BRITISH STANDARD

BS EN
3-5: 1996

Portable fire extinguishers

Part 5. Specification and supplementary tests

The European Standard EN 3-5: 1996 has the status of a British Standard

ICS 13.220.30

British Standards

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.
TVades 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

Amendments issued since publication

Amd. No.	Date	Text affected

The following BSI references relate to the work on this standard:
Committee reference FSH/2
Draft for comment 93/301892 DC

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Amendment No. 1
published and effective from 15 October 1997
to BS EN 3-5 : 1996

Portable fire extinguishers
Part 5. Specification and supplementary tests

NOTE. This amendment implements Corrigendum, March 1997 to EN 34*: 1096.

Revised text

Clause 3.2. Requirements

In line 6, delete 'EN 3-1 : 1995' and substitute 'EN 3-1 : 1996'.

AMD 9618/October 1997

Clause 5.1 External corrosion test

In line 9, delete 'EN 3-1 : 1995' and substitute 'EN 3-1 : 1996'.

AMD 9618/October 1997

Clause 7.2 Marking

In the paragraph beginning 'Extinguishers using water based agents', line 2, delete 'EN 3-2 : 1995' and substitute 'EN 3-2 : 1996*.

In the paragraph beginning 'Subject to national regulations or practice', line 3, delete 'EN 3-2 : 1995' and substitute 'EN 3-2 : 1996'.

AMD 9618/October 1997

Annex A. Range of operating temperatures

hi the final paragraph, line 3, delete 'EN 3-1 : 1995' and substitute 'EN 3-1 : 1996'.

AMD 9618/October 1997

Annex E. Control valve test

hi the paragraph beginning The internal pressure', line 2, delete 'EN 3-2 : 1995' and substitute 'EN 3-2 : 1996'.

AMD 9618/October 1997

Contents

National foreword

This British Standard has been prepared by Technical Committee FSH/2 and is the English language version of EN 3-5: 1996 *Portable fire extinguishers — Part 5 : Specification and supplementary tests*, published by the European Committee for Standardization (CEN).

EN 3-5 was produced as a result of international discussion in which the United Kingdom took an active part.

Together with BS EN 3, Part 1 to Part 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 Part 1 to Part 5*

Cross-references

Publication referred to	Corresponding British Standard
	BS EN 3 *Portable fire extinguishers*
EN 3-1: 1996	Part 1: 1996 *Description, duration of operation, class A and B fire test*
EN 3-2 : 1996	Part 2 : 1996 *Tightness, dielectric test, tamping test, special provisions*

Compliance with a British Standard does not of itself confer immunity from legal obligations.

[1]*In preparation.

EUROPEAN STANDARD EN 3-5

NOKME EUROPEENNE

EUROPAISCHE NORM February 1996

ICS 13.220.30

Descriptors: fire fighting, fire equipment, fire extinguishers, movable extinguishers, portable equipment, specifications, operating requirements, components, corrosion resistance, designation, maintenance, routine verification, standard fire places, tests

English version

Portable fire extinguishers
Part 5 : Specification and supplementary tests

Extincteurs d'incendie portatifs
Partie 5 : Specifications et essais complementaires

TYagbare Feuerloscher
Teil 5 : Zusatzliche Anforderungen und Priifungen

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

Ref. No. EN 3-5 : 1996 E

Foreword

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

This European Standard supersedes EN 3-5: 1984.

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 subtities:

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 ENS Part 1 to Part 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 characteristics of:

- the effective range of operating temperatures;
- the requirements for components;
- the resistance to corrosion;
- the brackets;
- the identification of the extinguisher,
- the periodical checking.

NOTE 1. Reference to the suitability of an extinguisher for use on gaseous fires will be at the manufacturer's discretion and will apply to powder type extinguishers only.

NOTE 2. The extinction of a metal fire presents a situation so specific (in terms of the metal itself, form, configuration of the fire etc.) that it is not possible to define a representative standard fire.

Efficiency on a class D fire shall be the object of a particular case-by-case study and is not included within the scope of this EN-standard but may be made the object of national specifications.

2 Normative references

This European Standard incorporates by dated or undated references, 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: 1996	*Portable fire extinguishers* — Part 1: *Description, duration of operation, class A and B fire test*
EN 3-2: 1996	*Portable fire extinguishers* — Part 2: *Tightness, dielectric test, tamping test, special provisions*
ISO 9227 : 1990	*Corrosion tests in artificial atmospheres - Salt spray tests*

3 Effective range of operating temperature and resistance of mechanical parts

3.1 General

Portable fire extinguishers shall be able to operate and be resistant to shock at temperatures between -20 °C (or -30 °C for countries with low temperatures) and + 60 °C (7Xmax.)°C). For the water based extinguishers the low limit temperatures shall be +5#C, 0 °C, -10 °C, -15 °C, -20 °C, -25 °C, -30 °C following the manufacturer's request. After the test described in accordance with annex A they shall satisfy the requirements of **3.2.**

3.2 Requirements

The requirements for all extinguishers are as follows:

- they shall operate satisfactorily;
- the discharge shall commence within 10 seconds of the opening of the control valve;
- the discharge duration shall be not less than the applicable value given in table 1 of EN 3-1: 1995;
- no more than 15 % of the initial charge of BC type powder or 10 % of other agents shall remain within the extinguisher after continuous discharge including all expelling gas.

4 Requirements for components

With the exception of the safety device, the extinguisher shall not require any component which shall be mounted, removed or modified before or during use.

4.1 Operation and emission control mechanisms/devices

The activation of the extinguisher shall not depend upon the repetition of a given action on the same device. The force or the energy required to activate the operating device(s) shall be no greater than as given in table 1 for temperatures up to *T* (max.) #C.

By activation it is implied the totality of actions required for pressurization (if the extinguisher is not permanently under pressure) and the initial release of the extinguishing agent. If a single device can activate the unit without repetition of movement, it is allowed that the same device can be re-used in order to control the output (see annex C).

Table 1

Type of device	Maximum allowance	
	Force N	Energy J
Finger trigger	100	–
Squeeze grip lever	200	–
Strike knob	–	2

For CO2 extinguishers this force shall be no greater than 200 N at up to 40 °C and at the maximum temperature (7* (max.) °C) it shall be no greater than 300 N.

The measurements shall be carried out in accordance with annex B.

4.2 Safety devices

The operating mechanism shall be provided with a safety device to prevent inadvertent operation. The release of the safety device shall involve an operation distinct from that of the operating mechanism, shall require a force between the limits of 20 N and 100 N and shall in no way effect the operation of the equipment. It shall be possible to determine whether the apparatus has been operated by means of a safety element, consisting, for example, of a metal wire and lead seal.

This device shall be so constructed that any unaided manual attempt, using a force or impact equal to twice the relevant value given in table 1, to initiate discharge without first operating the safety device shall not deform or break any part of the mechanism in such a way as to prevent the subsequent discharge of the extinguisher.

4.3 Discharge from water based extinguishers

The discharge from water based extinguishers shall be ensured as follows.

a) The dip tube shall be made from materials resistant to the extinguishing medium in question.

b) The discharge of the extinguishing medium shall be through a filter, in order to retain foreign matter. This filter shall be placed upstream of the smallest section of the discharge passage. Each orifice of the filter shall have an area smaller than that of the smallest cross-section of the discharge passage. The total area of the combined filter orifices shall be at least equal to 8 times the smallest cross-section of the discharge passage. This filter shall be accessible to facilitate maintenance operations on the extinguisher.

4.4 Hose and coupling systems

The hose and coupling system shall function throughout the operating temperature range and coupling systems shall be designed and fitted in such a way that they cannot damage the hose.

The burst pressure shall be equal to or greater than the appropriate value below and achieved in accordance with annex D.

For all types except CO2 extinguishers:

- three times the pressure developed in the appliance at 60 °C, the test being carried out at (20±5) #C.
- twice the pressure developed in the appliance at 60 °C, the test being carried out at (60 - 2) °C.

For CO2 extinguishers:

- 1,5 times the pressure developed in the appliance at 60 °C, the test being carried out at (20 ± 5) °C.
- 1,25 times the pressure developed in the appliance at 60 °C, the test being carried out at (60 - 2) #C.

4.5 Control valve

The extinguishers shall be fitted with a controllable valve allowing discontinuance of the emission of the extinguishing agent at any given time. Furthermore, the valve shall be satisfactorily resistant to leakage following the cessation of the emission.

This requirement is to be verified in accordance with annex E.

The second value of pressure or the mass of the charge shall be not less than 80 % of the first measured value or less than 50 % of the working pressure measured before opening the control valve.

4.6 Mechanical resistance

The test shall be carried out on four charged extinguishers fitted with all accessories that are subject to pressure during normal operation. The test shall be carried out in accordance with annex F. An anti-freeze agent may be added to prevent the freezing of water based agents. The extinguisher shall be judged fit and proper if during the course of the impact test there is no evidence of bursting, breakage or ejection of components, which would put the safety of the user at risk. Non-dangerous leaks are acceptable.

4.7 Pressure indication

4.7.1 The scale of the pressure indicating device shall have:

- a zero zone (to indicate zero pressure). If there is an end stop for the moving pointer, this shall be on the negative pressure side of the zero zone. The pointer shall not contact the stop at zero pressure.
- a green zone (working zone) corresponding to the pressures between operating temperatures (see clause 3) with the following tolerances:
  - 10 % > 0 °C
  - 15 % < 0 °C
  - + 6 % r (max.) 60 °C

The derived pressures are rounded off to the nearest full or half bar.

The zones either side of the green zone shall be red.

The permitted errors in indication are:

- + 1 bar max. at the low pressure end of the green zone;

  ± 6 % at the high pressure end of the green zone.
- The *(P* + 20 °C) point shall be indicated and the maximum permitted error is + 0,5 bar.

To ensure that the pressure indication is visible the device shall incorporate the following:

- a moving pointer extending radially into the indicating zone by 50 % to 80 % of the height of the zone;
- a length of the green zone

  > 5 mm for indicators with an outside diameter < 35 mm;

  ^ 8 mm for indicators with an outside diameter > 35 mm;
- the position of the pointer at both ends of the green zone and at *P* (+20 #C) shall be such that it is clearly visible;
- a total scale length equal to or greater than 1,5 times the length from zero to the high pressure end of the green zone.

4.7.2 The indicator shall not leak at a pressure less than 2,5 times *P* (+60 *C) when subjected to a pressure increasing at an average rate of (20 - 5) bar/min. Failure shall occur at a pressure greater than 2,5 % X *P* (+ 60) °C in a non-hazardous manner.

4.7.3 The indicator shall operate within the range of error permitted by **4.7.1** after having been subjected to 1 000 pressure cycles from zero to *P* (+ 60#C) and back to zero at an average rate of pressure change of (20 ± 5) bar/min.

4.7.4 The materials of construction of the pressure indicating device shall be compatible with the contents (agent and propelling gas).

4.7.5 All tests shall be carried out at (20 ± 5) °C.

NOTE. The same pressure indicating device need not be used for tests 4.7.2 and 4.7.3.

4.8 Horns for carbon dioxide extinguishers

4.8.1 If the hom is not incorporated in the extinguisher (e.g. when it is connected by a hose) it shall be fitted with a handle to protect the hand of the operator against cooling during use.

4.8.2 After being subjected to the test described in **G.l,** the horn shall show no damage or deformation after 48 h.

4.8.3 The connection between the hose and the horn shall be such as to prevent loosening or detachment.

If the connection is a screw thread then it shall be secured against loosening by either mechanical means or a suitable adhesive.

When security is provided by mechanical means such as lock-nuts, lock-washers, spring washers, etc., the torque to loosen the assembly shall be equal to or greater than 20 Nm. When adhesives are used, the torque to loosen the assembly shall be equal to or greater than 10 Nm. Other methods of assembly shall be such as to provide the same degree of security.

4.8.4 The extinguisher shall be subjected to the test given in **G.2.** Check that the horn does not show any defect

4.9 Design of the filling opening

All extinguishers with the exception of those for which the extinguishing agent is in the form of liquified gas shall include a feature to prevent the removal of the closure before all internal pressure has been released. For screwed closures this requirement shall be satisfied when pressure release commences within 1/3 of full disassembly of the closure.

The filling opening, except for extinguishers having liquified gas extinguishing agents, shall have a minimum diameter of:

- 20 mm for extinguishers with a load of less than or equal to 3 kg or 31;
- 25 mm for extinguishers with a load of more than 3 kg or 3 L

5 Resistance to corrosion

5.1 External corrosion test

The test shall be carried out in accordance with **H.l.**

At the conclusion of the test the following requirements shall be satisfied:

- the mechanical operation of all working parts shall be unimpaired;
- the operation forces, or energy if applicable, shall comply with **4.1** and **4.2;**
- the duration of discharge shall comply with **6.1** of EN 3-1: 1995;
- the pressure gauge, if one is fitted, shall remain functional;
- there shall be no corrosion of the metal of the extinguisher likely to impair its operation or safety and it shall meet the functioning test and burst pressure requirements.

5.2 Internal corrosion test for extinguishers using water based media

The test shall be carried out in accordance with **H.2.**

There shall be no visible signs of corrosion of the metal nor detachment, cracking nor bubbling of any protective coating. There shall be no visible change in the colour of the extinguishing media other than that resulting from the thermal cycling.

NOTE. Allowance should be made for a change of colour that occurs naturally due to the temperature changes. It is recommended that two samples of the agent are stored in closed glass containers and subjected to the same cycles as the extinguishers in order to establish a reference sample.

6 Extinguisher mounting bracket

If a bracket is provided it shall meet the following requirements.

- Removal of the extinguisher from the bracket shall be easy and its method of removal shall be obvious.
- An extinguisher which is not rigidly held by its bracket shall not fall from its bracket if given a side thrust causing a tilt of up to 45°.
- The bracket, when mounted on a wall in accordance with the manufacturer's instructions shall be capable of supporting without permanent deformation a load of at least twice the total weight of the extinguisher

NOTE. Special brackets to be used for extinguishers in vehicles, on vessels and on aircraft may be subject to additional national or international requirements.

7 Extinguisher identification

7.1 Colour

Subject to national regulations, the colour of the body shall be red, but in addition to the marking, a zone of colour of area up to 5 % of the external area of the body may be used to identify the extinguishing agent in accordance with national specifications.

7.2 Marking

(See example in annex I).

- The marking on the extinguisher shall give the information in Parts 1 to 5.
- The marking required by Parts 1,2,3 and 5 shall be contained on the same label or frame. The label (or frame) shall be in such a position that it can be clearly read when the extinguisher is on its bracket

Information contained in Part 4 may be placed elsewhere on the extinguisher.

The height *H* of the letters of Parts 2 and 3 shall be not less than:

- 3 mm for extinguishers having a load (charge) < 3 kg.
- 5 mm for extinguishers having a load (charge) > 3 kg;

NOTE. This requirement does not apply where the marking is shown in more than one language.

The height of the lettering of Parts 1,2,3 and 4 shall be in the following proportions:

- Part 1 : 1,5 X *H* for the word 'extinguisher'
  0,75 x H for the other indications;
- Part 2 : 1 X 0 ;
- Part 3 : 1 X *H*\
- Part 4 : 0,5 X *H.*

The height of the frame containing Part 5 shall not exceed 1/3 of the total height of Parts 1,2 and 3.

Part 1 has on three horizontal lines from top to bottom:

- the word 'extinguisher';
- the type of extinguisher medium and its nominal charge;
- an indication of the types of fires.

Part 2 comprises:

- The instructions for use, which shall include one or more pictograms adequately explained.

  The text of the instructions for use are in the language or languages of the country where the extinguisher will be used, the different actions to be carried out being shown one after another vertically from top to bottom.

  The pictograms are located in the same direction with regard to the relevant text and the direction of the movements to be carried out is indicated by arrows (see annex H).

- The pictograms representing the types of fire on which the extinguisher may be used shall be arranged horizontally on one and the same line and under the instructions for use (see annex J).

  The pictograms of the instructions for use and types of fire shall be marked in square boxes of 20 mm minimum for extinguishers with a load of less than or equal to 3 kg or 3 litres and 25 mm minimum for extinguishers with a load of more than 3 kg or 3 litres.

Part 3 shall relate to any restrictions or dangers of use in particular in relation to toxicity and electrical risk. This may be specified according to national rules or practice.

Extinguishers using water based agents and not meeting the requirements of clause **4** of EN 3-2: 1995 shall be marked to show that they are not suitable for use on live electrical equipment.

Subject to national regulations or practice, extinguishers using water based agents and meeting the requirements of clause **4** of EN 3-2: 1995 or using other agents may be marked to indicate that they are suitable for use on live electrical equipment e.g. 'suitable for use on live electrical equipment up to 1000 V.

Part 4 shall include:

- an instruction to refill after any operation;
- an instruction to check periodically and to use only products and spare parts in conformity with the agreed model for refilling and maintenance;
- the identification of the extinguishing medium and, in particular, identification and percentage of additives for water based media;
- if applicable, the identification of the propelling gas;
- the numbers) or reference(s) of the approval;
- the manufacturer's model designation;
- temperature limits;
- a warning against the risk of freezing (if applicable);
- a reference to the European Standard EN 3.

NOTE. This list of requirements is regarded as a minimum.

Part 5 shall include:

- the name and address of the extinguisher manufacturer and/or supplier.

In addition, the year of manufacture shall be marked anywhere on the extinguisher.

8 Periodic checking

It shall be possible to check each extinguisher periodically according to national rules.

NOTE. The interval may be included in the marking related to Part 4 (see 7.2), in accordance with national fire rules or practice.

Annex A (normative)

Range of operating temperatures

NOTE. See clause 3.

Submit two extinguishers to each of the combined temperature cycles given in table A.1.

Table A.l

Duration h	Cycle N# 1	Cycle N*2
24± 1	1) Store at -20 #C ± 1 °C	Store at +60 °C ± 1 #C
24± 1	Store at +20 #C -5 #C	Store at +20 °C±5°C
24 i 1	Store at +60 °C ± 1 #C	^Store at -20°C±1°C

[11] - Store water based extinguishers at the temperature defined in accordance with 3.1.

- Store water based extinguishers not containing anti-freeze at (+5* * 1) #C.

- A lower temperature of -30 [8]C may be specified for other types.

NOTE. The storage temperature refers to the ambient temperature within the conditioning chamber. A liquid bath shall not be used.

Operate the extinguisher within 1 min of its removal from the conditioning chamber. The test method shall be in accordance with **6.1** of EN 3-1: 1995 except for cartridge type extinguishers where activation is by a single action. In this case the cartridge shall be pierced and the control valve closed immediately for a period of 6 s after which the control valve shall be reopened.

Annex B (normative)

Measurement of the forces and energy

NOTE. See 4.1.

B.l Measurement of the forces

The forces, which shall be measured with the use of a dynameter, shall be applied statically and perpendicularly at the normal point where force is used to render the extinguisher operable.

B.2 Measurement of energy

The energy of 2 J is obtained by allowing the 4 kg mass used in the mechanical resistance (impact) test described in **4.6** to fall from a height of 50 mm. The impact shall be applied in the direction of the operating mode.

Annex C (informative)

Example of operation and emission control mechanisms/devices

NOTE. See 4.1.

By way of an example it is accepted:

- with a single device:
  - to pierce/strike by raising the device and to open the control valve by pressing down;
  - to pierce/strike during part of the given movement and then to open the control valve by following through the natural course of this movement;
- that the safety mechanism may be a locking system which can be released without being physically removed;
- that by simply lifting or releasing the safety mechanism the extinguisher can be pressurized without releasing the extinguishing agent.

Annex D (normative)

Burst pressure hose - coupling systems

NOTE. See 4.4.

The burst pressure shall be established by increasing the pressure to the minimum allowable burst pressure in a time not less than 30 s maintaining that pressure for a further 30 s during which failure shall not occur and then increasing the pressure until the point of failure.

Annex E (normative)

Control valve test

NOTE. See 4.5.

An extinguisher in working order is to be operated until the agent is discharged for between 5 % and 15 % of the discharge duration and the valve is then to be closed by a simple action intended to interrupt the emission of the extinguishing agent

In the case of an extinguisher with a (propellant) gas cartridge, two situations may arise.

1) If the extinguisher is fitted with a pressurization device independent of the device which opens the controllable valve, the pressurization of the extinguisher is to take place 3 min before the controllable valve is opened.

2) If a single action pressurizes the extinguisher and releases the first emission of gas, the extinguisher is initially to be pressurized. After a duration of 3 min the control valve is to be opened.

The internal pressure or in certain cases the mass (see clause 3 of EN 3-2: 1995) shall be measured within 10 s of the controllable valve having been closed and again after a duration of 5 min, the controllable valve having remained closed for that period.

The test shall be carried out at (20 ± 5) #C.

Annex F (normative)

Impact test

NOTE. See 4.6.

Two extinguishers shall be conditioned for a period of 24 h at (-20 ± 2) #C and the other two at (60 ± 2) #C. Within one minute of the removal of the extinguisher from the conditioning chamber it shall be subjected to the impact test.

One extinguisher at each temperature will be tested horizontally and the other vertically.

For cartridge operated extinguishers, the samples at -20 °C shall be tested unpressurized and with the safety device in position and the samples at +60 #C tested after pressurization, with the control valve closed and the safety device removed. A charged cartridge shall be used in each sample.

For stored pressure models, all four samples shall be tested with the safety device in position.

The impact test is to be carried out as follows.

A cylindrical steel weight with flat surfaces measuring 75 mm in diameter and weighing 4 kg, is to be placed in a structure which will allow it to free-fall vertically from a height H calculated by the following formula, with a minimum of 150 mm.

$H = Ml20$ (metres)

Where M is the total mass in kg, of the full extinguisher in complete working order.

The extinguisher must be placed on a plain and rigid surface in each of the following positions:

- vertically, in its normal position;
- horizontally, in such a position where the device which seals the unit is pressing against the plain and rigid surface.

In each of the above positions the device which seals the unit shall be directly subjected to a force provided by the vertical descent of the steel cylinder from height //, the point of impact being determined by the authority carrying out the test.

Annex G (normative)

Tfest on the horn

NOTE. See 4.8

G.l Static load

NOTE. See 4.8.2,

Subject the horn to a static load of 25 kg (using a circular contact surface of 50 mm diameter) for 5 min, applied to the end of horn.

G.2 Temperature test

NOTE. See 4.8.4.

Bring the horn to a temperature of 60 °C and discharge the extinguisher.

Annex H (normative)

Resistance to corrosion

NOTE. See clause 5.

H.l External corrosion

NOTE. See 5.1.

Complete sample extinguishers shall be subjected to a salt spray test as defined in ISO 9227 for a period of 480 h, and then shall be washed carefully to remove any salt deposits. Two samples shall be tested, either two of the same size or one sample each of two different sizes from the same family.

H.2 Internal corrosion

NOTE. See 5.2.

Two extinguishers charged in accordance with the manufacturer's filling instructions, shall be subjected 8 times to the temperature cycle defined below in table R1.

Table H.l

Stage	Duration h	Temperature #C
1	24 ± 1	'>-20 ± 1
2	> 24	+20 ± 5
3	24 ± 1	+60 ± 1
4	> 24	+20 ± 5

For water based extinguishers at the temperature defined in 3.1.

- For stored water base extinguishers not containing anti freeze at (+5 * 1) 'C.
- The lower temperature of -30 "C may be specified in place of -20'C.

NOTE. The temperatures refer to the ambient temperature of the conditioning chamber. A liquid bath shall not be used. The duration of any one complete cycle shall not exceed 120 h.

On completion of the eight temperature cycles, each body shall be cut into two sections in a manner sufficient to permit internal examination. Detachment of any protective coating local to the plane of section shall be disregarded.

Annex I (informative)
Marking

NOTE. See 7.2.

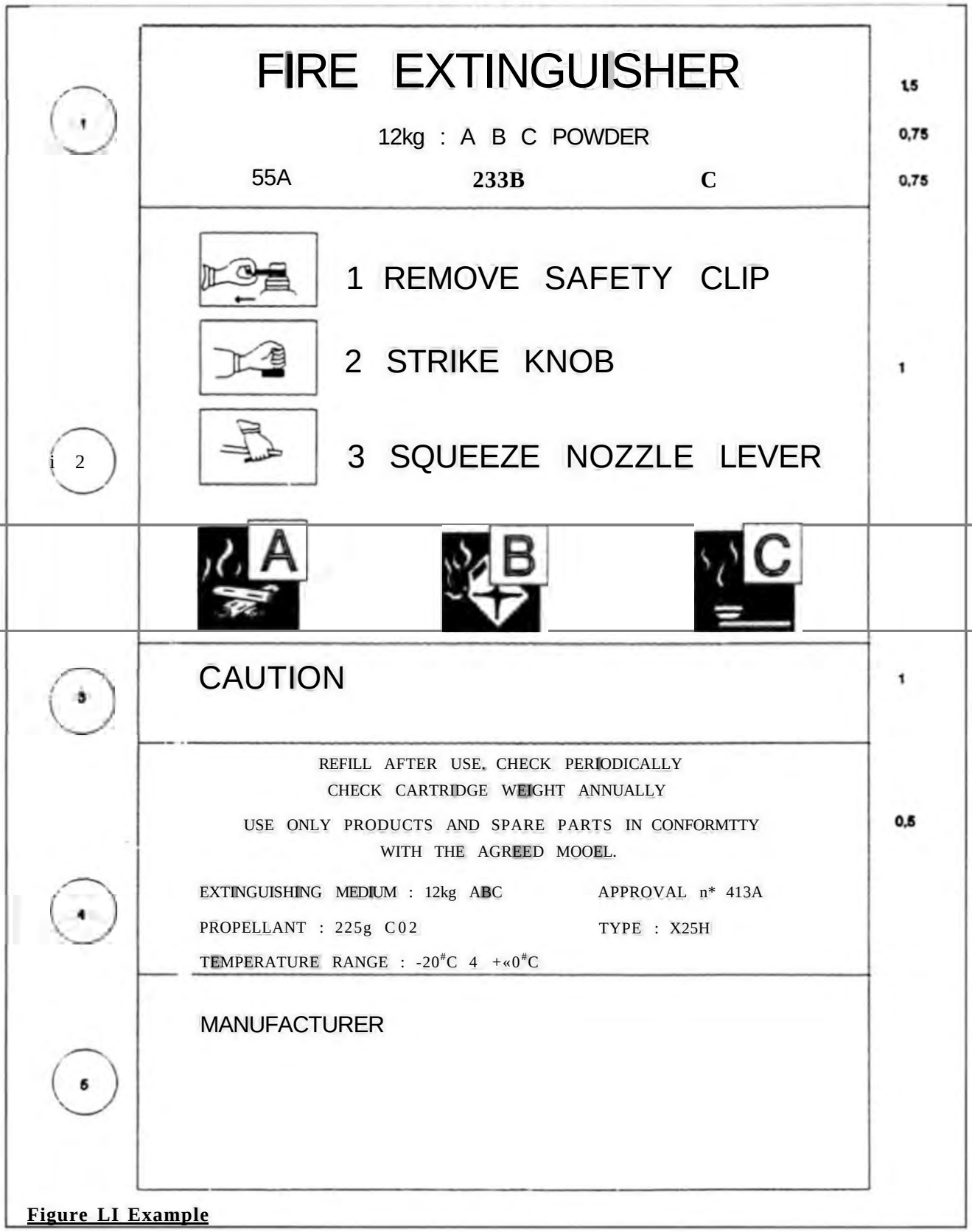

Figure LI Example

Annex J (normative)
Pictograms representing the types of fire

NOTE. See 7.2.

Figure J.l

List of references

See national foreword.

BS EN 3-5 :1996

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.

Contract requirements

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.

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