



SLOVENSKI STANDARD
SIST EN 1866:2006
01-maj-2006

BUXca Yý U.
SIST EN 1866:1998

Prevozni gasilniki

Mobile fire extinguishers

Fahrbare Feuerlöscher

Extincteurs d'incendie mobiles

STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: EN 1866:2005

[SIST EN 1866:2006](#)

<https://standards.iteh.ai/catalog/standards/sist/653a80aa-55c3-4a3b-be5c-732fcd1b00cc/sist-en-1866-2006>

ICS:

13.220.10

SIST EN 1866:2006

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1866:2006

<https://standards.iteh.ai/catalog/standards/sist/653a80aa-55c3-4a3b-be5c-732fcd1b00cc/sist-en-1866-2006>

English Version

Mobile fire extinguishers

Extincteurs d'incendie mobiles

Fahrbare Feuerlöscher

This European Standard was approved by CEN on 17 November 2005.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

(standards.iteh.ai)

SIST EN 1866:2006

<https://standards.iteh.ai/catalog/standards/sist/653a80aa-55c3-4a3b-be5c-732fcd1b00cc/sist-en-1866-2006>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Symbols and abbreviations.....	9
5 Description of an extinguisher.....	9
6 Requirements	10
6.1 Effective range of operating temperatures	10
6.1.1 General	10
6.1.2 Requirements	10
6.2 Filling specifications.....	11
6.2.1 Nominal charges	11
6.2.2 Filling tolerances.....	11
6.3 Duration of operation, residual mass and discharge range	11
6.3.1 Duration of operation.....	11
6.3.2 Maximum residual mass.....	12
6.3.3 Discharge range.....	12
6.4 Retention of charge	12
6.4.1 General	12
6.4.2 Propellant container	12
6.4.3 Stored pressure extinguishers.....	12
6.4.4 Acceptance levels.....	13
6.5 Control valve	13
6.6 Working position.....	14
6.7 Hose and coupling.....	14
6.8 Propelling agent.....	14
6.9 Operation devices	14
6.9.1 General	14
6.9.2 Operating and jet control mechanisms devices	15
6.9.3 Safety devices	15
6.9.4 Discharge from water, water base, and foam extinguishers	15
6.9.5 Pressure gauge	15
6.9.6 Other characteristics	17
6.10 Identification.....	17
6.10.1 Colour	17
6.10.2 Marking	18
6.11 Periodical checking	21
7 Materials	21
7.1 Materials for bodies	21
7.2 Materials for operating devices and filling caps.....	21
7.3 Materials for other components.....	21
8 Design and prototype testing.....	22
8.1 Calculation design method	22
8.2 Experimental design method	22
8.3 Prototype testing.....	22
8.3.1 Pressure test	22
8.3.2 Burst test	22
8.4 Macroscopic examination	23
8.5 Attached parts	23

8.6	Overfill pressure test	23
8.7	Requirements for components subject to pressure	23
8.7.1	Test conditions	23
8.7.2	Requirements	23
9	Manufacturing	24
9.1	General requirements	24
9.2	Welded and brazed parts	24
9.2.1	General	24
9.2.2	Welding procedures	24
9.2.3	Welding personnel	24
9.2.4	Brazing procedures	24
9.2.5	Brazing personnel	24
9.3	Traceability	24
9.3.1	Pressure retaining parts	24
9.3.2	Operating devices, filling caps and hose assemblies	24
9.3.3	Marking of the body	25
10	Inspection and testing during manufacturing	25
10.1	Extinguisher bodies	25
10.1.1	Non destructive examination personnel	25
10.1.2	Non destructive testing	25
10.1.3	Requirements	25
10.2	Accessories and Fittings (excluding pressure relief devices and fittings to be ruptured on over pressure)	25
10.3	Assemblies	25
11	Tests	26
11.1	Temperature test	26
11.2	Corrosion tests	26
11.2.1	External corrosion test	26
11.2.2	Internal corrosion test for water, water base and foam extinguishers	26
11.3	Dielectric test	26
12	Fire performances	26
12.1	Class A fire test object	26
12.1.1	Powder extinguishers	27
12.1.2	Water, water based and foam extinguishers	27
12.2	Class B fire test object	27
12.2.1	Powder extinguishers	27
12.2.2	Water, water base and foam extinguishers	27
Annex A (informative)	Classification of the different parts of an extinguisher subject to internal pressure	28
Annex B (normative)	Specifications for plastics components (except hoses, pistols and nozzles)	29
B.1	General	29
B.2	Requirements for plastics components subject to pressure	29
B.2.1	General	29
B.2.2	Burst under pressure	29
B.2.3	Temperature conditioning 60 °C	29
B.2.4	Ageing test - Xenon arc	30
B.2.5	Impact test after ageing at 20 °C	30
B.2.6	Plastic/metal thread design (jet control devices at the end of hoses are excluded)	31
Annex C (normative)	Symbols of pressures	32
Annex D (normative)	Test methods	33
D.1	Test methods	33
D.2	Duration of operation and residual mass	33
D.3	Measurement of the force	33
D.4	Measurement of the energy	33
D.5	Measurement of leakage of the control valve	33
D.6	Temperatures test	34
D.7	Internal corrosion test	34

Annex E (normative) Overfill pressure test.....	35
Annex F (normative) Test for burst pressure of hose and hose assembly and attached components.....	36
Annex ZA (informative) Relationship between this European Standard and the essential requirements of EU Directive 97/23/EC	37
Bibliography.....	38

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1866:2006

<https://standards.iteh.ai/catalog/standards/sist/653a80aa-55c3-4a3b-be5c-732fcd1b00cc/sist-en-1866-2006>

Foreword

This document (EN 1866:2005) has been prepared by Technical Committee CEN/TC 70 "Manual means of fire fighting equipment", the secretariat of which is held by AFNOR.

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 June 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 97/23/EC.

For relationship with EU Directive 97/23/EC, see informative Annex ZA, which is an integral part of this document.

This document supersedes EN 1866:1998.

This document is included in a series of European Standards planned to cover:

- a) class of fire (EN 2);
- b) portable fire extinguishers (EN 3);

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

- *Part 3: Construction, resistance to pressure, mechanical tests*
- *Part 6: 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 8¹⁾: Construction resistance to pressure and mechanical tests for extinguishers with a maximum allowable pressure equal or lower than 30 bar*
- *Part 9¹⁾: Additional requirements for CO₂ extinguishers*
- *Part 10¹⁾: Provisions for the attestation of conformity for portable fire extinguishers*

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

1) Under preparation.

1 Scope

This document specifies the rules of design, type testing and inspection during manufacturing, ratings and classification of mobile fire extinguishers and test method to be used. It applies to mobile fire extinguishers with a total mass above 20 kg. This document is limited to water based and powder mobile extinguishers with a maximum allowed pressure PS of 30 bar. This document applies to mobile fire extinguishers with a nominal content of 50 kg (powder) and 45 l or 50 l (water, water based and foam) that are manoeuvred by an operator on foot only.

It does not cover fire tests for class C fires, but powder extinguishers are effective on this type of fire. Class D fires are considered to be a very specialist application and are not included in this document, but may be made the object of national specification.

NOTE This document does not specify any metallic materials which comply with the essential requirements of the Directive 97/23/EEC (PED). Materials that successfully pass the essential requirements of the PED may be used.

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 amendments) applies.

EN 3-7, *Portable fire extinguishers – Part 7: Characteristics, performance requirements and test methods*

EN 287-1, *Qualification test of welders - Fusion welding - Part 1: Steels*

EN 287-2, *Approval testing of welders – Fusion welding – Part 2: Aluminium and aluminium alloys*

EN 288-4, *Specification and approval of welding procedures for metallic materials – Part 4: Welding procedure tests for the arc welding of aluminium and its alloys*

EN 1320, *Destructive tests on welds in metallic materials – Fracture test*

EN 1418, *Welding personnel – Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials*

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

EN 13133, *Brazing – Brazer approval*

EN 13134, *Brazing – Procedure approval*

EN 13445-1, *Unfired pressure vessels – Part 1: General*

EN 13445-2, *Unfired pressure vessels – Part 2: Materials*

EN 13445-3, *Unfired pressure vessels – Part 3: Design*

EN 13445-4, *Unfired pressure vessels – Part 4: Fabrication*

EN 13445-5, *Unfired pressure vessels – Part 5: Inspection and testing*

EN ISO 4892-2, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc sources (ISO 4892-2:1994)*

EN ISO 15609-1, *Specification and qualification of welding procedures for metallic materials – Welding procedure specification – Part 1: Arc welding (ISO 15609-1:2004)*

EN ISO 15614-1, *Specification and qualification of welding procedures for metallic materials – Welding procedure test – Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2004)*

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

3 Terms and definitions

For the purposes of this document, 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) and for cartridge operated extinguishers, the maximum pressure is the maximum pressure recorded for 0,5 s during a period of 3 min, excluding the first 5 s after release of the propellant gas

3.2

body

shell of the mobile fire extinguisher not fitted with its accessories but fitted with all its welded parts

NOTE Previous 3.3. deleted, cartridge extinguisher etc. and renumbered.

3.3

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}

[SIST EN 1866:2006](https://standards.iteh.ai/catalog/standards/sist/653a80aa-55c3-4a3b-be5c-732fcd1b00cc/sist-en-1866-2006)

3.4

charge of an extinguisher

mass or volume of the extinguishing media contained in the wheeled fire extinguisher

NOTE Expressed as a volume (in litres) for water, water based and foam extinguishers and as a mass (kilograms) for powder extinguishers.

3.5

closure

component, other than a safety device or pressure indicator, subject to the internal pressure and used to close off and seal the body

3.6

fire extinguisher pressure vessel

assembly of parts to comprise the pressure retaining part of a fire extinguisher which can include a body, operating device, filling cap, closure, valve, hose

3.7

duration of operation

time during which the extinguishing media is discharged, without any interruption in the discharge and with the valve fully opened not including the residual propellant gas

3.8

fire extinguisher

appliance containing an extinguishing medium which can be expelled by the action of internal pressure and be directed on to a fire

NOTE This pressure may be stored pressure (stored pressure extinguisher) or obtained by the release of an propellant gas from a separate cylinder (cartridge extinguisher).

3.9

extinguishing media

substance contained in the extinguisher which causes extinction

3.10

mobile fire extinguisher

extinguisher that is designed to be transportable and operated by hand that has a total mass of more than 20 kg and which is mounted on wheels

NOTE Two bodies can be combined to form a single unit subject to the limits given in Table 1. In this document the mobile fire extinguisher is called "extinguisher".

3.11

propellant gas

gas in a liquefied or compressed state, which provides the internal pressure used to expel the extinguishing media

3.12

propellant container

gas cylinder that fits into or is attached to the extinguisher and which contains the propellant

3.13

residual charge

mass or volume of the extinguishing medium remaining after continuous discharge including all propellant gas

3.14

water based extinguisher

extinguisher containing water only or water with additives

iTeh STANDARD PREVIEW
(standards.iteh.ai)

NOTE This includes foam extinguishers.

3.15

powder extinguisher

extinguisher containing fire extinguishing powder

[SIST EN 1866:2006
https://standards.iteh.ai/catalog/standards/sist/653a80aa-55c3-4a3b-be5c-732fcd1b00cc/sist-en-1866-2006](https://standards.iteh.ai/catalog/standards/sist/653a80aa-55c3-4a3b-be5c-732fcd1b00cc/sist-en-1866-2006)

3.16

bursting pressure P_r

maximum pressure measured during a bursting test

3.17

T_{max}

maximum operating temperature declared by the manufacturer

3.18

T_{min}

minimum operating temperature declared by the manufacturer

4 Symbols and abbreviations

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

- PS maximum allowable pressure in bar;
- PT test pressure in bar;
- D nominal external diameter of the body, or the largest external value of the perpendicular section of the axis, in mm;
- DN diameter in mm for circular products submitted to pressure or the diameter in mm of the equivalent flow section for non-circular parts;
- P_r bursting pressure in bar;
- T_{max} maximum operating temperature, in °C;
- P_{tmax} pressure at maximum operating temperature, in bar;
- T_{min} minimum operating temperature, in °C.

5 Description of an extinguisher

An extinguisher is described by the type of extinguishing medium it contains. At present, there are:

- powder extinguishers; [SIST EN 1866:2006](https://standards.iteh.ai/catalog/standards/sist/653a80aa-55c3-4a3b-be5c-732fcd1b00cc/sist-en-1866-2006)
- water extinguishers; <https://standards.iteh.ai/catalog/standards/sist/653a80aa-55c3-4a3b-be5c-732fcd1b00cc/sist-en-1866-2006>
- water based and water with additives extinguishers;
- foam extinguishers.

NOTE Water based extinguishers may be produced with or without a low freeze depressant.

Water based extinguishers, including foam, containing different proportions of low freeze depressant shall be treated as separate and distinct models especially for the purpose of testing the range of operating temperatures (see 6.1.1), electrical conductivity (see 11.3), and fire ratings.

Components of extinguisher

A wheeled fire extinguisher consists of the following components:

- body;
- body fittings, which are attached to or screwed to the body, and include the following:
 - cylinder for propellant (not applicable for stored pressure extinguishers);
 - control device;
 - hose assembly;
 - head assembly; this also constitutes the main closure (see 6.9.6.1);

- operating device;
- wheels and a handle.

NOTE The head assembly, operating device and control device(s) may be separate or may be incorporated in a single unit.

6 Requirements

6.1 Effective range of operating temperatures

6.1.1 General

Extinguishers shall be able to operate between T_{\max} and T_{\min} :

T_{\max} all extinguishers shall be 60 °C or higher;

T_{\min} all powder extinguishers shall be - 20 °C, - 30 °C or lower;

T_{\min} water based extinguishers shall be + 5 °C, 0 °C, - 5 °C, - 10 °C, - 15 °C, - 20 °C, - 25 °C, - 30 °C or lower. For water based extinguishers without any protection against freezing. T_{\min} shall be + 5 °C.

T_{\max} and T_{\min} claimed by the manufacturer shall be used for the tests.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

6.1.2 Requirements

After the test described in D.6, the requirements for all extinguishers are as follows:

- they shall operate satisfactorily;
- discharge shall commence within 10 s of the opening of the control valve;
- discharge duration shall be according D.2 and not be less than the value applicable given in Table 3 and Table 4;
- residual charge remaining in the extinguisher after one single and complete discharge including full decompression shall be as given in Table 5.

6.2 Filling specifications

6.2.1 Nominal charges

Nominal charges of extinguishers shall be equal to one of the values given in the Table 1 depending on to the nature of the extinguishing media.

Table 1 – Nominal charges for extinguishing media

Powder in kg	Water, water based and foam in l
50	45 or 50

6.2.2 Filling tolerances

The actual charge of the extinguisher shall be equal to the nominal charge within the tolerances given in Table 2.

Table 2 – Filling tolerances on nominal charges

Powder in kg	Water, water based and foam in l
± 2%	+ 0% - 5%

For the charge of the propellant cartridge, the tolerance shall be + 0, - 5 % in mass for CO₂ and for compressed gases + 0, - 5 % in pressure at 20 °C.

6.3 Duration of operation, residual mass and discharge range

6.3.1 Duration of operation

6.3.1.1 Powder extinguishers

When determined in accordance with D.2, the duration of operation of type I (short duration time) and type II (long duration time) powder extinguishers shall be as given in Table 3.

Table 3 – Duration time for 50 kg powder extinguishers

Type	Duration time in s	
	Min	Max
I	30	50
II	50	70