Singapore Standards Council

SS EN 3-7 : 2012
EN 3-7 : 2004+A1, MOD

(ICS 13.220.10)

SINGAPORE STANDARD

Portable fire extinguishers

– Part 7 : Characteristics, performance requirements and test methods

This national standard is the modified implementation of EN 3-7 : 2004+A1 and is adopted with permission of CEN, Avenue Marnix 17, 1000 Brussels

Incorporating Corrigendum No. 1

Published by

Enterprise Singapore

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ISBN 978-981-4353-32-8

This Singapore Standard was approved by the Building and Construction Standards Committee on behalf of the Standards Council of Singapore on 10 July 2012.

First published, 2012

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		Er. Yeow Mei Leng	*Individual Capacity*

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		Name
Convenor	:	Mr K Ramanathan
Members	:	Er. Gn Chiang Yam
		Mr David Goh
		Maj Han Fook Kuang
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		Mr Kenneth Lim Kok Kheng
		Mr Thomas Ng
		Mr Tan Kim Heng
		Mr Tan Yang Yang

The organisations in which the experts are involved are:

Fire Armour Pte Ltd (Singapore)
Fire Safety Managers' Association (Singapore)
Institution of Engineers, Singapore
Lingjack Engineering Works Pte Ltd
National Environment Agency
Singapore Civil Defence Force
Singapore Manufacturers' Federation
The Institution of Fire Engineers (Singapore Branch)
TÜV SÜD PSB Pte Ltd

National Foreword

This Singapore Standard was prepared by a Working Group appointed by the Technical Committee on Building Maintenance and Management which is under the purview of the Building and Construction Standards Committee.

The review of the SS 232 series of standards on portable fire extinguishers resulted in the development of the SS EN 3 series of standards which comprises the following parts under the general title 'Portable fire extinguishers':

Part 7 : Characteristics, performance requirements and test methods

Part 8 : Additional requirements to SS EN 3-7 for the construction, resistance to pressure and mechanical tests for extinguishers with a maximum allowable pressure equal to or lower than 30 bar

Part 9 : Additional requirements to SS EN 3-7 for pressure resistance of CO_2 extinguishers

Part 10 : Provisions for evaluating the conformity of a portable fire extinguisher to SS EN 3-7

The four parts replace the SS 232 series of standards.

This SS EN is the modified implementation of EN 3-7 : 2004+A1 'Portable fire extinguishers - Part 7 : Characteristics, performance requirements and test methods' (incorporating Amendment A1 : 2007, denoted by AC> <AC) and is adopted with permission of CEN, Avenue Marnix 17, 1000 Brussels.

The following deviations apply:

Clause/Subclause	Modifications
1 Scope	*Replace* the text of para 2 with the following: Reference to the suitability of an extinguisher for use on gaseous fires (Class C fires), the manufacturers shall be required to provide evidence of suitability for the purpose to the relevant authority and the certification body before the listing process.
16.1 Colour	*Insert* the following after para 2: The extinguisher should be marked with a zone of colour, in the form of a band on the extinguisher body, above the operating instructions, to identify the extinguishing agent.

The colour of such zone shall be based on the following colours:

Extinguishing agent	Colour	RAL colour ref:*
Water	Red	RAL 3000
Foam	Pale cream	RAL 1014
Powder	Blue	RAL 5002
Carbon dioxide	Black	RAL 9005
Clean agent	Green	RAL 6016
Wet chemical	Yellow	RAL 1023

* The RAL colour reference shall be as specified in Farbregister RAL-841-GL

16.2 Marking

Replace this subclause with the following (text in italics are the modifications):

The marking on the extinguisher shall be in contrasting colour(s) to the background. The marking shall be divided into five parts as shown in Figure 2.

The marking may be permanently printed on the extinguisher. For example, silkscreen type print is acceptable and the lettering shall be white with the background in red.

If stick-on type label/frame is provided, it is recommended that the background be white with black letterings. The stick-on label/frame shall not cover more than 30% of the surface area of the extinguisher body.

The markings required under Parts 1, 2 and 3 shall be visible through a horizontal arc of 180 degrees when the extinguisher is correctly mounted.

The markings required for Part 4 and Part 5 (as shown in Figure 2) may be placed elsewhere on the extinguisher.

The value of *H*, for calculating the height of the lettering (which shall be determined by reference to an upper case letter E), except when the marking is in more than one language, shall be not less than:

– 3 mm for extinguishers having a charge ≤ 3 kg or 3 l;

– 5 mm for extinguishers having a charge > 3 kg or 3 l.

If the marking is in more than one language, the minimum value of *H* shall be 2 mm.

The height of the lettering in Parts 1, 2, 3 and 4 shall be as follows subject to a tolerance of ± 10 %.

– Part 1: 1,5 x *H* for the words ‘fire extinguisher’;

– 0,75 x *H* for the other information;

– Part 2: 1 x *H*;

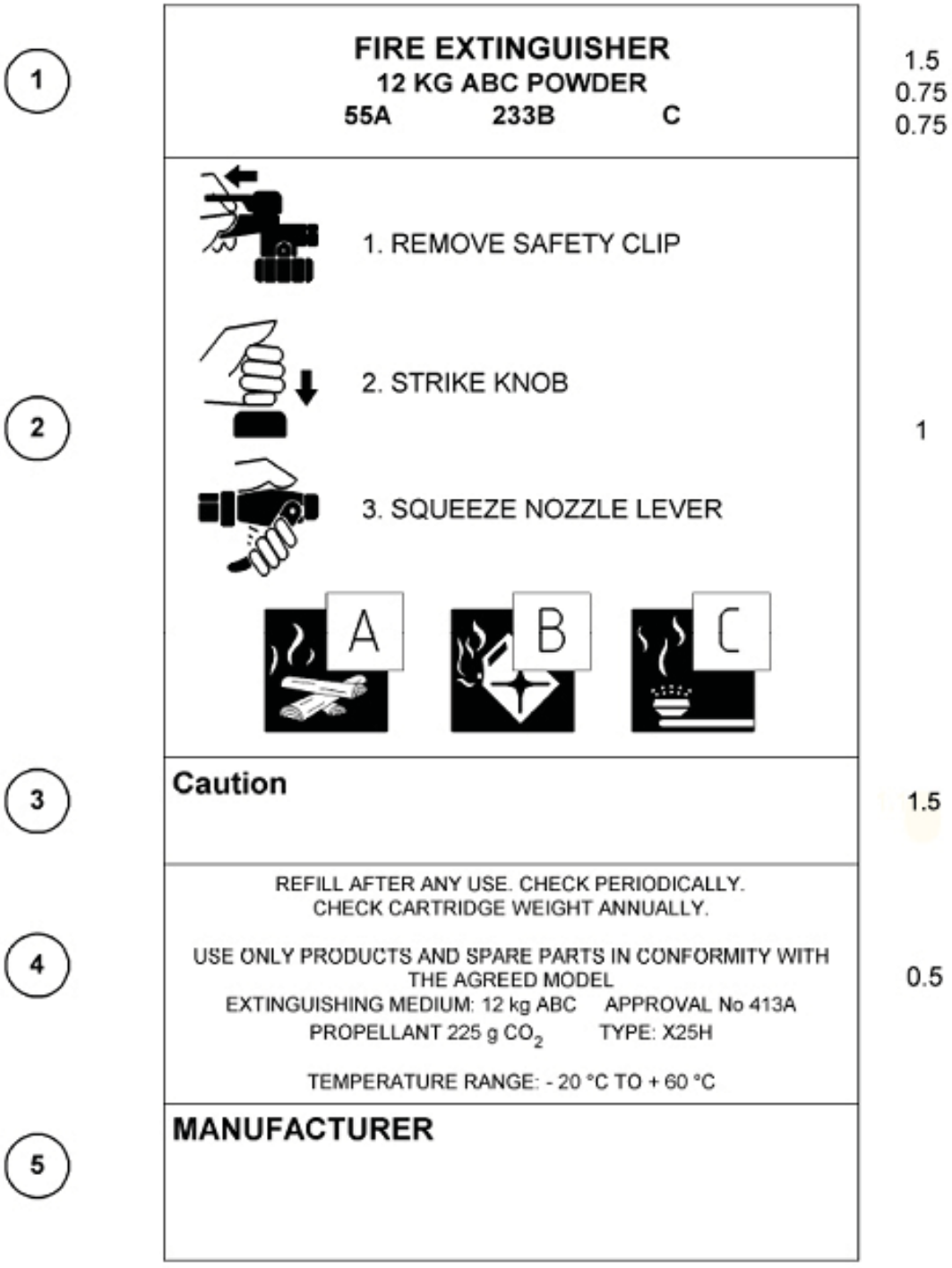
As amended May 14

– Part 3: 1,5 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.

NOTE – The circled numbers indicate the parts of the marking and the numbers to the right of each part indicate the height of the lettering as a proportion of *H* (see 16.2).



Note – The circled numbers indicate the parts of the marking and the numbers to the right of each part indicate the height of the lettering as a proportion of *H* (see 16.2)

Figure 2 – Example of marking of an extinguisher

Part 1 shall contain the following information in sequence:

– the words ‘FIRE EXTINGUISHER’; or ‘EXTINGUISHER’ plus medium, or `FIRE EXTINGUISHER’ plus medium;

– the type of extinguishing medium and the nominal charge;

– the fire rating or ratings of the extinguisher [A1] (see 6.4, Clause 15, Annex I and Annex L) [A1]

Part 2 shall contain the following information:

– the instructions for use, which shall include one or more pictograms each with an explanation;

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

The pictograms shall all be located in the same position with regard to the relevant texts and the direction of the movements to be carried out shall be indicated by arrows.

– pictograms representing the type of fires are shown in [A1]Figure 3 and Figure L.1. Class A, Class B and Class F pictograms [A1] shall only be used where the corresponding fire rating is shown on the marking. Class C pictogram shall only be shown on powder extinguishers where Class C suitability is shown on the marking. These pictograms shall be arranged horizontally on one line under the instructions for use;

– [A1] for extinguishers having additionally passed the requirements of Annex M the words: "also suitable for use on polar solvents." immediately under the pictograms representing the types of fire.[A1]

The pictograms representing the types of fire shall appear in square boxes of side 20 mm minimum for portable fire extinguishers with a charge of less than or equal to 3 kg or 3 l and 25 mm minimum for portable fire extinguishers with a charge of more than 3 kg or 3 l. A square containing a code letter shall appear at the corner of each pictogram as shown in Figure 3.

The code letter representing the class of fire, either A, B, C or F within the alphabet box shall be 0.45H subject to a tolerance of +/- 1% (refer to Figure 3). The square pictogram box shall be 0.9H. The H here is referring to either the 20 mm or 25 mm sides of the square pictogram box as shown in Figure 3.

Extinguishers claiming class D suitability shall not be marked for suitability of any other fire class.

Part 3 shall contain information relating to any restrictions or dangers of use, in particular in relation to toxicity and electrical risk.

The caption “Caution” in Part 3 and the relevant contents shall be 1.5 x H.

Portable fire extinguishers using water or foam and not tested to, or not meeting the requirements of, clause 9 shall be marked with the following warning: "WARNING: Do not use on live electrical equipment".

The warning statement "WARNING: Do not use on live electrical equipment" shall be placed in Part 3.

Portable fire extinguishers using other agents and water based extinguishers meeting the requirements of clause 9 shall 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 1 000 V at a distance of 1 m".

The wordings "Suitable for use on live electrical equipment up to 1000 V at a distance of 1 m" shall be placed immediately under the pictograms within Part 2. The lettering height shall be 0.75 x H (refer to page 21). A precautionary statement: "Use with care for live electrical equipment" shall be indicated in Part 3.

For dry powder and carbon dioxide fire extinguishers which are safe for use on live electrical equipment, a precautionary statement "Use with care for live electrical equipment" shall be indicated in Part 3.

Part 4 shall contain at least the following:

– 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 propellant gas;

– the number(s) or reference(s) relating to the approval of the extinguisher;

– the manufacturer's model designation;

– the operating temperature range;

– a warning against the risk of freezing for water based extinguishers;

– *a reference to the SS EN 3.*

Part 5 shall contain:

– the name and address of the portable fire extinguisher manufacturer and/or supplier.

In addition, the year of manufacture shall be marked somewhere on the portable fire extinguisher.

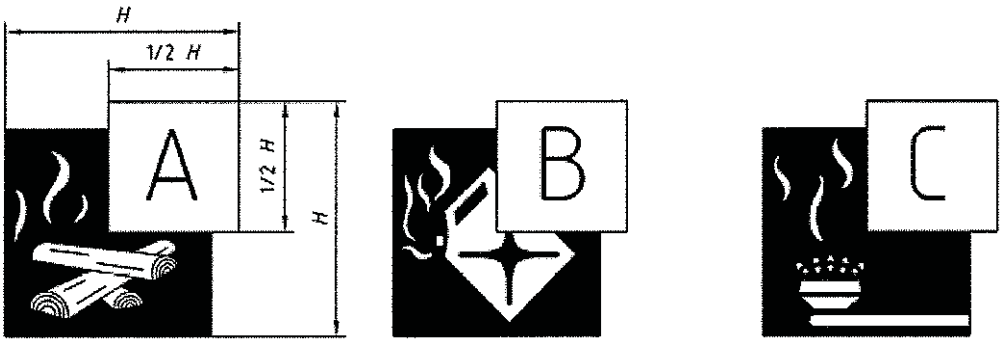


Figure 3 – Pictograms

Annex L, Table L.1 *Replace* 'See Figure L.2' under rating 5F with 'See Figure L.2 - dia. = 300'.

Attention is drawn to the following:

– In EN Standards, the comma has been used throughout as a decimal marker whereas in Singapore Standards, it is a practice to use a full point on the baseline as the decimal marker.

– Where applicable, the words 'European Standard' should be read as 'Singapore Standard'.

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

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3-7:2004+A1

August 2007

ICS 13.220.10

Supersedes EN 3-7:2004

English Version

Portable fire extinguishers - Part 7: Characteristics, performance requirements and test methods

Extincteurs d'incendie portatifs - Partie 7: Caractéristiques, performances et méthodes d'essai

Tragbare Feuerlöscher - Teil 7: Eigenschaften, Leistungsanforderungen und Prüfungen

This European Standard was approved by CEN on 5 March 2003 and includes Amendment 1 approved by CEN on 30 June 2007.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN 3-7:2004+A1:2007: E

Contents

Foreword

This document (EN 3-7:2004+A1:2007) has been prepared by Technical Committee CEN/TC 70 “Manual means of firefighting equipment”, the secretariat of which is held by AFNOR.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2008 and conflicting national standards shall be withdrawn at the latest by February 2008.

This document includes Amendment 1, approved by CEN on 2007-06-30.

This document supersedes EN 3-7:2004.

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

EN 3 consists of the following parts, under the general title "Portable fire extinguishers":

⟦A1⟩ *deleted text* ⟨A1⟧

— *Part 6[1)]: Provisions for the attestation of conformity of portable fire extinguishers in accordance with EN 3 part 1 to part 5*

— *Part 7: Characteristics, performance requirements and test methods*

— *Part 8: Additional requirements to EN 3-7 for the construction, resistance to pressure and mechanical tests for extinguishers with a maximum allowable pressure equal or lower than 30 bar*

— *Part 9: Additional requirements to EN 3-7 for pressure resistance of CO_2 extinguishers*

— *Part 10[2)]: Provisions valuating the conformity of a portable fire extinguisher to EN 3 part 7*

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

1) EN 3-6 will be superseded by EN 3-10.

2) EN 3-10 will update and amend EN 3-6. EN 3-10 will supersede EN 3-6.

1 Scope

This standard specifies the characteristics, performance requirements and test methods for portable fire extinguishers.

Reference to the suitability of an extinguisher for use on gaseous fires (class C fires) are at the manufacturer's discretion, but are applied only to powder type extinguishers which have gained a class B or class A and class B rating.

Suitability of extinguishers for use on class D fires (fires involving flammable metals) is outside the scope of this standard in respect of test fires. However, extinguishers claiming class D suitability are covered in all other respects by the requirements in this standard for powder extinguishers.

〈A1〉 It is considered hazardous for powder and carbon dioxide fire extinguishers to be used on Class F fires. For this reason powder and carbon dioxide fire extinguishers are excluded for conformance with regard to Class F in this European Standard. 〈A1〉

NOTE The extinction of a metal fire presents a situation so specific (in terms of the metal itself, its form, the configuration of the fire etc.) that it is not possible to define a representative standard fire for the purposes of testing. The efficiency of extinguishers on class D fires needs to be established on a case by case basis.

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 (including amendments).

EN 2, *Classification of fires*

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

ISO 657-1, *Hot-rolled steel sections — Part 1: Equal-leg angles — Dimensions*

ISO 4470, *Sawn timber — Determination of the average moisture content of a lot*

Farbregister RAL-841-GL.