



BS EN 14972-2:2026

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Fixed firefighting systems — Water mist systems

Part 2: Test protocol for shopping areas for automatic nozzle systems

National foreword

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The UK participation in its preparation was entrusted to Technical Committee FSH/18/5, Watermist systems.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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**Fixed firefighting systems - Water mist systems - Part 2:
Test protocol for shopping areas for automatic nozzle
systems**

Installations fixes de lutte contre l'incendie - Systèmes
à brouillard d'eau - Partie 2 : Protocole d'essai des
systèmes à buses automatiques pour zones
commerciales

Ortsfeste Brandbekämpfungsanlagen -
Wassernebelsysteme - Teil 2: Prüfprotokoll für
Einkaufsbereiche für automatische Düsensysteme

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European foreword

This document (EN 14972-2:2026) has been prepared by Technical Committee CEN/TC 191 “Fixed firefighting systems”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by January 2027, and conflicting national standards shall be withdrawn at the latest by January 2027.

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

EN 14972, *Fixed firefighting systems — Water mist systems*, consists of the following parts:

- *Part 1: Design, installation, inspection and maintenance;*
- *Part 2: Test protocol for shopping areas for automatic nozzle systems;*
- *Part 3: Test protocol for office, school class rooms and hotel for automatic nozzle systems;*
- *Part 4: Test protocol for non-storage occupancies for automatic nozzle systems;*
- *Part 5: Test protocol for car garages for automatic nozzle systems;*
- *Part 6: Test protocol for false floors and false ceilings for automatic nozzle systems;*
- *Part 7: Test protocol for commercial low hazard occupancies for automatic nozzle systems;*
- *Part 8: Test protocol for machinery in enclosures exceeding 260 m³ for open nozzle systems;*
- *Part 9: Test protocol for machinery in enclosures not exceeding 260 m³ for open nozzle systems;*
- *Part 10: Test protocol for atrium protection with sidewall nozzles for open nozzle systems;*
- *Part 11: Test protocol for cable tunnels for open nozzle systems;*
- *Part 12: Test protocol for commercial deep fat cooking fryers for manually activated open nozzle systems;*
- *Part 13: Test protocol for wet benches and other similar processing equipment for open nozzle systems;*
- *Part 14: Test protocol for combustion turbines in enclosures exceeding 260 m³ for open nozzle systems;*
- *Part 15: Test protocol for combustion turbines in enclosures not exceeding 260 m³ for open nozzle systems;*
- *Part 16: Test protocol for industrial oil cookers for open nozzle systems.*
- *Part 17: Test protocol for residential occupancies for automatic nozzle systems.*

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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1 Scope

This document specifies the evaluation of the fire performance of water mist systems for shopping areas, adjacent storage areas. This document is only applicable for horizontal, solid, flat ceilings with heights of 2,6 m and above.

This document does not cover storage with movable shelves or shelves.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 12259-1, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 1: Sprinklers*

EN 13698-1, *Pallet production specification - Part 1: Construction specification for 800 mm x 1200 mm flat wooden pallets*

EN 14972-1:2020+A1:2025, *Fixed firefighting systems — Water mist systems — Part 1: Design, installation, inspection and maintenance*

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14972-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 General requirements

4.1 General

The following areas are considered to be covered by the fuel package described in this document:

- sales areas;
- storage areas adjacent to sales areas;
- archives;
- libraries;
- technical areas;
- similar.

4.2 Requirements

- 4.2.1** Up to a maximum of 5 nozzles used in the fire tests shall be kept for later verification.
- 4.2.2** The water mist system, operating without manual intervention, shall successfully complete all described performance fire tests.
- 4.2.3** The fire load shall be taken from the conditioning area according to 5.1 and arranged into the test area just before conducting the test.
- 4.2.4** The water flow shall be shut-off 10 min after the activation of the first automatic nozzle in the fire test. Any remaining fire shall be manually extinguished and the fire damage shall be recorded.
- 4.2.5** Prior to the testing, a layout of the water mist system to be tested shall be submitted for test preparation purposes. This layout shall include any components required for the testing as well as the full dimensioning (e.g. length of pipes, distances of automatic nozzles).
- 4.2.6** System components, component locations, operating conditions and test enclosure details shall remain unaltered throughout all of the fire tests for a given application.
- 4.2.7** All fire tests shall be conducted using the manufacturer instructions in regard to automatic nozzle placement, spray flux, and operating pressure. Sprays shall not be intermittent.
- 4.2.8** The test protocol is only applicable to ceiling mounted automatic nozzles.
- 4.2.9** The water supply shall be capable of supplying a flow rate and pressure at the minimum operating pressure and flow rate as specified by the manufacturer. These parameters shall be met based on the actual layout of the pipework installation as used in the test scenario.
- 4.2.10** The tests with the water mist system shall be conducted at maximum ceiling height, maximum spacing and minimum discharge conditions regarding water flow and pressure as specified by the manufacturer for this application. The system shall be installed to achieve the maximum allowed time delay of water pressure build up of the system.
- 4.2.11** The tests shall be carried out in accordance with EN ISO/IEC 17025.

5 Fuel packages

5.1 General

The reference testing with a prescribed sprinkler system serves to indicate the baseline performance at each different test facility and set-up. Within one test series, all fuel packages shall be identical.

The test assembly to be provided for the tests shall comply with the following specifications and figures.

The fire loads provided for the tests shall have humidity content as obtained by storage indoors at $(20 \pm 5) ^\circ\text{C}$ for 2 weeks.

In case of storing fire loads in conditioned environment at a temperature of $(23 \pm 2) ^\circ\text{C}$ and a relative humidity of $(50 \pm 5) \%$ conditioning time may be reduced to minimum of 48 h.

The storing conditions shall be the same for all fire loads used during all tests.

Prior to the tests, the weight of the boxes including their contents will be checked (randomly 5 boxes per test).

5.2 Cardboard boxes and plastic cups

The cardboard boxes to be used shall meet the following requirements:

a) Cardboard box:

- 1) Material: simple corrugated cardboard;
- 2) Dimensions:
 - Small boxes: (600 × 400 × 300) mm (length × width × height);
 - Large boxes: (600 × 400 × 500) mm (length × width × height);
- 3) Total weight including cups:
 - Small boxes: ~3,5 kg;
 - Large boxes: ~4,5 kg;
- 4) Underliners (corrugated cardboard) divided into 5 levels:
 - 18 cups per level, cups secured against shifting by dividers and underliners made of corrugated cardboard;
 - Boxes are sealed with adhesive type and marked in the direction of the stacks;

b) Content in box:

- 1) Type: Plastic cups;
- 2) Material: Unexpanded polystyrene, transparent;
- 3) Unit weight: 28,2 g;
- 4) Number per Box:
 - Large boxes: 90 items, total weight of cups approximately 2,5 kg;
 - Small boxes: 54 items, total weight of cups approximately 1,5 kg;
- 5) Storage with cup bottom turned up (see Figure 1a).

Packing of the cups is shown in Figure 1. Figure 2 shows the cardboard box.