



**SLOVENSKI STANDARD**  
**oSIST prEN 14972-6:2022**

**01-julij-2022**

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

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

**Ta slovenski standard je istoveten z: prEN 14972-6**

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**ICS:**

13.220.10      Gašenje požara      Fire-fighting

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EUROPEAN STANDARD  
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**DRAFT**  
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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: Prüfprotokoll für  
Zwischenböden und Zwischendecken für automatische  
Düsenysteme

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 191.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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## European foreword

This document (prEN 14972-6:2022) has been prepared by Technical Committee CEN/TC 191 “Fixed firefighting systems”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

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 m<sup>3</sup> for open nozzle systems*
- *Part 9: Test protocol for machinery in enclosures not exceeding 260 m<sup>3</sup> 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 m<sup>3</sup> for open nozzle systems*
- *Part 15: Test protocol for combustion turbines in enclosures not exceeding 260 m<sup>3</sup> 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*

NOTE This list includes standards that are in preparation and other standards may be added. For current status of published standards refer to [www.cencenelec.eu](http://www.cencenelec.eu).

**prEN 14972-6:2022 (E)****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.

In case of a positive result of the tests, the water mist system can be applied for the protection of the following risks:

False ceilings and false floors between 300 mm and 800 mm.

**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 terminological 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.).
- 4.6** System components, component locations, operating conditions and test enclosure details shall remain unaltered throughout all of the fire tests for a given application.
- 4.7** 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.

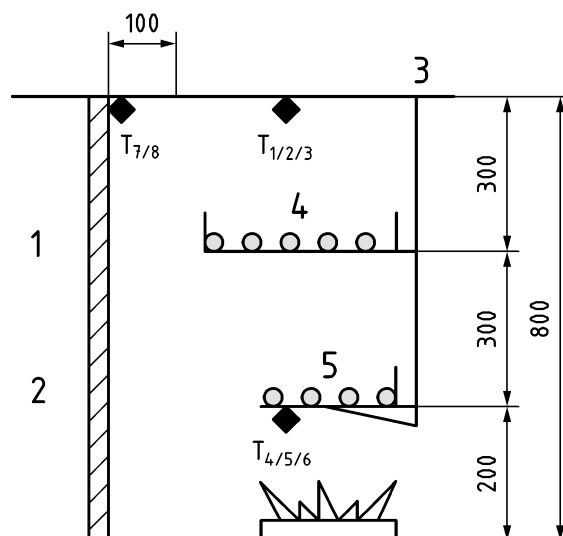
The test scenario is based on a typical false ceiling layout comprising the appropriate fire load in terms of cabling.

The test assembly shall include the following elements:

- a) housing;
- b) cable trays;
- c) cables as fire load;
- d) heptane pan as ignition source.

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

Dimensions in millimetres

**Key**

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

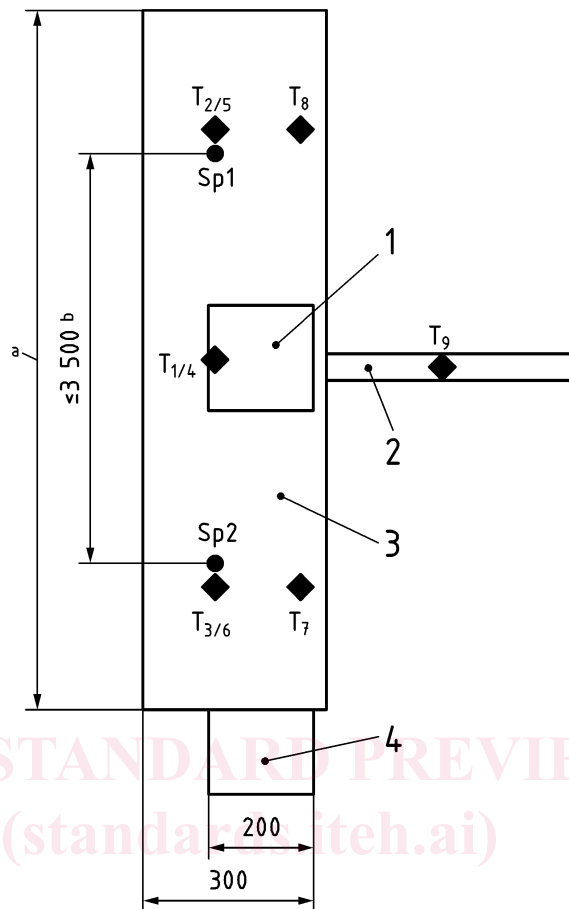
**Figure 1 — Assembly of fire loads and position of ignition source (side view)**

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<https://standards.iteh.ai/catalog/standards/sist/57d6057d-7991-44b9-974b-e6d2132956e7/osist-pren-14972-6-2022>



Dimensions in millimetres

**Key**

- |   |  |   |                  |
|---|--|---|------------------|
| 1 | Ignition source: heptane pan<br>200 mm × 200 mm × 20 mm  | 3 | upper cable tray |
| 2 | 4 cables without tray, loosely hanging on the false ceiling; length: 3 000 mm; combustible loading: 3,5 kWh/m <sup>2</sup> | 4 | lower cable tray |
| ◆ | Thermocouple   |   |                  |

<sup>a</sup> 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.

<sup>b</sup> The maximum 3,5 m spacing applies to the reference sprinklers only.

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

The test assembly comprises the following elements. All tests are carried out with identical test assemblies which shall fulfil the requirements specified here.

## 5.2 False ceiling enclosure requirements

A false ceiling/false floor is simulated by a standardized false ceiling enclosure. The enclosure shall be constructed as follows:

- Dimensions:
  - height: 800 mm;
  - width: 400 mm;

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- length: 3-fold distance of automatic nozzles to be tested.
- Materials:
  - ceiling: non-combustible, e. g. steel plate;
  - side wall (opposite of cable trays): untreated plywood board, thickness 5 mm;
  - floor plate: non-combustible material, proportion of holes at least 15 %, optionally via a gap throughout the entire length of the test assembly.

**5.3 Cable trays**

The cable trays shall be of non-combustible material (class A1 according to EN 13501-1:2018).

The cable trays shall be of open ladder type or of similar construction. The cable trays shall not have a solid base.

The cable trays used in the tests shall fulfil the following requirements:

Position according to Figure 1 and Figure 2.

**Tray 1:**

- width: 200 mm;
- material: non-combustible, appropriate for the heat impact to be expected.

**Tray 2:**

- width: 300 mm;
- material: non-combustible, appropriate for the heat impact to be expected.

**5.4 Cables**

The fire loads to be provided shall have normal humidity before the test as is achieved by indoor storage at  $(20 \pm 5)$  °C.

Preferred cabling:

**Tray 1:**

- NYY 3x1.5; number 15, fire load per cable approx. 0,75 kWh/m

**Tray 2:**

- NYY 3x1.5; number 30, fire load per cable approx. 0,75 kWh/m

**5.5 Conditioning of the fuel load**

The fuel package elements shall have a normal humidity content prior to the test, as obtained by storage indoor at  $(20 \pm 5)$  °C for two weeks. Storage conditions shall be confirmed prior to testing.