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Fixed firefighting systems - Water mist systems - Part 1: Design, installation, inspection and maintenance

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/21

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English Version

Fixed firefighting systems - Water mist systems - Part 1: Design, installation, inspection and maintenance

Installations fixes de lutte contre l'incendie - Systèmes à brouillard d'eau - Partie 1 : Conception, installation, inspection et maintenance

Ortsfeste Brandbekämpfungsanlagen - Feinsprüh-Löschanlagen - Teil 1: Planung, Einbau, Inspektion und Wartung

This European Standard was approved by CEN on 11 October 2020.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 14972-1:2020) 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of an identical text or by endorsement, at the latest by June 2021, and conflicting national standards shall be withdrawn at the latest by June 2021.

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.

This document supersedes CEN/TS 14972:2011.

The former CEN/TS 14972:2011 was reviewed and replaced with this new European standard.

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^3 for open nozzle systems;

— Part 9: Test protocol for machinery in enclosures not exceeding 260 m^3 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^3 for open nozzle systems;

— Part 15: Test protocol for combustion turbines in enclosures not exceeding 260 m^3 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.cen.eu.

This document converts CEN/TS 14972:2011 into a full EN standard. It is a full revision of the Technical Specification, and incorporates the following principal changes:

— guidance on areas of operation;

— guidance on effective capacity of tanks;

— extension of scope of application to cover more areas in buildings when supported by test standards produced by other organizations.

Any user claiming compliance with this document is expected to be able to justify any course of action that deviates from its recommendations.

This document is intended for use by manufacturers, designers and installers of water mist systems, and for authorities having jurisdiction.

It has been assumed in the preparation of this document that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

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, Turkey and the United Kingdom.

Introduction

Water mist systems

Fixed water mist systems for the fire protection of industrial, commercial and residential hazards comprise specially designed nozzles mounted in pipework, and connected via control valves to a dedicated water supply.

Specific areas within buildings can be protected by water mist where relevant fire test protocols exist.

Water mist systems deliver a mist of small droplets which control, suppress or extinguish fire by:

— absorbing heat from the fire and its surroundings;

— smothering the flames by localized oxygen depletion through evaporation to steam;

— blocking some of the radiant heat transfer to adjacent combustible materials;

— wetting and cooling of the fuel surface.

Fires such as those involving flammable liquids (class B fires) can be extinguished using water mist. Fires such as those involving ordinary combustible materials (class A fires) can be controlled and suppressed using water mist and may also extinguished. Water mist can also prevent flash-over.

With the high surface area of the droplets produced, water mist is able to absorb relatively large amounts of heat and thus provide efficient cooling.

Currently, the majority of applications for water mist relate to property and asset protection. However, under certain circumstances, water mist can improve conditions within the protected space and thus increase the chances of survival for personnel inside the protected areas. It can also enhance personnel protection in more general applications by protecting facilities thereby enhancing the safety of individuals.

Water mist is a specific application solution which needs to be proven for each individual application and/or occupancy.

1 Scope

This document specifies requirements and gives recommendations for the design, installation, inspection and maintenance of all types of fixed land based water mist systems.

This document is intended to apply to water mist automatic nozzle systems and water mist deluge systems supplied by stand alone or pumped systems.

The document covers only applications and occupancies which are covered by the fire test protocols of the EN 14972 series.

Aspects of water mist associated with explosion protection and/or use within vehicles are not covered by this document.

This document does not cover all legislative requirements. In certain countries specific national regulations apply and take precedence over this document. Users of this document are advised to inform themselves of the applicability or non-applicability for this document by their national responsible authorities.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 3-7:2004+A1:2007, *Portable fire extinguishers — Part 7: Characteristics, performance requirements and test methods*

EN 54 (all parts), *Fire detection and fire alarm systems*

CEN/TS 54-14, *Fire detection and fire alarm systems — Part 14: Guidelines for planning, design, installation, commissioning, use and maintenance*

EN 12094-1, *Fixed firefighting systems — Components for gas extinguishing systems — Part 1: Requirements and test methods for electrical automatic control and delay devices*

EN 12094-2, *Fixed firefighting systems — Components for gas extinguishing systems — Part 2: Requirements and test methods for non-electrical automatic control and delay devices*

EN 12094-4, *Fixed firefighting systems — Components for gas extinguishing systems — Part 4: Requirements and test methods for container valve assemblies and their actuators*

EN 12094-8, *Fixed firefighting systems — Components for gas extinguishing systems — Part 8: Requirements and test methods for connectors*

EN 12094-10, *Fixed firefighting systems — Components for gas extinguishing systems — Part 10: Requirements and test methods for pressure gauges and pressure switches*

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

EN 12259-2, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 2: Wet alarm valve assemblies*

EN 12259-3, *Fixed firefighting systems — Components for automatic sprinkler and water spray systems — Part 3: Dry alarm valve assemblies*

prEN 12259-12, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 12: Pumps*

EN 12845:2015+A1:2019, *Fixed firefighting systems — Automatic sprinkler systems — Design, installation and maintenance*

prEN 14972 (all parts),[1] *Fixed firefighting systems — Water mist systems*

EN 15004-1:2019, *Fixed firefighting systems — Gas extinguishing systems — Part 1: Design, installation and maintenance (ISO 14520-1:2015, modified)*

EN 17450-1,[2] *Fixed firefighting systems — Water mist components — Part 1: Product characteristics and test methods for strainer and filter components*

prEN 17451, *Fixed firefighting systems — Automatic sprinkler systems — Design, assembly, installation and commissioning of pump sets*

EN 50342 (all parts), *Lead-acid starter batteries*

EN 60529, *Degrees of protection provided by enclosures (IP Code)*

EN 60623, *Secondary cells and batteries containing alkaline or other non-acid electrolytes - Vented nickel-cadmium prismatic rechargeable single cells (IEC 60623)*

ISO 3046-1, *Reciprocating internal combustion engines — Performance — Part 1: Declarations of power, fuel and lubricating oil consumptions, and test methods — Additional requirements for engines for general use*

[1] In preparation.

2 Status at time of publication: prEN 17450-1:2019.