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**Fire protection — Portable and wheeled  
fire extinguishers —**

**Part 2:  
Inspection and maintenance**

*Protection contre l'incendie — Extincteurs portatifs et extincteurs sur  
roues —*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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

ISO/TS 11602-2 was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 2, *Manually transportable fire extinguishers*.

This first edition of ISO/TS 11602-2 cancels and replaces ISO 11602-2:2000, of which it constitutes a technical revision.

ISO 11602 consists of the following parts, under the general title *Fire protection — Portable and wheeled fire extinguishers*:

- *Part 1: Selection and installation* [Technical Specification]
- *Part 2: Inspection and maintenance* [Technical Specification]

## Introduction

This part of ISO 11602 presents a limited number of provisions for the inspection and maintenance of portable and wheeled fire extinguishers, in the knowledge that different countries have particular environments and climates which can affect the size, shape and occupancy of buildings.

A country's specific building configurations can affect the inspection and maintenance of fire extinguishers; therefore, this part of ISO 11602 could be reinforced in respect of fire-extinguishing performance characteristics in the presentation of a general-purpose standard.

It is proposed that further investigation be undertaken in light of the above for the purposes of a future revision of this part of ISO 11602.

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# Fire protection — Portable and wheeled fire extinguishers —

## Part 2: Inspection and maintenance

### 1 Scope

This part of ISO 11602 gives requirements for the selection and installation of portable and wheeled fire extinguishers. It is intended as a companion to ISO/TS 11602-1.

Fire extinguishers are a first line of defence against fires of limited size. They are needed even if the property is equipped with automatic sprinklers, standpipe and hose, or other fixed protection equipment.

This part of ISO 11602 is not applicable to permanently installed systems for fire extinguishment, even though portions of such systems may be portable (such as hose and nozzles attached to a fixed supply of extinguishing media).

Extinguishers for use on board aircraft, watercraft and vehicles are outside the scope of ISO 11602.

### 2 Normative references

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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.

ISO 5923, *Fire protection — Fire extinguishing media — Carbon dioxide*

ISO 7201-1, *Fire protection — Fire extinguishing media — Halogenated hydrocarbons — Part 1: Specifications for halon 1211 and halon 1301*

ISO 7201-2, *Fire extinguishing media — Halogenated hydrocarbons — Part 2: Code of practice for safe handling and transfer procedures of halon 1211 and halon 1301*

ISO 8421-1, *Fire protection — Vocabulary — Part 1: General terms and phenomena of fire*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8421-1 and the following apply.

#### 3.1

##### **clean agent**

electrically non-conductive gaseous or vaporizing fire extinguishant that does not leave a residue upon vaporization

[ISO 7165:2009, 3.5]

**3.2**

**closed recovery system**

system that provides for the transfer of media between extinguishers, supply containers, and recharge and recovery containers so that the escape of media to the atmosphere is minimized

**3.3**

**competent person**

person with the necessary training and experience and with access to the requisite tools, equipment, parts and information (including the manufacturer's service manual) to be capable of carrying out the inspection, maintenance and recharging procedures of this part of ISO 11602

**3.4**

**film-forming foam**

extinguishing media comprising the aqueous film-forming foam (AFFF) and film-forming fluoroprotein (FFFP) foam types, and including grades suitable for polar solvents (water-soluble flammable liquids) and those not suitable for polar solvents

**3.5**

**fire extinguisher  
extinguisher**

appliance containing an extinguishing medium which can be discharged and directed onto a fire by the action of internal pressure

NOTE 1 See ISO 7165.

NOTE 2 The internal pressure may be provided by

- a stored pressure (pressurization of the extinguishing medium container at the time of charging), or
- a gas cartridge (pressurization at the time of use through the release of gas from a separate cylinder into the medium container).

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NOTE 3 Adapted from ISO 7165:2009, definition 3.11

**3.6**

**high-pressure cylinder**

cylinder having a service pressure higher than 2,5 MPa at 20 °C

**3.7**

**inspection**

brief examination to ensure that an extinguisher is available and will operate

NOTE This is intended to give reasonable assurance that the extinguisher is fully charged and operable. This is done by seeing that it is in its designated place, that it has not been actuated or tampered with, and that there is no obvious damage or condition to prevent its operation.

**3.8**

**low-pressure cylinder**

cylinder having a service pressure of 2,5 MPa or lower at 20 °C

**3.9**

**maintenance**

thorough examination of the extinguisher

NOTE This is intended to give maximum assurance that an extinguisher will operate effectively and safely. It includes a thorough examination and any necessary repair or replacement. It will normally reveal if hydrostatic testing is required.



**3.10****non-rechargeable extinguisher****non-refillable extinguisher**

fire extinguisher that is not capable of (or intended for) undergoing complete maintenance or hydrostatic testing, nor of being restored to its full operating capability by means of the standard practices used by fire equipment service companies

**3.11****portable fire extinguisher**

fire extinguisher that is designed to be carried and operated by hand and that in working order has a mass of not more than 20 kg

NOTE Subject to local acceptance, extinguishers having a total mass of 25 kg when fully charged are permitted.

[ISO 7165:2009, 3.15]

**3.12****rating**

comparative number associated with the classification assigned to an extinguisher and indicative of its capability in the extinguishment of a standard fire

**3.13****rechargeable extinguisher****refillable extinguisher**

fire extinguisher that is capable of undergoing complete maintenance, including internal inspection of the pressure vessel, replacement of all standard parts and seals, and hydrostatic testing, and of being recharged with media and propellant and restored to its full operating capability by means of the standard practices used by fire equipment service companies

NOTE Rechargeable/refillable extinguishers are marked "Recharge Immediately After Any Use" or with a similar equivalent marking.

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**3.14****recharging**

replacement of the extinguishing medium

NOTE This also includes the propellant for certain types of extinguishers.

**3.15****self-expelling-medium extinguisher**

extinguisher in which the medium has sufficient vapour pressure at normal operating temperatures to expel itself

**3.16****service****servicing**

process that includes maintenance, recharging or hydrostatic testing, or more than one of these

**3.17****service pressure**

normal operating pressure at 20 °C, as indicated on the pressure gauge or indicator and nameplate of a stored pressure extinguisher, or the pressure developed in a cartridge-operated extinguisher upon release of the gas from the cartridge into the medium container at a temperature of 20 °C

**3.18****test pressure**

pressure at which the extinguisher or its components were tested at the time of manufacture

NOTE The pressure at which the shell was tested is shown on the nameplate or the extinguisher body.

**3.19**

**water-type extinguisher**

fire extinguisher which contains a water-based medium, such as water, aqueous film-forming foam (AFFF) or film-forming fluoroprotein (FFFP) foam and/or antifreeze

**3.20**

**wet chemical extinguisher**

fire extinguisher which contains aqueous solutions of potassium acetate, potassium carbonate, potassium citrate, or combinations of these materials

**3.21**

**wheeled extinguisher**

fan appliance on wheels having a total mass of more than 20 kg but not greater than 450 kg, which is designed to be transported to the fire and operated by one person

NOTE See ISO 11601.

**4 Inspection, maintenance and recharging**

**4.1 General**

**4.1.1** The owner or designated agent or occupant of a property in which extinguishers are located shall be responsible for inspection, maintenance and recharging.

**4.1.2** The procedure for inspection and maintenance of extinguishers varies considerably. Minimal knowledge is necessary to perform a monthly inspection procedure as outlined in 4.2. Only competent persons shall service extinguishers, as outlined in 4.3 and 4.4. See Annex A.

**4.1.3** Maintenance and recharging shall be performed in accordance with the appropriate manual(s), using the proper types of tools, recharge materials, lubricants, and the manufacturer's recommended and identified replacement parts.

**4.1.4** Extinguishers out of service for maintenance or recharge shall be replaced at once by spare extinguishers of the same type and at least equal classification and rating.

**4.2 Inspection**

**4.2.1** Extinguishers shall be checked when initially placed in service and thereafter should be checked at approximately 30-day intervals. Extinguishers shall be checked at more frequent intervals when circumstances require.

**4.2.2** Periodic checks shall be made to ensure that

- a) the extinguisher is located in the designated place,
- b) the extinguisher is unobstructed and visible, with its operating instructions facing outwards,
- c) operating instructions are legible,
- d) seals and tamper indicators are not broken or missing,
- e) the extinguisher is full (by weighing or lifting),
- f) the extinguisher is not obviously damaged, corroded or leaking and does not have a clogged nozzle, and
- g) where provided, the pressure gauge reading or indicator is in the operable range or position.

**4.2.3** When a check of any extinguisher reveals a deficiency in the conditions listed as a) and b) of 4.2.2, immediate corrective action shall be taken.

**4.2.4** When a check of any rechargeable extinguisher reveals a deficiency in any of the conditions c), d), e), f) or g) of 4.2.2, it shall be subjected to appropriate maintenance procedures.

**4.2.5** When a check of any non-rechargeable powder extinguisher reveals a deficiency in any of the conditions c), d), e), f) or g) of 4.2.2, it shall be removed from service.

**4.2.6** When a check of any non-rechargeable clean agent extinguisher reveals a deficiency in any of the conditions c), d), e), f) or g) of 4.2.2, it shall be removed from service and the medium shall be recovered or destroyed.

### 4.3 Maintenance

#### 4.3.1 General

All extinguishers, except as noted in Annex C, shall be subjected to maintenance as follows:

- a) not more than once a year but not less than six months apart;
- b) at the time of hydrostatic testing;
- c) when specifically indicated by an inspection.

Maintenance procedures shall be performed in accordance with 4.3.2.

#### 4.3.2 All extinguishers

**4.3.2.1** At each maintenance, all extinguishers shall be subjected to the following:

- a) a check of the seal and safety device to determine whether the extinguisher may have been used;
- b) subsequent to maintenance, replacement of the safety device and fitting of a new seal;
- c) attachment of a label to the extinguisher or marking of a label attached to the extinguisher indicating that the required maintenance has been performed.

**4.3.2.2** For the balance of the procedures to be carried out when maintaining portable fire extinguishers, extinguisher types are categorized as follows:

- Category 1: stored-pressure-type extinguishers with water, water with additives, or foam as the extinguishing media;
- Category 2: stored-pressure-type extinguishers with powder or clean agent as the extinguishing media;
- Category 3: gas-cartridge-type extinguishers with water, water with additives, or foam as the extinguishing media;
- Category 4: gas-cartridge-type extinguishers with powder as the extinguishing media;
- Category 5: carbon dioxide extinguishers.

**4.3.2.3** In addition to the requirements of 4.3.2.1 a), b) and c), extinguishers shall be maintained in accordance with Table 1.

**4.3.2.4** Powder extinguishers shall be opened for performing maintenance procedure.

**CAUTION — Before any powder extinguisher is opened, it shall be ascertained that, during inspection and maintenance, the precautions given in 4.3.2.4.1 and 4.3.2.4.2 can and will be observed.**