



JENSEN HUGHES



EN 14972 – Status 2026 and new applications

LUCIANO NIGRO | October 7th 2026

WATER MIST STANDARDIZATION – The Story



After the Technology, a recognized standardization is always necessary

The water mist technology starts during the '90 of the last century with some installation on-board of commercial vessels, because of the Halon phase-out

A working group is organized within CEN organization to develop a technical standard to design, installing and maintain the water mist systems.

The works are conducted with many participants to the group, because of the interest of the industries in this new technology but the works are very slow.

Note that the first edition of NFPA 750 on water mist systems was published already in 1996



THE STANDARD 14972 WAS PUBLISHED FIRST TIME IN 2008 AS CEN/TS 14972 AND SOON RE-PUBLISHED IN 2010 WITH MODIFICATIONS AND EXTENSIONS

WATER MIST STANDARDIZATION – The Story



Technical Specification published by CEN in 2010 as CEN/TS 14972

It included the main specs for the design

Indications for the maintenance and the use of the systems

CEN TS 14972
Fixed firefighting systems — Watermist systems — Design and installation

The main requirements for installation

Some of the protocols for system verifications and component testing

IT INTRODUCES THE REFERENCE TO THE DIOM
Design, Installation, Operation & Maintenance Manual del Fabbrikante

WATER MIST – The development of the EN standard

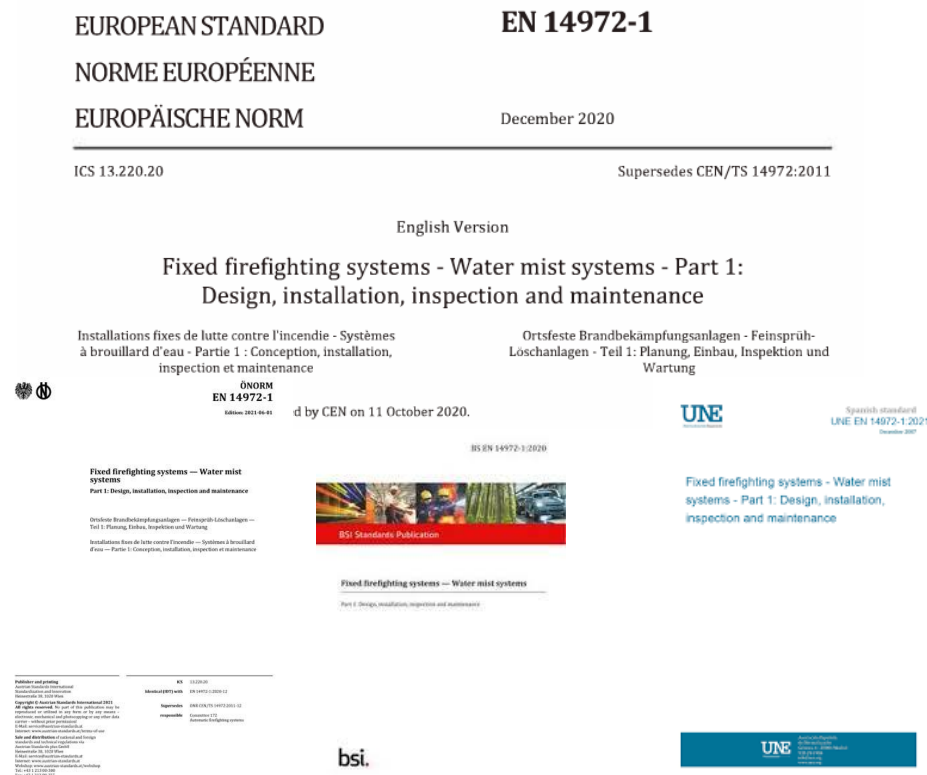


The EN14972 becomes a project with many different standards included in it

The main feature of the EN 14972 project is the publication of all the documents included in the project as EN standards.

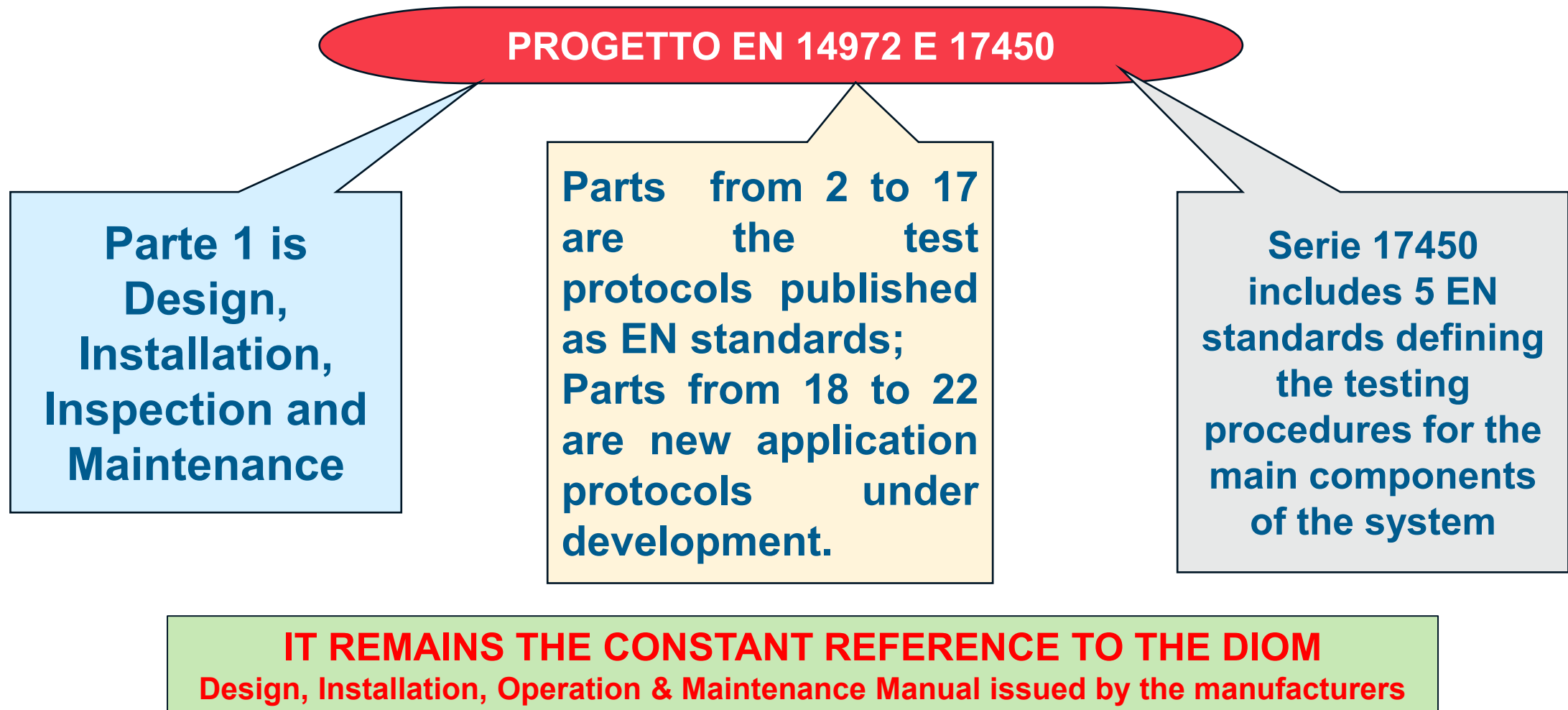
The EN standard are documents that shall be published by the standard bodies of the member countries replacing any possible national standard on the same argument.

The documents are all published as non-harmonized standards, and a series of documents is also developed for the component verification with the series 17450



THE STANDARD EN 14972 SERIES WITH THE EN 17450 SERIES REPRESENT THE STATUS OF THE KNOWLEDGE FOR THE WATER MIST TECHNOLOGY

La Norma Europea EN 14972 nelle parti da 1 a 17 e la serie EN 17450 da 1 a 5



WATER MIST – THE NEW SET OF DOCUMENTS IN THE 14972



Here is the index of the documents included in the project

The main decision taken when the work started for the preparation of the new document was certainly the publication as an EN standard.

The criteria for the publication of the protocols as EN standards and their selection among the worldwide available documents were formalized in an historical meeting in Berlin.

The standards listed here are EN standards NON-HARMONIZED, therefore they will not include the CE marking nor they force the testing by Notified Bodies that are necessary for the CE process

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.
- Part 17: Test protocol for residential occupancies for automatic nozzle systems.

WATER MIST – The new series for the component testing



The standard EN 17450 includes the main components of the system

For the components of the water mist systems a series of standard has also been developed

It includes the standard for the testing of the main components required to install a system;

The most important standard in this group is the standard no. 2 that is the approval standard for the nozzles, that are the main component when making a water mist system.

EN 17450, *Fixed firefighting systems — Water mist systems*, consists of the following parts:

- Part 1: *Product characteristics and test methods for strainer and filter components*
- Part 2: *Product characteristics and test methods for nozzles*
- Part 3: *Product characteristics and test methods for check valves¹*
- Part 4: *Product characteristics and test methods for control deluge valves and actuators*
- Part 5: *Product characteristics and test methods for pressure switches¹*

Also the standards listed here are EN standards NON-HARMONIZED, therefore they will not include the CE marking nor they force the testing by Notified Bodies that are necessary for the CE process

WATER MIST – LAST VERSION OF THE STANDARD **EN 14972+A1:2025**

A series of Annexes was added

The main upgrade of the 2025 edition is the publication of the series of annexes from C to R that provide additional information for the application of the water mist systems tested according to the protocols published as 14972 series:

- For automatic nozzle systems
- And for open nozzle deluge systems

**THE ANNEXES SHOULD HELP FIRE ENGINEERS
IN THE SELECTING THE RIGHT PROTOCOL PER
EACH APPLICATION**

Annex A (informative) Guideline for developing representative fire test protocols for water mist systems

Annex B (informative) Area of operation for typical automatic nozzle water mist systems

Annex C to R (normative) Limits of applicability for water mist systems tested in accordance with standards EN 14972-from 2 to 17

Annex S (normative) Measurements Tolerances

WATER MIST – Let's make an example



Let us make an example of the use of the annexes for EN 14972-3 and 4

Here beside the title of EN 14972 part 3 and 4 that appears a bit ambiguous for the applications they want to represent.

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

Fixed firefighting systems - Water mist systems - Part 4: Test protocol for non storage occupancies for automatic nozzle systems



The content of Amendment A1 is intended to be of help for the Fire Engineer to clarify the field of application of the test protocol without entering the protocol document that is intended mainly for the manufacturers, laboratories and Authorities having jurisdiction

WATER MIST – L'ANNEXES D and E to the EN 14972+A1:2025



Annex D (normative)

Limits of applicability for water mist systems tested in accordance to EN 14972-3

D.1 General

Systems tested according to EN 14972-3 are limited to the maximum ceiling height tested with a minimum ceiling height of 2,0 m.

If the glass bulb temperature used in the fire test is less than 68 °C, the fire test protocol is only applicable to that glass bulb temperature.

D.2 Regarding the scope of the water mist system

Table D.1 provides additional examples for which the water mist system tested in accordance to EN 14972-3 can be applied.

Table D.1 — Examples for applicability

Without area restrictions	Office areas	Single and open-plan offices
		Counter areas
		Restaurants and kitchens (excluding deep-fat cooking fryer areas)
		Rooms for data processing ^a
		Public areas in buildings with low fire load
		Escape routes or other corridors
		Training rooms
		Churches
		Museums
		Other comparable risks
		Technical/Plant/Mechanical rooms of low fire load ^b
	Hotel areas	Hotel rooms
		Rooms in hospitals, care homes, homes for the elderly
		Apartments
		Recreation areas
		Other comparable risks

Annex E (normative)

Limits of applicability for water mist systems tested in accordance to EN 14972-4

E.1 General

Systems tested according to EN 14972-4 are limited to 2,4 m ceiling height for restricted areas or 5 m ceiling height for unlimited areas with maximum nozzle spacing of 5 m.

The glass bulb temperature is limited to the glass bulb temperature used in the fire test.

E.2 Regarding the scope of the water mist system

The following list provides additional examples for which the water mist system tested in accordance to EN 14972-4 can be applied:

- Apartments;
- Offices;
- Meeting rooms;
- Hotel rooms;
- Concealed spaces;
- Unused attics;
- Museums (exhibit areas);
- Restaurant seating areas;
- Kitchens;
- Institutions;
- Schools and universities classrooms;
- Libraries (rooms that house typical library bookshelves of approximately 2,4 m in height, containing books stored vertically on end, held in place in close association with each other, with aisles wider than 0,75 m);
- Gymnasiums;
- Hospitals and hospital laboratories (with minimal amounts of flammable liquids);
- Churches.

Water mist nozzles can be installed in enclosed or open areas based on the test scenario evaluated. Refer to the DIOM.

The EN 14971-1 - published in 2021 - is now under the 5 years revision

The Working Group 10 of CEN TC 191 is always working – under the coordination of Mr. Alex Palau – because the water mist technology is in a continuous evolution with the development of new systems and the preparation of new test protocols

The most relevant change might be the separation of the Annex A from the main body of the standard to make it a separate standard on the development of fire test protocol for water mist systems when a protocol for the specific application is not available.

**FOR THE FIRE ENGINEERS INVOLVED IN WATER MIST SYSTEMS
SPECIFICATION AND DESIGN IT IS ESSENTIAL TO BE UP TO DATE**

The list of protocols included in the 14972 project is still growing...

New protocols are being developed by various Fire Research organization worldwide.

The Working Group is always ready to examine the available documents and to publish them as EN protocols when the conditions established in the procedure are met.

Under development:

Part 18: Local Application involving flammable liquids

Part 19: Areas with combustible liquids

Part 20: Data Processing

Part 21: Electronically activated nozzles for domestic use.

Discussed but no WI open yet: Part 22: Areas classified HC2 and HC3 as per FM approval standard 5560

**AGAIN: FOR THE FIRE ENGINEERS INVOLVED IN WATER MIST SYSTEMS
SPECIFICATION AND DESIGN IT IS ESSENTIAL TO BE UP TO DATE**

Can we then say that the work is completed?

The Normative Process has been completed,
with the normal activity current underway
(periodic revision and additions)

**But there are still some open points in the
process for the practical use of the standards
that need to be clarified:**

- There is no way to identify the Laboratories authorized to conduct the fire tests per the published protocols; the EN standards only says they shall be ISO 17025 certified
- There is no reference to the need of a certification/approval entity to confirm the results of the Laboratories, neither for the fire test nor for the component testing.

EUROPEAN STANDARD

EN 14972-1:2020+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2025

ICS 13.220.20

Supersedes EN 14972-1:2020

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 -
Wassernebelssysteme - Teil 1: Planung, Einbau,
Inspektion und Wartung

This European Standard was approved by CEN on 11 October 2020 and includes Amendment 1 approved by CEN on 7 April 2025.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of 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 United Kingdom.

Can we then say that the work is completed?

And there are some other aspects still to be considered:

- The fire test protocols are quite different among them: the original EN protocols, mainly originated from the VdS protocols, are application specific; the new protocols, derived from the FM5560 standard, are hazard category ones but it is not possible in the EN standard to refer to an FM document for the definition of the hazard category
- And there is the problem of the updating of the protocols that should follow the availability of practical results on real cases that are not collected.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 14972-1:2020+A1

May 2025

ICS 13.220.20

Supersedes EN 14972-1:2020

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 -
Wassernebelsysteme - Teil 1: Planung, Einbau,
Inspektion und Wartung

This European Standard was approved by CEN on 11 October 2020 and includes Amendment 1 approved by CEN on 7 April 2025.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of 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 United Kingdom.

WORK TO BE CONTINUED...

Water Mist Technology is approaching the third decades of development



The Water Mist Technology can nowadays be considered «mature» for the Fire Protection market.

A complete set of standards for the design and installation, with suitable components, and the set of applications covered by protocols allows the of the technology.

It is up to the Fire Engineering community now, with the support from the IWMA organization, to make good use of it, giving the due attention to this a bit complicate standardization.

THE EUROPEAN STANDARD 14972 WITH THE 17450 FOR THE COMPONENTS REPRESENT THE BEST SET OF NORMATIVE DOCUMENTS ON THE WATER MIST TECHNOLOGY AVAILABLE IN THE WORLD



THANK YOU



LUCIANO NIGRO

PE, PhD

Technical Manager

luciano.nigro@jensenhughes.com



jensenhughes.com