall be checked by weighing for:

— CO2 cartridges;

— $C0_2$ extinguishers;

— Halon extinguishers; these shall also be verified for pressure.

The appropriate markings shall be shown on the main body of these appliances.

3.1.2 It shall be possible to check the retention of charge of stored pressure extinguishers by measuring the internal pressure, with the exception of CO2 extinguishers. These shall be obtained in one of the following ways.

a) By means of a connection to enable the internal pressure to be checked directly by an independent apparatus. Such a connection shall be fitted with a pressure retaining cap and shall communicate directly to the contents under pressure. A removable pressure indicating device may be considered as a pressure retaining cap.

b) By means of a built-in pressure indicating device which can itself be checked independently that it is in good working order by the application of an external pressure (see C.2).

3.2 Acceptance levels

3.2.1 In a pressurized state significant leakage shall not occur from an extinguisher or its attachments.

Significant leakage is defined as:

a) for stored pressure extinguishers, a rate exceeding 1 cm^3 of gas per day, per kilogram or litre of the charge of the extinguisher;

b) for extinguishers pressurized only at the moment of operation, a rate exceeding 5 cm^3 of gas per minute, per kilogram or litre of the charge of the extinguisher,

c) for extinguishers tested by weighing, a rate exceeding 5 % per year.

For **3.2.1** a) and c), all extinguishers shall be tested as specified. For **3.2.1** b), sample extinguishers only are to be tested as specified.

3.2.2 Stored pressure extinguishers and gas cartridges shall be subject to a leakage test.

A significant rate of leakage as defined in **3.2.1** a) and c) shall result in the rejection of the extinguisher.

4 Dielectric test

4.1 Purpose of test

The dielectric test is designed to establish the suitability of water based extinguishers for use on live electrical installations by measurement of the electrical conductivity of the discharge stream. Extinguishers using other than water based agents are not subject to this test.

The test shall be carried out in accordance with annex A.

4.2 Measure of the current

When the appliance is in operation and the metallic plate is live, the intensity of the current between the handle of the nozzle and earth, and between earth and the extinguisher, shall be not more than 0,5 mA at any time during the complete discharge of the extinguisher.

5 Tamping test

The test shall be carried out on all powder type extinguishers and shall be achieved in accordance with annex B.

The compaction test shall be carried out on each extinguisher before submission to the fire test as specified in clause 7 of EN 3-1:1995.

6 Special provisions

6.1 Controlled discharge

Extinguishers shall be fitted with a self-closing control to enable the discharge to be interrupted temporarily.

6.2 Operating position

Extinguishers shall operate without being turned over to an inverted position. The operating devices of an extinguisher shall be located either on the upper part of the extinguisher or partly on the upper part of the extinguisher and partly at the end of the hose or nozzle.

6.3 Hose assembly

All extinguishers having a mass of extinguishing medium greater than 3 kg, or a volume of extinguishing medium greater than 3 1 shall be provided with a discharge hose.

The length of the flexible section of the hose assembly shall be 400 mm or greater.

6.4 Propellants

Only propellants listed in Table 1 or mixtures thereof, shall be used. The maximum water content shall be as specified, except when used in stored pressure water based extinguishers. Tracers may be added to the propellant to facilitate leakage detection, but the content shall not exceed 3 *% (m/rn)* of the propellant content.

Table 1

Propellants	
Types	**Maximum water content %** (m/m)
Air	0,006
Argon	0,006
Carbon dioxide	0,015
Helium	0,006
Nitrogen	0,006

Annex A (normative)
Dielectric test

NOTE See clause 4.

A.l Apparatus

A metallic plate 1 m x 1 m hung vertically by insulators and with no object or structure closer than:

1 m below the bottom of the plate;

1 m either side of the edges of the plate;

1 m from either face of the plate;

0,5 m above the top of the plate.

A high voltage transformer enabling an alternating voltage of 35 kV to be established between the metallic plate and earth.

The impedance of the circuit shall be such that, when the secondary is short circuited and the primary supplied by a voltage equal to 10 % of its normal supply voltage, the secondary current is not less than 0,1 mA.

An insulating support (for fixed nozzle extinguishers). An insulating tray (for extinguishers fitted with a hose).

A.2 Test procedure

The fixed nozzle type appliance is fixed on the insulating support and so arranged that the discharge outlet, situated at 1 m from the metallic plate, is directed towards its centre.

An extinguisher with hose is placed on the insulating tray so arranged that the discharge outlet is 1 m from the plate and directed towards its centre.

The current shall be measured by a suitable device connected between the earth of the metallic plate and the defined points on the extinguisher. If no complete metallic path exists between the extinguishing agent and at least one of the defined connection points to the measuring device, such a path shall be created for the purpose of the test.

Annex B (normative)
Tamping test

NOTE See clause 5.

B.l Apparatus

The compaction machine shall be designed to accept only one extinguisher at a time which shall be raised by a rod and guided by castors. The plate supporting the extinguisher shall be steel, (300 ± 5) mm square and (60 ± 1) mm thick.

The following points shall be observed.

— Ensure that the rod is adjustable to adjust to the extinguisher base.

— Ensure that the rod can move freely.

— The extinguisher shall also be guided without constraint in the guide castors.

B.2 Test procedure

The extinguisher, in the condition in which it is put into service, i.e. filled and charged according to the manufacturer's instructions with the extinguishing agent specified by the manufacturer for use in that extinguisher, shall be subjected to the compaction test.

The extinguisher shall be held in the vertical position and dropped vertically 500 times from a height of 15 mm at a frequency of 1 Hz on to a rigid horizontal steel plate.

Annex C (informative)
National deviation

C.l German

NOTE See clause 4.

ABC powder extinguishers shall not be used on live electrical installations with a voltage exceeding 1 000 V.

C.2 Belgian

NOTE See clause 3.

A gauge with sectors is required, by Royal decree, for extinguishers used in motor vehicles.

blank

List of references

See national foreword.

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