



CAN/ULC-S507-05-R2018 (Reaffirmed 2018)

STANDARD FOR WATER FIRE EXTINGUISHERS



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ANSI/UL 626-1 (2018)



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Standard for Water Fire Extinguishers, CAN/ULC-S507-05-R2018

Fourth Edition, Dated February 28, 2005

Summary of Topics

This revision of CAN/ULC-S507 is being issued to update the title page to reflect the reaffirmation of this Fourth Edition National Standard of Canada.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated March 10, 2017.

PLEASE NOTE THAT CERTAIN CODES MAY REFER TO A SUPERSEDED VERSION OF THIS STANDARD. IN THOSE INSTANCES, THE RELEVANT VERSIONS ARE AVAILABLE FOR PURCHASE.

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Prepared by:



ULC Standards
CAN/ULC-S507-05-R2018
Fourth Edition



Underwriters Laboratories Inc.
ANSI/UL 626
Eighth Edition

Water Fire Extinguishers

February 28, 2005

(Title Page Reprinted: June 8, 2018)

This harmonized standard has been jointly revised on June 8, 2018 to reflect ANSI reaffirmation in the United States and SCC reaffirmation in Canada. For this purpose, ULC Standards and UL have updated the Title pages and Preface dated June 8, 2018.



ANSI/UL 626-2012 (R2018)



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Commitment for Amendments

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This ANSI/UL Standard for Safety consists of the Eighth edition including revisions through June 8, 2018.

The most recent designation of ANSI/UL 626 as a Reaffirmed American National Standard (ANS) occurred on June 8, 2018. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

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ULC Preamble

International Classification for Standards (ICS): 13.220.10

This Standard has been developed in compliance with the requirements of SCC for accreditation of a Standards Development Organization.

Attention is drawn to the possibility that some of the elements of this Canadian standard may be the subject of patents rights. ULC Standards shall not be held responsible for identifying any or all such patents rights.

This Standard is intended to be used for conformity assessment.

The Fourth Edition of this ULC Standard was based on, and superseded, the Third Edition of CAN/ULC-S507.

This CAN/ULC-S507 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

Comments or proposals for revisions on any part of the Standard may be submitted at any time. Proposals should be submitted via a Proposal Request in the On-Line Collaborative Standards Development System (CSDS) at <https://csds.ul.com> (<https://csds.ul.com/canada>).

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ANNEX A

ANNEX B

Preface

This is the common UL and ULC Standard for Water Fire Extinguishers. It is the Fourth edition of CAN/ULC-S507, and the Eighth edition of ANSI/UL 626.

This common Standard was prepared by Underwriters Laboratories Inc., ULC Standards, and the Extinguisher Technical Harmonization Committee.

This Standard was formally approved by the ULC Committee on Portable Fire Extinguishers.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

Annexes A and B identified as normative and forms a mandatory part of this Standard.

Note: Although the intended primary application of this Standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

Level of harmonization

This standard used an ISO format, but is not based on, nor shall it be considered equivalent to, an ISO standard. This standard is published as an identical standard.

An identical standard is a standard that is the same in technical content except for conflicts in Codes and Governmental Regulations. Presentation shall be word for word except for editorial changes.

Interpretations

The interpretation by the SDO of an identical or equivalent standard shall be based on the literal text to determine compliance with the standard in accordance with the procedural rules of the SDO. If more than one interpretation of the literal text has been identified, a revision shall be proposed as soon as possible to each of the SDOs to more accurately reflect the intent.

A INTRODUCTION

1 Scope

1.1 These requirements cover the construction and performance, exclusive of performance during fire tests, of water fire extinguishers. Water fire extinguishers are intended to be utilized in accordance with the Standard for Portable Fire Extinguishers, NFPA 10, and the National Fire Code of Canada.

1.2 These requirements cover stored-pressure, water fire extinguishers that use a single chamber for both the extinguishing agent and the expellant gas.

1.3 The extinguishers covered by these requirements may be charged with plain water, an antifreeze or a loaded-stream solution. See Extinguishing Agent, Clause 23.

1.4 The requirements for performance during fire testing of stored-pressure water fire extinguishers are specified in the Binational Standard for Rating and Fire Testing of Fire Extinguishers, ANSI/UL 711 CAN/ULC-S508.

1.5 As used in these requirements, the term "extinguisher" refers to all extinguishers or any part thereof covered by these requirements, unless specifically noted otherwise.

2 Units of Measurement

2.1 The metric unit shall be designated as the official unit for purposes of this standard. Where values of measurement are specified in both SI and English units, either unit is used. In cases of dispute, the metric unit shall be used.

3 Reference Publications

3.1 See Annex A for a list of publications referenced in this standard. Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard. When the latest edition of a standard is not applicable, the appropriate edition is indicated accordingly in Annex A.

4 Components

4.1 Except as indicated in 4.2a component of a product covered by this standard shall comply with the requirements for that component. A component shall comply with both the Underwriters Laboratories Inc. and the Underwriters' Laboratories of Canada standards for the component.

4.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

4.3 A component shall be used in accordance with its rating established for the intended conditions of use.

4.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

5 Glossary

5.1 For the purpose of this standard, the following definitions apply.

5.2 **ANTIFREEZE CHARGE** – A water based extinguishing medium that uses an alkali metal salt as a freezing point depressant.

5.3 **DISPOSABLE (NONRECHARGEABLE) FIRE EXTINGUISHER** – A fire extinguisher not capable of nor intended to undergo complete maintenance including internal inspection of cylinder, replacement of parts and seals and hydrostatic testing.

5.4 **EFFECTIVE DISCHARGE** – The time of discharge of extinguishing agent from the extinguisher until gas point.

5.5 **EXPellant GAS** – A compressed or pressurized gas used to propel the liquid extinguishing agent from a single cylinder.

5.6 **GALVANIC COMPATIBILITY** – Fire extinguisher cylinder and component parts which are not susceptible to 10-day stress corrosion cracking or corrosion from combination of dissimilar materials.

5.7 **GAS POINT** – The point in time when the discharge changes from a liquid to a gas and liquid combination.

5.8 **LOADED STREAM CHARGE** – A water based extinguishing medium that uses an alkali metal salt as a freezing point depressant.

5.9 **PORTABLE FIRE EXTINGUISHER** – A fire extinguisher carried or on wheels and operated by hand.

5.10 **PRESSURE GAUGE** – A gauge that shows the pressure in the cylinder and the operating range of the extinguisher based upon the operating temperature-pressure relationship in appropriate pressure units.

5.11 **PRESSURE INDICATOR** – An indicator that shows that the extinguisher is pressurized with its rated expellant gas pressure.

5.12 **RECHARGEABLE (REFILLABLE) FIRE EXTINGUISHER** – A fire extinguisher capable of undergoing complete maintenance including internal inspection of cylinder, replacement of parts and seals and hydrostatic testing.

5.13 **STORED PRESSURE TYPE FIRE EXTINGUISHER** – A fire extinguisher in which both the extinguishing agent and expellant gas are in a single cylinder.

B CONSTRUCTION

6 General

6.1 The construction of an extinguisher shall be such that the method of operation is obvious after observing the operating instructions.

6.2 The construction of an extinguisher shall be such that after discharge of the agent is initiated, the operator of the extinguisher is not required to take further manual actions to maintain the maximum possible flow of agent, other than holding the operating device in the fully opened position. The extinguisher shall be usable by one operator, without assistance from a second individual.

6.3 A disposable extinguisher shall not be rechargeable.

6.4 An extinguisher shall stand in the upright position without support.

6.5 A material for an extinguisher part, the deterioration of which causes the extinguisher to become inoperable or results in the risk of injury to persons, shall not be susceptible to stress corrosion.

6.6 A polymeric or other nonmetallic part, other than an "O" ring or gasket, shall be evaluated on the basis of:

- a) Mechanical strength, including resistance to impact, see Handle and Mounting Device Test, Clause 26; Hydrostatic Pressure Test, Clause 35; Vibration Test, Clause 36; Roadability and Rough Usage Tests, Clause 37; Burst Strength Test – Gauges and Indicators, Clause 47; Nameplate Exposure Tests, Clause 55;
- b) Moisture absorption; see Salt Spray Corrosion Test, Clause 41; One-Year Time Leakage Test, Clause 45, Nameplate Exposure Tests, Clause 55;
- c) Flammability, see 6.9;
- d) Resistance to deterioration due to aging, see Aging Tests – Polymeric Materials, Clause 39; One-Year Time Leakage Test, Clause 45; Nameplate Exposure Tests, Clause 55;
- e) Exposure to light and water, see 39.3.1 and Nameplate Exposure Tests, Clause 55; and
- f) Exposure to the extinguishing agent, see 39.2.

6.7 With reference to flammability, polymeric materials shall be classified as HB, V-0, V-1, V-2, 5VA, or 5VB, when tested in accordance with the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94. Other nonmetallic materials shall have equivalent characteristics.

6.8 An extinguisher shall operate as intended from the minimum storage temperature to 49°C (120°F), inclusive. Currently recognized minimum storage temperatures are 4°C (40°F) and minus 40°C (minus 40°F). See Operating Temperature Limits Test, Clause 31.

6.9 The edges and surfaces of a valve, cap, closure, hose, cylinder, handle, mounting device, and similar items, shall not be sufficiently sharp to constitute a risk of injury to persons in intended maintenance and use.

6.10 Whenever reference measurements are necessary to determine that a part as described in 6.9 is not sufficiently sharp to constitute a risk of injury to persons, the method described in the Standard for Test for Sharpness of Edges on Equipment, UL 1439, is to be employed.

6.11 A hand portable extinguisher shall have a gross weight not exceeding 27 kg (60 lb).

6.12 A pressurizing adaptor for a rechargeable stored pressure type extinguisher shall have threads or other mechanical means for securement to the valve assembly.

7 Cylinders

7.1 The requirements in this clause do not apply to a rechargeable cylinder marked as complying with U.S. Department of Transportation (DOT), or Canada Transportation of Dangerous Goods Regulations (TDGR), or ASME specifications, unless otherwise specifically indicated.

7.2 An extinguisher cylinder under the jurisdiction of the DOT or TDGR shall comply with the appropriate DOT or TDGR specifications for shipping containers.

7.3 An extinguisher cylinder shall be fabricated of a material having rigidity, durability, and resistance to corrosion at least equivalent to:

- a) An aluminum alloy such as 6061-T6 or 6351-T6, see the Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate, ASTM B209, having a minimum thickness of 0.71 mm (0.028 in);
- b) An aluminum alloy, such as 1100, 1170, or 3003 having a minimum thickness of 0.71 mm (0.028 in);
- c) A mild steel alloy, such as SAE 1010, having a minimum thickness of 0.71 mm (0.028 in); or
- d) An austenitic stainless steel having a maximum of 0.03 percent carbon content and having a wall thickness of at least 0.63 mm (0.025 in).

7.4 A cylinder assembled complete with permanently attached fittings shall be resistant to any corrosive influence of the extinguishing agent. See Agent Exposure Test, Clause 43.

7.5 The material of the dome and bottom of a metal cylinder shall be of the same material as the cylinder.

7.6 All joints in metal cylinders shall be threaded, brazed, or welded.

Exception: Brazed joints shall not be used on stainless steel cylinders.

7.7 For the purpose of these requirements, thickness measurements of the sidewall are to be measured on uncoated metal. The thickness of the dome and of the bottom is to be measured at several points after forming and before coating.

8 Joints

8.1 The minimum width of a brazed joint on a cylinder wall shall be not less than four times the thickness of the sidewall.

9 Caps, Valves, Closures, and Pressure Relief

9.1 The inside diameter of a fill opening of a rechargeable-type extinguisher shall be:

- a) A minimum 19 mm (3/4 in) for an extinguisher having a capacity of 19 L (5 gal) or less;

Exception: For coated cylinders, a minimum 38 mm (1-1/2 in) fill opening is required.

- b) A minimum 64 mm (2-1/2 in) for an extinguisher having a capacity above 19 L (5 gal).

9.2 A collar with external threads shall be constructed so that the cap does not contact the dome or the bottom when the gasket is removed.

9.3 A threaded cap, closure, or valve shall engage the collar or the threaded opening by a minimum four full threads with the gasket in place.

9.4 A cap, plug, or other component, except a pressure gauge or indicator, shall be provided with a means of relieving pressure when it is removed while the agent chamber is still under pressure. The pressure shall be relieved with a minimum two threads engaged.

9.5 Closures of rechargeable extinguishers shall resist, without evidence of damage to the threads, a closing torque of 35 N·m (25 lbf-ft).

9.6 When pressure relief is required under the jurisdiction of the U.S. Department of Transportation (DOT) or Canada Transportation of Dangerous Goods Regulations (TDGR), it shall be in accordance with the Compressed Gas Association pamphlet CGA S-1.1 Pressure Relief Device Standards.

10 Gaskets and “O” Rings

10.1 A gasket or an “O” ring shall be retained in a recess or the equivalent, in the cap, collar or valve. A gasket or an “O” ring of a rubber-like material shall be of a thickness to provide a compression-type seal and shall fit snugly against the cap or head. See Elastomeric Parts Test, Clause 40.

11 Pressure Gauges and Indicators

11.1 A rechargeable extinguisher, including a wheeled extinguisher, of the stored pressure type shall be equipped with a pressure gauge to show the amount of pressure in the chamber whether the valve is open or closed, except as provided in 11.2. The operating range of the gauge shall reflect the operating temperature-pressure relationship of the extinguisher, except that the minimum operating pressure line is able to be higher than the pressure that corresponds to the minimum operating temperature. A bourdon tube type pressure gauge shall have a pressure relief that vents in the event of a bourdon tube leak.

11.2 An extinguisher having a disposable, nonrefillable, sealed chamber is not required to be equipped with a pressure gauge when a pressure indicator is used to verify that the extinguisher is charged with the correct expellant gas pressure.

11.3 The pressure gauge face shall indicate the appropriate units for which the gauge is calibrated, such as psig, or kPa, or bar, or any combination of pressure units.

11.4 The maximum indicated gauge pressure shall be between 150 and 250 percent of the indicated charging pressure at 21°C (70°F). The gauge dial shall indicate, in green, the operable pressure range of the extinguisher. The zero, charging, and maximum indicated gauge pressures shall be shown in numerals and with marks. The background of the gauge face outside of the operable pressure range shall be red. The arc of the dial from the zero pressure point to the lower end of the operable range shall read “Recharge.” The arc of the dial from the higher end of the operable range to the maximum indicated pressure shall read “Overcharged.” All numerals, letters, and characters in the recharge, operable, and overcharge portions of the dial shall be white. Pointers shall be yellow, and the tip of the pointer shall end in the arc of the pressure indicating dots, and shall have a maximum tip radius of 0.25 mm (0.010 in). The minimum length of the pointer, from the centerpoint of the dial to the tip, shall be 9.53 mm (0.375 in) measured at the zero pressure point. The minimum length of the arc from zero pressure to the indicated charging pressure shall be 12.7 mm (0.50 in) measured at the outer edge of the gauge dial face from the centerline of the zero pressure mark to the centerline of the indicated charging pressure mark.

11.5 The mark used to indicate the charging pressure at 21°C (70°F) shall be a minimum 0.6 mm (0.025 in) and not more than 1.0 mm (0.040 in) wide.

11.6 The pressure gauge face shall be marked, “Use With ^a Only.”

^aFor example, water, antifreeze, or loaded stream.

11.7 The pressure gauge shall be marked with the gauge manufacturer’s identifying mark. The pressure gauge shall also be marked according to the following, as applicable, using a line extending as wide as, and of the same stroke thickness as, the manufacturer’s identifying mark:

- a) To indicate galvanic compatibility with aluminum valve bodies – a horizontal line above the manufacturer’s identifying mark.
- b) To indicate galvanic compatibility with brass valve bodies – a horizontal line below the manufacturer’s identifying mark.