



SLOVENSKI STANDARD
SIST EN 14972-6:2023

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Vgrajeni gasilni sistemi - Sistemi s pršečo vodo - 6. del: Protokol preskušanja sistemov s samodejnimi šobami za privzdignjene pode in viseče stropne

Fixed firefighting systems - Water mist systems - Part 6: Test protocol for false floors and false ceilings for automatic nozzle systems

Ortsfeste Brandbekämpfungsanlagen - Wassernebelsysteme - Teil 6: Prüfprotokoll für Zwischenböden und Zwischendecken für automatische Düsensysteme

Installations fixes de lutte contre l'incendie - Systèmes à brouillard d'eau - Partie 6 : Protocole d'essai des systèmes à buses automatiques pour faux-planchers et faux-plafonds

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EUROPEAN STANDARD

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English Version

Fixed firefighting systems - Water mist systems - Part 6: Test protocol for false floors and false ceilings for automatic nozzle systems

Installations fixes de lutte contre l'incendie - Systèmes
à brouillard d'eau - Partie 6 : Protocole d'essai des
systèmes à buses automatiques pour faux-planchers et
faux-plafonds

Ortsfeste Brandbekämpfungsanlagen -
Wassernebelsysteme - Teil 6: Brandversuchsprotokoll
für Zwischenböden und Zwischendecken für
automatische Düsensysteme

This European Standard was approved by CEN on 17 April 2023.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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European foreword

This document (EN 14972-6:2023) 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of an identical text or by endorsement, at the latest by November 2023, and conflicting national standards shall be withdrawn at the latest by November 2023.

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.

The EN 14972 series, published under the general title *Fixed firefighting systems — Water mist systems*, consists of the following parts. This list includes standards that are in preparation, and other standards can be added. For the current status of published standards, refer to www.cencenelec.eu.

- *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 classrooms 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 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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According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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1 Scope

This document specifies the evaluation of the firefighting performance of water mist systems for false ceilings and false floors with heights between 300 mm and 800 mm.

This fire test protocol is applicable to pendent or upright automatic nozzles to be used in unlimited volume.

This document is applicable for horizontal, solid, flat ceilings.

It is not possible to apply these tests to other applications than the ones specified within this fire test protocol.

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 12845, *Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance*

EN 13501-1:2018, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

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

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 Up to a maximum of 5 nozzles used in the fire tests shall be kept for later verification.

4.2 The water mist system, operating without manual intervention, shall successfully complete all described performance fire tests.

4.3 The fire load shall be taken from the conditioning area and arranged into the test area just before conducting the test.

4.4 The water flow shall be shut-off 10 min after the activation of the first sprinkler/automatic nozzle. Any remaining fire shall be manually extinguished and the fire damage shall be recorded.

4.5 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/sprinklers, etc.).

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4.6 System components, component locations, operating conditions and test mock-up details shall remain unaltered throughout all of the fire tests for a given application.

4.7 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.

4.8 The test protocol is only applicable to pendent or upright mounted automatic nozzles.

4.9 The water supply shall be capable of supplying a flow rate and pressure at the minimum operating pressure and flow rate of the automatic nozzle 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.

4.10 The tests with the water mist system shall be conducted at 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.

5 Fuel packages

5.1 General

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

The test scenario is based on a typical false ceiling layout comprising the appropriate fire load in terms of cabling.

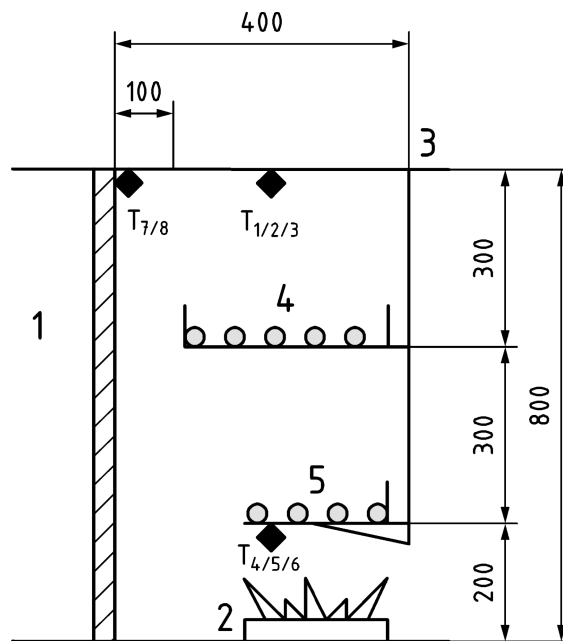
The test assembly shall include the following elements:

- a) housing;
- b) cable trays;
- c) cables as fire load;
- d) heptane pan (200 mm × 200 mm × 20 mm) as ignition source.

Figure 1 shows an example of the test assembly in accordance with the requirements specified in this clause.

The tolerance of all dimensions is $\pm 5\%$.

Dimensions in millimetres

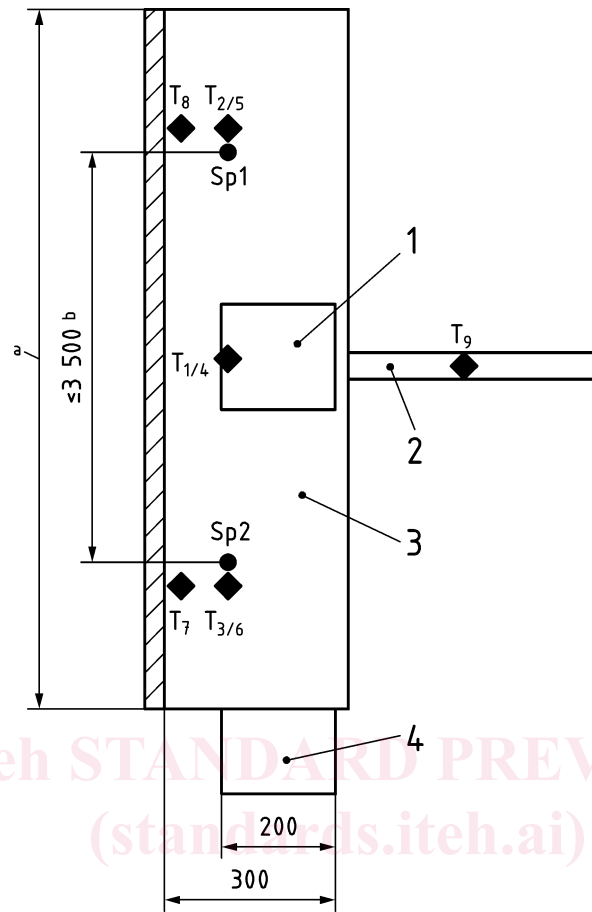
**Key**

- | | | | |
|---|-----------------------------------|---|------------------|
| 1 | wall combustibile (plywood ~5 mm) | 5 | lower cable tray |
| 2 | heptane pan | ○ | cables |
| 3 | ceiling | ◆ | thermocouple (T) |
| 4 | upper cable tray | | |

Figure 1 — Assembly of fire loads and position of ignition source (side view)

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Dimensions in millimetres

**Key**

- 1 ignition source: heptane pan 200 mm × 200 mm × 20 mm
 2 4 cables without tray, loosely hanging on the false ceiling; length: 3 000 mm; combustible loading: 3,5 kWh/m²
 3 upper cable tray
 4 lower cable tray
 ◆ thermocouple (T)

^a length = 3 × automatic nozzle. Total length of cables may be reduced if, during the tests, fire does not extend to the cable ends. The area by which the cable length has been reduced shall be covered by metal plates.

^b The maximum 3,5 m spacing applies to the reference sprinklers only.

Figure 2 — Assembly of ignition source below the cable trays (plan view)