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

**Part 1:
Selection and installation**

*Protection contre l'incendie — Extincteurs portatifs et extincteurs
sur roues —*
Partie 1: Choix et installation

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this part of ISO 11602 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 11602-1 was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 2, *Manually transportable fire extinguishers*.

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

— *Part 1: Selection and installation*

— *Part 2: Inspection and maintenance*

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Introduction

ISO 11602 is intended to provide guidance to those involved in the application of portable and wheeled fire extinguishers as a means, or partial means, of providing fire protection to various hazards both within and outside buildings. It should be recognized that the rules and recommendations provided herein may not be applicable to all hazards where specific configurations of combustible materials, or other special locations or circumstances, dictate the need for engineered protection.

Requirements are specified in this part of ISO 11602 for the selection and installation of portable and wheeled fire extinguishers. Details relating to inspection and maintenance are contained in ISO 11602-2.

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Fire protection — Portable and wheeled fire extinguishers —

Part 1: Selection and installation

1 Scope

This part of ISO 11602 gives requirements for the selection and installation of portable and wheeled fire extinguishers. It should be used in conjunction with ISO 11602-2.

Fire extinguishers are intended as 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).

The requirements in this part of ISO 11602 are minimum requirements. The use of larger, higher rated or greater numbers of extinguishers will, in general, improve protection.

Extinguishers for use on board aircraft, watercraft and vehicles are considered to be outside the scope of this part of ISO 11602.

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2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 11602. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 11602 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 7165, *Fire-fighting — Portable fire extinguishers — Performance and construction*.

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

ISO 11601, *Wheeled fire extinguishers — Performance and construction*.

3 Terms and definitions

For the purposes of this part of ISO 11602, the terms and definitions given in ISO 8421-1, together with the following, apply.

3.1

closed recovery system for extinguishing powder
system employed for the re-use of powder

NOTE It provides for the transfer of powder from an extinguisher to a recovery container that is closed to prevent the loss of media to the atmosphere.

3.2 closed recovery system for halon

system that provides for the transfer of halon between extinguishers, supply containers, and recharge and recovery containers so that the escape of halon 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

NOTE See annex A of ISO 11602-2:2000.

3.4 film-forming media

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

3.5 fire extinguisher

portable or wheeled fire extinguisher

NOTE "Fire extinguishers" are referred to as "extinguishers" in this part of ISO 11602.

3.6 Hazards

3.6.1 Class A hazard

occupancies or fuel sources where Class A fires, involving materials such as wood, cloth, paper, rubber and many plastics, may be expected to develop

3.6.2 Class B hazard

fuel sources where Class B fires, involving materials such as oils, greases and paints, may be expected to develop

3.6.3 Class C hazard

fuel sources where Class C fires, involving materials such as natural and propane gas, may be anticipated

3.6.4 Class D hazard

fuel sources where Class D fires, involving materials such as magnesium, sodium and potassium, may be anticipated

3.7 high-pressure cylinder

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

3.8 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.

3.9**low-pressure cylinder**

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

3.10**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.

3.11**non-rechargeable extinguisher****non-refillable extinguisher**

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

3.12**occupancy hazard (high)**

location where the total amount of Class A combustibles and Class B flammables present, in storage, production use and/or finished product, is over and above those expected under moderate hazard occupancies

3.13**occupancy hazard (low)**

location where the total amount of Class A combustible materials, including furnishings, decorations, and contents, is of minor quantity

NOTE This classification anticipates that the majority of items contained are either non-combustible or so arranged that a fire is not likely to spread rapidly. Small amounts of Class B flammables used for duplicating machines, art departments, etc., are included provided that they are kept in closed containers and safely stored.

3.14**occupancy hazard (moderate)**

location where the total amount of Class A combustibles and Class B flammables are present in greater amounts than expected under low hazard occupancies

3.15**portable extinguisher**

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

NOTE 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).

3.16**rating**

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

3.17**rechargeable extinguisher****refillable extinguisher**

fire extinguisher capable of undergoing complete maintenance, including internal inspection of the pressure vessel, replacement of all substandard parts and seals, and hydrostatic testing

NOTE This type of extinguisher is capable of being recharged with media and propellant, and restored to its full operating capability by the standard practices used by fire equipment service companies. Rechargeable (refillable) extinguishers are marked "Recharge Immediately After Any Use" or with a similar equivalent marking.

**3.18
recharging**

replacement of the extinguishing medium

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

**3.19
self-expelling-medium extinguisher**

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

**3.20
service
servicing**

process which includes one or more of the following:

- maintenance,
- recharging, and
- hydrostatic testing

**3.21
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

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**3.22
test pressure**

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

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

**3.23
travel distance**

distance a person must travel from any point to the closest appropriate extinguisher

**3.24
water-type extinguisher**

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

**3.25
wheeled extinguisher**

fire extinguisher having a total mass of more than 20 kg, mounted on wheels, which is designed to be transported and operated by one person

4 Classifications, ratings and performance of extinguishers

4.1 Extinguishers are classified for use on certain classes of fires and rated for relative extinguishing effectiveness by testing laboratories. This is based on the classification of fires and the fire-extinguishing potentials as determined by fire tests.

4.2 The classifications are as follows:

- Class A: fires involving solid materials, usually of an organic nature, in which combustion normally takes place with the formation of glowing embers;
- Class B: fires involving liquids or liquefiable solids;
- Class C: fires involving combustible gases;
- Class D: fires involving combustible metals

4.3 The classification and rating systems referenced in this part of ISO 11602 are those described in ISO 7165 and ISO 11601.

4.4 Extinguishers used to comply with this part of ISO 11602 shall be in accordance with ISO 7165 and ISO 11601.

4.5 The identification of the certification organization, the fire-extinguishing classification and rating and the performance standard that the extinguisher meets are clearly marked on each extinguisher.

5 General requirements

5.1 Extinguishers shall be maintained in a fully charged and operable condition, and shall be kept in their designated places at all times when they are not being used.

5.2 Extinguishers shall be conspicuously located where they will be readily accessible and immediately available in the event of fire. Preferably they shall be located along normal paths of travel, including exits from areas.

5.3 Cabinets housing extinguishers shall not be locked.

EXCEPTION: Where extinguishers are subject to vandalism, locked cabinets may be used provided they include means of emergency access.

5.4 Extinguishers shall not be obstructed or obscured from view.

EXCEPTION: In large rooms and in certain locations where visual obstruction cannot be completely avoided, means shall be provided to indicate the location of the extinguishers.

5.5 Extinguishers shall be installed on hangers or in brackets, or mounted in cabinets, unless the extinguishers are of the wheeled type.

5.6 Extinguishers installed under conditions where they are subject to dislodgement shall be installed in specifically designed brackets.

5.7 Extinguishers installed under conditions where they may be subject to physical damage shall be protected from impact.

5.8 Extinguishers having a gross mass of 18 kg or less shall be installed so that the top of the extinguisher is not more than 1,5 m above the floor. Extinguishers having a gross mass greater than 18 kg (except wheeled types) shall be installed so that the top of the extinguisher is not more than 1,0 m above the floor. The clearance between the bottom of extinguishers mounted on hangers or brackets and the floor shall not be less than 3 cm.

5.9 When mounted or placed in their intended location, the operating instructions shall face outwards or towards the most likely direction of access.

5.10 Where extinguishers are installed in closed cabinets that are located outdoors, or are exposed to elevated temperatures, such cabinets shall be provided with ventilation openings.