SLOVENSKI STANDARD
oSIST prEN 14972-8:2019

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Vgrajeni gasilni sistemi - Sistemi s pršečo vodo - 8. del: Protokol preskušanja sistemov z odprtimi šobami za požarno zaščito strojev v ohišjih nad 260 m³

Fixed firefighting systems - Water mist systems - Part 8- Test protocol for machinery in enclosures exceeding 260 m³ for open nozzle systems

Ortsfeste Brandbekämpfungsanlagen - Feinsprüh-Löschanlagen - Teil 8: Prüfprotokoll für Maschinen in Gehäusen über 260 m³ für offene Düsensysteme

Installations fixes de lutte contre l'incendie - Systèmes à brouillard d'eau - Partie 8 : Protocole d'essai des systèmes à buses ouvertes pour machines situées dans des enceintes de plus de 260 m³

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ICS:

13.220.10	Gašenje požara	Fire-fighting

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Ortsfeste Brandbekämpfungsanlagen - Feinsprüh-Löschanlagen - Teil 8: Prüfprotokoll für Maschinen in Gehäusen über 260 m³ für offene 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.

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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 14972-8:2018) 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 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.*

1 Scope

This document specifies fire testing requirements for water mist systems used for fire protection of machinery in enclosures with volumes exceeding 260 m^3.

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.

prEN 14972-1, *Fixed firefighting systems - Water mist systems - Part 1: Design, installation, inspection and maintenance*[1)]

3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 14972-1[1)] 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
machinery enclosure
<water mist systems>
any enclosure containing equipment that uses fuel and/or lubrication fluids with volatilities less than or equal to heptane

EXAMPLE Internal combustion engines (excluding engine test cells), oil pumps, oil tanks, fuel filters, generators, transformer vaults, gear boxes, drive shafts, lubrication skids, diesel engine driven generators, and other similar equipment using liquid hydrocarbon fuel and/or hydraulic, heat transfer, and lubrication fluids with volatility less than or equal to heptane; enclosures with incidental use or storage of hydrocarbon ignitable liquids (also known as flammable liquids) of not more than two 208 litre drums.

4 General requirements

4.1 The tests should be conducted until the fire is extinguished or supressed, as required by the applicable fire test.

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

All fire tests should be conducted following the manufacturer's instructions with regard to nozzle placement, spray flux, and spray duration.

Sprays can be continuous or intermittent in time. In the case of intermittent, or cycled, sprays, the time period during which the system is not discharging shall not be greater than 50 % of one complete on/off cycle. The system off period shall not exceed one minute.

1) This document is currently in preparation.

4.3 In conjunction with the performance fire tests, all twin fluid water mist systems should be subjected to a straight discharge test with no fire to evaluate the resulting discharge and oxygen concentration.

This evaluation should be conducted using the maximum extinguishing agent flow and pressure. The discharge duration for the test shall be the maximum required for the system and occupancy to be protected. Oxygen measurements should be recorded at a location(s) within the test enclosure.

This information shall be used to evaluate personnel safety, and should be accounted for in the manufacturer's design, installation, operation, and maintenance manual.

5 Enclosure requirements

The maximum enclosure area (as specified by the manufacturer) shall be tested. Enclosures should have equal length sides, although rectangular areas will be considered.

The maximum enclosure height (as specified by the manufacturer) shall be tested. Enclosure heights shall be in 0,3 m increments. The enclosure should be constructed of wood or metal frame with an inner lining of minimum 13 mm gypsum or 0,7 mm galvanized steel.

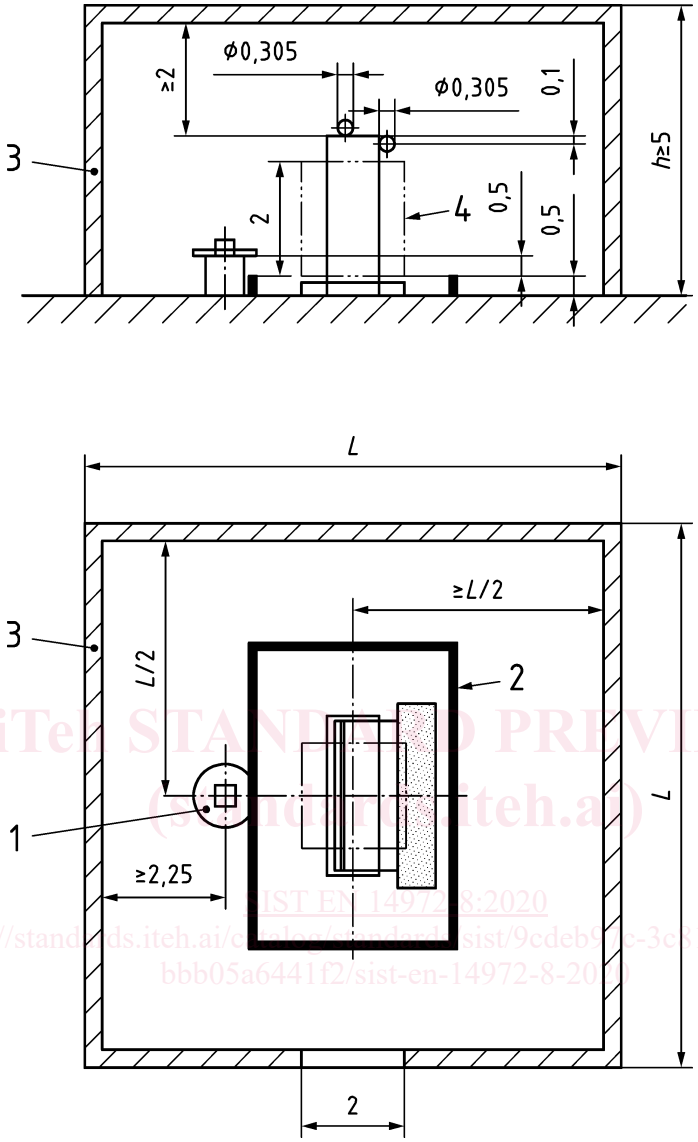
To minimize leakages, all joints and gaps shall be sealed. An opening measuring 2 m by 2 m and 0,5 m above the floor level shall be installed in the centre of one wall, as shown in Figure 1.

A minimum of two hinged ceiling hatches measuring approximately 1,0 m by 2,0 m should be installed in opposite diagonal corners for heat and smoke release at the conclusion of the fire test. The floor should be non-combustible and any floor drainage or vent openings should be sealed during testing.

A small louvered vent can be provided to allow the intake of air, to prevent excessive suctioning of the walls and ceiling and maintain structural integrity of the fire test enclosure.

The machinery mock-up unit should be centred in the test enclosure.

Dimensions in metres



Key

1 tray for "Class A Fire Test"
2 bilge enclosure
3 test enclosure
4 opening
⌖ diameter pipe

Figure 1 — Test enclosure

6 Machinery mock-up requirement

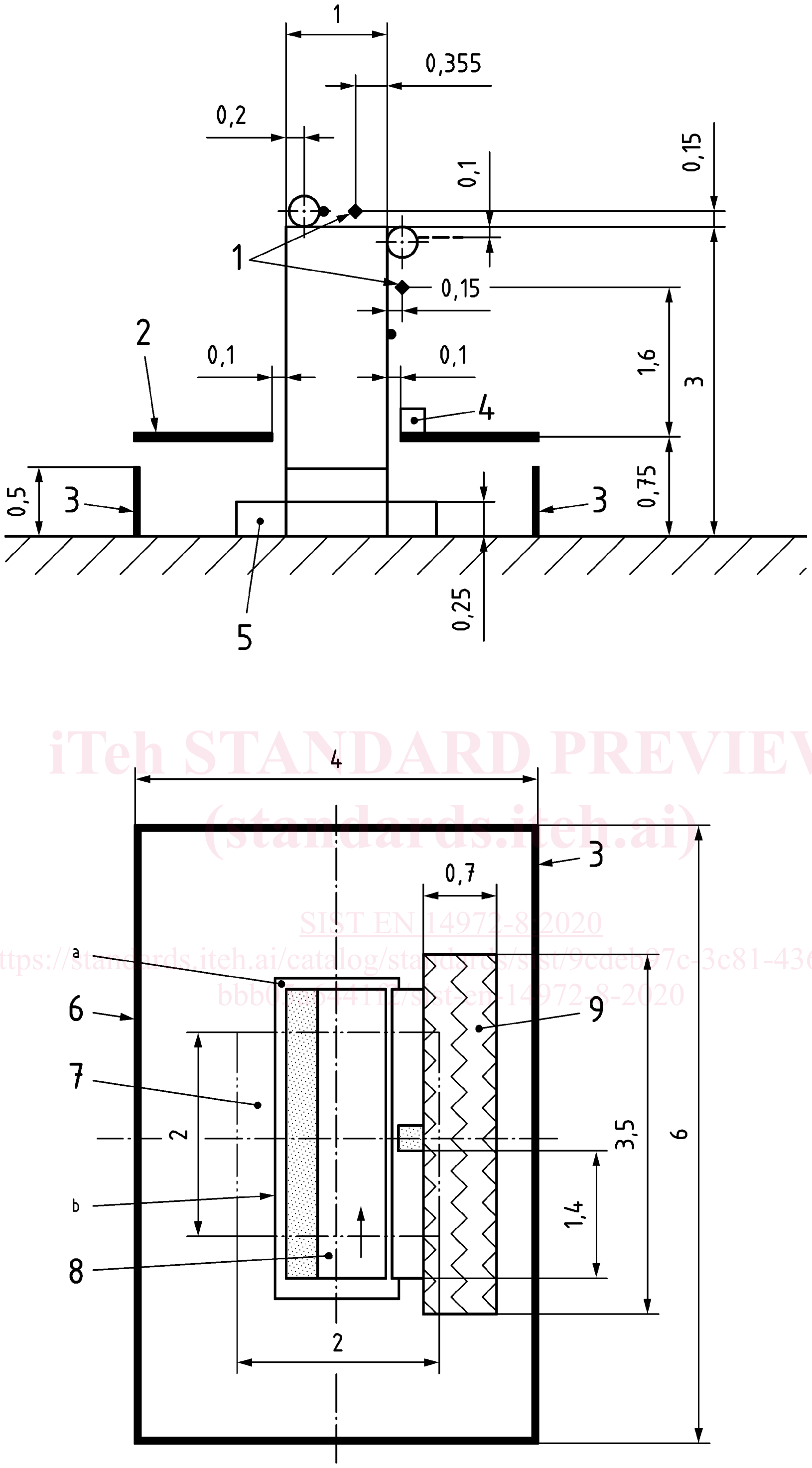
The machinery mock-up unit measures 3 m long by 1 m wide by 3 m high. It is fabricated from sheet steel with a nominal thickness of 5 mm. A tray with a depth of 100 mm is formed at the top of the mock-up unit. Two 300 mm diameter pipes, 3 m in length, are attached to the unit to simulate obstructions. A 0,7 m wide solid shelf is also connected to the unit, which provides a barrier to allow shielded fire tests to be conducted.

A 200 mm by 50 mm notch is cut into the side of the top tray opposite the solid shelf for the purposes of the flowing fire test (see Figure 2 and 3).

The mock-up unit shall be surrounded by a steel floor plate system, 6 m long by 4,0 m wide by 0,75 m high.

A 4 m^2 by 0,254 m high square pan should be located underneath the floor plate system.

Dimensions in metres

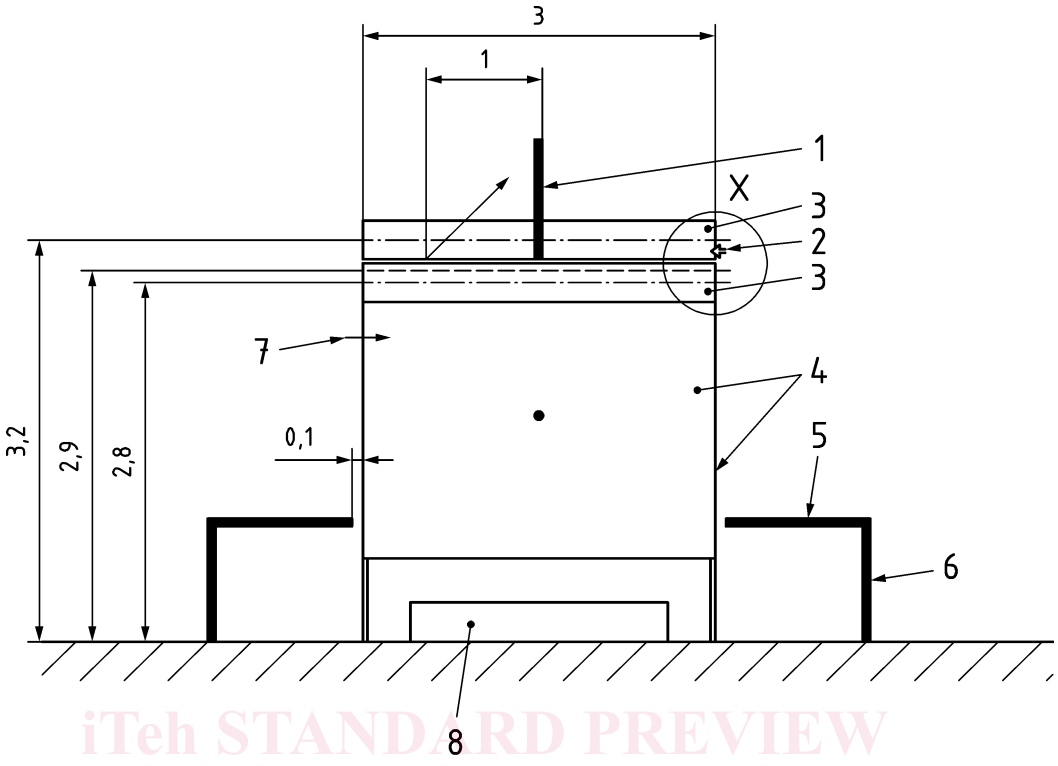


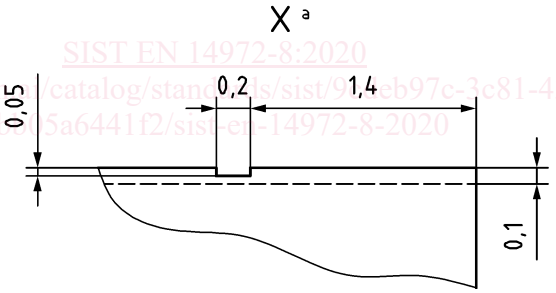
Key

a	gap between engine and inside perimeter of bilge plate
b	notch for flowing fuel
1	spraying and concealed oil spray
2	bilge steel plate
3	bilge enclosure
4	tray (0,1 m^2)
5	tray (4 m^2)
6	wall
7	tray (4 m^2)
8	top tray (3 m^2)
●	thermocouple
⌖	diameter pipe

Figure 2 — Machinery mock-up unit

Dimensions in metres





Key

a notch on side of top tray for flowing fuel on side of the engine mock-up
1 obstruction rod
2 flowing oil feed pipe DN 12
3 DN 300
4 steel plate
5 bilge plate
6 bilge wall
7 concealed spray
8 tray (4 m^2)
● thermocouple

Figure 3 — Machinery mock-up unit (continued)