SLOVENSKI STANDARD
oSIST prEN 14972-3:2019

01-september-2019

Vgrajeni gasilni sistemi - Sistemi s pršečo vodo - 3. del: Protokol preskušanja sistemov z avtomatskimi šobami za požarno zaščito pisarn, šol in hotelov

Fixed firefighting systems - Water mist systems - Part 3: Test protocol for office, school and hotel for automatic nozzle systems

Ortsfeste Brandbekämpfungsanlagen - Feinsprüh-Löschanlagen - Teil 3: Prüfprotokoll für Büros, Schulen und Hotels für automatische Düsensysteme

Installations fixes de lutte contre l'incendie - Systèmes à brouillard d'eau - Partie 3 : Protocole d'essai des systèmes à buses automatiques pour bureaux, écoles et hôtels

Ta slovenski standard je istoveten z: **prEN 14972-3**

ICS:

13.220.10	Gašenje požara	Fire-fighting

oSIST prEN 14972-3:2019	**en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 14972-3

June 2019

ICS 13.220.20

English Version

Fixed firefighting systems - Water mist systems - Part 3: Test protocol for office, school and hotel for automatic nozzle systems

Ortsfeste Brandbekämpfungsanlagen - Feinsprüh-Löschanlagen - Teil 3: Prüfprotokoll für Büros, Schulen und Hotels für automatische Düsensysteme

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.

This draft European Standard was established by CEN 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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword

This document (prEN 14972-3:2019) 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*[1)]

— Part 2: *Test protocol for shopping areas for automatic nozzle systems*[2)]

— 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*[2)]

— Part 5: *Test protocol for car garages for automatic nozzle systems*[2)]

— Part 6: *Test protocol for false floors and false ceilings for automatic nozzle systems*[2)]

— Part 7: *Test protocol for commercial low hazard occupancies for automatic nozzle systems*[2)]

— Part 8: *Test protocol for machinery in enclosures exceeding 260 m^3 for open nozzle systems*[3)]

— Part 9: *Test protocol for machinery in enclosures not exceeding 260 m^3 for open nozzle systems*[4)]

— Part 10: *Test protocol for atrium protection with sidewall nozzles for open nozzle systems*[2)]

— Part 11: *Test protocol for cable tunnels for open nozzle systems*[2)]

— Part 12: *Test protocol for commercial deep fat cooking fryers for open nozzle systems*[2)]

— Part 13: *Test protocol for wet benches and other similar processing equipment for open nozzle systems*[2)]

— Part 14: *Test protocol for combustion turbines in enclosures exceeding 260 m^3 for open nozzle systems*[2)]

— Part 15: *Test protocol for combustion turbines in enclosures not exceeding 260 m^3 for open nozzle systems*[2)]

---

1) Under preparation. Stage at the time of publication prEN 14972-1:2017.

2) Under preparation.

3) Under preparation. Stage at the time of publication prEN 14972-8:2018.

4) Under preparation. Stage at the time of publication prEN 14972-9:2018.

— Part 16: *Test protocol for industrial oil cookers for open nozzle systems*[5)]

— Part 17: *Test protocol for residential occupancies for automatic nozzle systems*[2)]

5) Under preparation. Stage at the time of publication prEN 14972-16:2017

1 Scope

This document specifies the evaluation of the fire performance of water mist systems for offices, schools class rooms and hotels. This document test protocol is applicable to ceiling mounted automatic nozzles to be used in unlimited volume. This document is applicable for horizontal, solid, flat ceilings with heights of 2 m and above, up to the maximum ceiling height tested.

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

EN 14972-1[6], *Fixed firefighting systems — Water mist systems — Design and installation*

EN 12259-1, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 1: Sprinklers*

ISO 5660-1, *Reaction-to-fire tests — Heat release, smoke production and mass loss rate — Part 1: Heat release rate (cone calorimeter method) and smoke production rate (dynamic measurement)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14972-1[6)] and the following apply.

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

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
office spaces
the following areas are considered to be office space:

— cellular offices and open plan offices;

— areas with counters;

— restaurants and kitchens;

— public areas in buildings with low fire load;

— escape routes or other corridors;

— churches;

---

6) Under preparation. Stage at the time of publication prEN 14972-1:2017.

— museums;

— as well as further comparable risks

3.2
hotel and school spaces
the following areas are considered to be hotel and school spaces:

— hotel rooms;

— rooms in hospitals, nursing homes, senior citizens residences;

— flats;

— training classrooms;

— recreation areas

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 for their specific applications. For the applications “Office Spaces” and “Hotel and School Spaces” different fuel packages are applied.

4.3 For the “Office fuel package” in accordance to 5.2 the water flow shall be shut-off 30 min after the activation of the first sprinkler/automatic nozzle. Any remaining fire shall be manually extinguished and the fire damage shall be recorded.

4.4 For the “Hotel and school fuel package” in accordance to 5.3 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 be continuous.

4.8 The test protocol is only applicable to ceiling mounted automatic nozzles.

4.9 The automatic nozzles shall be located in accordance with the manufacturer’s instructions.

4.10 The water supply shall be capable of supplying a flow rate and pressure according to the specific requirements, which are based on the actual layout of the pipework installation.

4.11 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. The system shall be installed to reflect the maximum allowed time delay of water pressure build up of the system.

5 Fuel packages

5.1 General

The test assembly for all fire tests shall comply with the following specifications and corresponding figures.

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 fire loads provided for the tests shall have humidity content as obtained by storage indoors at 20 °C (±5 °C) for two weeks.

5.2 Office fuel package

5.2.1 General

The office fuel package shall consist of typical office workstations with associated fire load. The complex geometry of the fuel package implies both horizontal and vertical spray shielding and substantial potential for fire growth beyond the initial sprinkler operation.

The fuel package consists of the following elements:

— two table plates;

— a padded wooden-frame chair;

— a wooden drawer under one table;

— files and books on the table;

— plywood walls surrounding the tables;

— a gas burner and a wood crib for ignition.

The typical masses of the individual components shall be as listed in Table 1.

The tolerance of all dimensions is 5 %.

Table 1 — Office fire load

Combustible material	Item	Typical mass kg
wood	Table plates	56
	Wall panel	30
	Drawer	15
	Chair (frame)	6
paper	Filed paper	90
	Books	5
	Newspaper	1
Polyether foam	Chair (padding)	1
	Simulated files	1

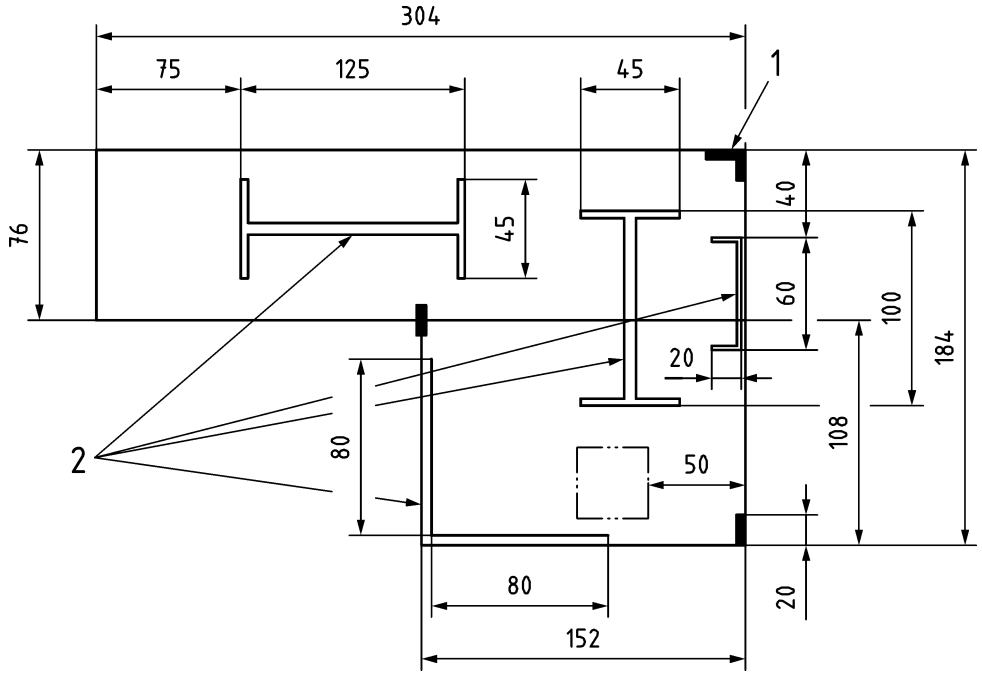
A photograph of a typical fuel package is shown in Figure 1. Below, each element is described in more detail.

The monitor and keyboard on the table as showed in Figure 1 should not be used.

Figure 1 — Overview of the office fuel package

The tables shall be constructed of two plain uncoated 22 mm thick chipboard plates, one measuring 304 cm × 76 cm × 76 cm, the other 152 cm × 108 cm × 76 cm, as given in Figure 2. Also shown in Figure 4 are the stands to which the table tops shall be attached by screws, and the position of the wooden drawer, which also serves to support the table tops.

Dimensions in centimetres



Key

1 wooden supports 2 metal frame

Figure 2 — Schematic presentation of the table construction

5.2.2 Padded chair

The padded wooden chair shall be constructed of a plain wooden chair by attaching to it a 40 cm × 100 cm piece of cotton-covered polyether foam mattress with screws and washers. The front edge of the chair shall be positioned flush with the edge of Table 1, and there shall be a 20 cm gap between the chair and Table 2.

The polyether foam shall be as follows:

The mattresses shall be made of non-fire retardant polyether and they shall have a density of approximately 33 kg/m^3. When tested in accordance with ISO 5660-1, the polyether foam shall give results as given in Table 2.