



SLOVENSKI STANDARD
SIST EN 3-5:1997
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Prenosni gasilniki - 5. del: Specifikacije in dodatni preskusi

Portable fire extinguishers - Part 5: Specification and supplementary tests

Tragbare Feuerlöscher - Teil 5: Zusätzliche Anforderungen und Prüfungen

Extincteurs d'incendie portatifs - Partie 5: Spécifications et essais complémentaires

Ta slovenski standard je istoveten z: EN 3-5:1996

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EUROPEAN STANDARD

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English version

Portable fire extinguishers - Part 5: Specification and Supplementary tests

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Extincteurs d'incendie portatifs - Partie 5:
Spécifications et essais complémentaires

Tragbare Feuerlöscher - Teil 5: Zusätzliche
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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.

The European Standards exist 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
Comité Européen de Normalisation
Europäisches Komitee für Normung

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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 consist 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 provision
- Part 3 : Construction, resistance to pressure, mechanical tests
- Part 4 : Charges, minimum required fires
- Part 5 : Specifications 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

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.

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EN 3-5:1996

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 of revision. For undated reference 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
EN 3-2:1995	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 the shock at temperatures between -20°C (or -30°C for countries with low temperatures) and $+60^{\circ}\text{C}$ ($T(\text{max})^{\circ}\text{C}$). For the water base extinguishers the low limit temperatures shall be $+5^{\circ}\text{C}$, 0°C , -10°C , -15°C , -20°C , -25°C , -30°C following the manufacturers 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 not be less than the value applicable 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.

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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 given in table 1 for temperatures up to $T(\text{max.})^{\circ}\text{C}$.

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 (T (max) °C) it shall be no greater than 300N.

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 20N and 100N 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 diptube 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 $(20 \pm 5)^\circ\text{C}$.
- twice the pressure developed in the appliance at 60°C, the test being carried out at $(60 \pm 2)^\circ\text{C}$.

For CO₂ extinguishers :

- 1,5 times the pressure developed in the appliance at 60°C, the test being carried out at $(20 \pm 5)^\circ\text{C}$.
- 1,25 times the pressure developed in the appliance at 60°C, the test being carried out at $(60 \pm 2)^\circ\text{C}$.

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 not be 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 temperature (see clause 3) with the following tolerances :
 - 10 % > 0°C
 - 15 % ≤ 0°C
 - +6 % T (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 1000 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 $(20 \pm 5)^\circ\text{C}$.

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

4.8 Horns for carbon dioxide extinguishers

4.8.1 If the horn 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.1, 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 3 l.
- 25 mm for extinguishers with a load of more than 3 kg or 3 l.