



SLOVENSKI STANDARD
oSIST prEN 1866-3:2007

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Prevozni gasilniki - 3. del: Dodatne zahteve k EN 1866-1 za odpornost proti tlaku za gasilnike s CO2

Mobile fire extinguishers - Part 3: Additional requirements to EN 1866-1 for pressure resistance of CO2 extinguishers

Fahrbare Feuerlöscher - Teil 3: Zusätzliche Anforderungen zu EN 1866-1 an die Druckfestigkeit von Kohlendioxid-Feuerlöschern

Extincteurs d'incendie mobiles - Partie 3: Exigences complémentaires a celles de l'EN 1866-1 sur la résistance a la pression des extincteurs au dioxyde de carbone

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English Version

Mobile fire extinguishers - Part 3: Additional requirements to EN 1866-1 for pressure resistance of CO₂ extinguishers

Extincteurs d'incendie mobiles - Partie 3: Exigences complémentaires à celles de l'EN 1866-1 sur la résistance à la pression des extincteurs au dioxyde de carbone

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 70.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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 Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Foreword

This document (prEN 1866-3:2006) has been prepared by Technical Committee CEN/TC 70 "Manual means of fire fighting equipment", the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1866:2005.

This standard EN 1866 consists of the following parts under the general title "Mobile fire extinguishers":

- Part 1: *Characteristics, performance requirements and test methods*
- Part 2: *Additional requirements to EN 1866-1 for the construction, resistance to pressure and mechanical tests for extinguishers with a maximum allowable pressure equal to or lower than 30 bar*
- Part 3: *Additional requirements to EN 1866-1 for pressure resistance of CO₂ extinguishers*

Annexes B, C, D are normative, Annexes A, D and ZA are informative.

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1 Scope

This European Standard specifies the rules of design, assembling, testing and inspection during manufacturing of mobile CO₂ fire extinguishers as far as pressure risk is concerned.

NOTE The classification of the different parts forming the assembly is given in Annex A.

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.

EN 1866, *Mobile fire extinguishers – Part 1: Characteristics, performance requirements and test methods.*

EN 10204, *Metallic products – Types of inspection documents.*

EN 629-1: *Transportable gas cylinders – 25E taper thread for connection of valves to gas cylinders – Part 1: Specification.*

EN ISO 15245-1 : *Gas cylinders – Parallel threads for connection of valves to gas cylinders – Part 1: Specification.*

EN ISO 10297: *Transportable gas cylinders – cylinder valves – specification and type testing (ISO 10297:2006).*

ISO 6718, *Bursting discs and bursting disc devices.*

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3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1 pressure at maximum operating temperature, P_{Tmax} (Pressure experimentally measured)
pressure measured in the extinguisher after stabilisation during at least 24 h at maximum operating temperature T_{max} (≥ 60 °C)

3.2 maximum allowable pressure, PS (Maximum declared pressure)
maximum pressure for which the equipment is designed, as specified by the manufacturer and which is in any case greater than or equal to P_{Tmax}

3.3 cylinder valve
component subject to the internal pressure and used to close off and seal the cylinder

3.4 fire extinguisher assembly
an assembly of the cylinder, cylinder valve, hose and discharge valve

3.5 bursting disc
safety device consisting of a metallic disc, intended to rupture in case of overpressure and release the cylinder contents

3.6**bursting pressure P_r**

maximum pressure measured during a bursting test

3.7 **T_{max}**

maximum operating temperature declared by the manufacturer

3.8 **T_{min}**

minimum operating temperature declared by the manufacturer

4 Symbols and abbreviations

For the purposes of this standard, the following symbols and abbreviations apply:

PS The maximum allowable pressure in bar

PT The test pressure in bar

Pr Bursting pressure in bar

T_{max} The maximum operating temperature, in °C

P_{Tmax} The pressure at maximum operating temperature, in bar

T_{min} The minimum operating temperature, in °C

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5 Materials

Non metallic materials are not permitted by this standard for:

- bodies
- bodies of cylinder valves
- bodies of operating valves
- hose couplings

Materials of components that may be in contact with the contents shall be compatible with both the contents and the material of other components.

6 Design

6.1 Cylinder

6.1.1 Filling ratio

There is a relationship between the filling ratio, the maximum allowable pressure and the maximum allowable temperature depending on the pressure-temperature curves of carbon dioxide. Commonly used filling ratios are 0.667, 0.675 and 0.750. For these filling ratios the corresponding maximum allowable pressures at 60 °C are shown in Annex D.

6.1.2 Cylinder design

Cylinders shall be CE- or PI-marked and shall be suitable for the chosen filling ratio.

The thread of the cylinder shall be corresponding with the thread of the cylinder valve. This thread shall be in accordance with the thread code as indicated in Annex B and shall be marked on the cylinder.

6.2 Cylinder valve

Cylinder valves shall be CE- or PI-marked.

Cylinder valves shall be submitted to the impact test in accordance with EN 849.

The thread of the cylinder valve shall be corresponding with the thread of the cylinder. This thread shall be in accordance with the thread code as indicated in Annex B and shall be marked on the valve.

The cylinder shall be fitted with a bursting disc, which shall comply with ISO 6718.

The bursting disc at $(T_{\max} \pm 2)$ °C shall operate at a pressure between 1,1 PS and the test pressure of the extinguisher PT, including all manufacturing tolerances.

NOTE PS of the extinguisher assembly cannot exceed the PS of any component of the extinguisher assembly.

6.3 Hose assembly and attached components

6.3.1 Requirements

The hose assembly and attached components 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.

6.3.2 Prototype testing

When tested in accordance with Annex C, the bursting pressure P_r of the hose shall conform to:

- three times the maximum allowable pressure PS, the test being carried out at (20 ± 5) °C and;
- twice $P(T_{\max})$, the test being carried out at $(T_{\max} \pm 2)$ °C and at $(T_{\min} \pm 2)$ °C.

7 Assembling and marking

7.1 General requirements

The manufacturer shall ensure that they have available the manufacturing means and processes suitable for the assembly of the extinguisher in accordance with this standard.

The manufacturer shall ensure that the materials and components used in the fabrication of the body are free from any defect likely to impair the safe use of the extinguisher.

The compatibility between the thread of the cylinder and the thread of the cylinder valve shall be checked..

The manufacturers declared torque between the cylinder valve and the cylinder and the valve and the bursting disc shall be utilized.

Manufacturing processes shall be defined and controlled and shall not adversely affect the materials and components of the extinguisher.

7.2 Traceability

7.2.1 Pressure retaining parts

The identification and the control of the materials for all pressure retaining parts shall be such as to ensure that the materials used in manufacture meets the specification of the design.

This is realised by application of adequate procedures, internal to the manufacturer such as batch control.

7.2.2 Cylinder valves and hose assemblies

The cylinder valves and hose assemblies which are or may be subjected to pressure during normal use shall be indelibly marked to permit subsequent identification and traceability.

The thread code shall be marked on the cylinder valve (Annex B).

7.2.3 Marking

7.2.3.1 Cylinder valve

- The thread code shall be marked (Annex B).
- CE or PI mark including applicable associated markings.

7.2.3.2 Cylinder

The cylinder shall be marked with:

- the thread code shall be marked (Annex B);
- CE or PI mark including applicable associated markings.

7.2.3.3 Extinguisher assembly

The extinguisher assembly shall be marked with:

- mark of the extinguisher manufacturer as registered, for identification;
- serial or batch number of the extinguisher;
- year of manufacture of the extinguisher, which can be represented by the four digits, e.g. 2002;
- tare in kg, including permanently attached accessories (necessary for refilling);
- maximum filling mass – kg;
- contained gas;
- operating temperature range of the extinguisher assembly (T_{\min}/T_{\max}).

The markings specified above shall be permanently marked.

NOTE Marking requirements for the complete extinguisher are specified in EN 1866-1.

7.3 Inspection and testing

7.3.1 Cylinders and valves

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Prior to assembly, the manufacturer shall ensure that the cylinders and valves have been CE or PI marked. The manufacturer shall keep record of all relevant certificates.

The cylinders and valves must be pressure tested prior to assembly, because a hydrostatic test after assembly would be harmful.

7.3.2 Hose assemblies

Prior to assembly, the manufacturer shall ensure that the hose assemblies have been tested for resistance to test pressure.

The hydrostatic test pressure PT shall not be less than 1,43 times the allowable pressure PS . The test pressure shall be maintained for a minimum of 30 s; no leakage or permanent deformation shall occur.

The manufacturer shall keep record of all test certificates.

7.4 Filling mass

The content of each extinguisher has to be checked by weight to ensure it is filled in accordance with the filling tolerances specified in EN 1866-1.