



Codes and Standards

Henrik Abrahamsen
Technical Sales Manager VID FireKill

Henrik Abrahamsen works since 2005 with water mist



IWMA
International Water Mist Association

- 1. CEN 14972**
- 2. NFPA 750**
- 3. Notifying body example, FM Approvals**

EN14972

The European watermist standard

Important Documents

Technology	Main standard (the general information)	Fire test protocols	Manufacturers unique information	System Component test protocols
Watermist	EN14972 part 1	EN14972 part 2-17 (more parts will come in the future)	DIOM manual (design, installation, operation and maintenance manual)	EN17450 series
Sprinkler	EN12845		Datasheet or/and manual	EN12259 series

The format of prEN14972

Overall information covering all system

Specific system design parameters is found through successful testing (to part 2-17). More protocols / parts will be issued in the future. Missing applications can be covered with EN14972 annex A

Specific requirements for WM component such nozzles, valves, pumps, etc. will be issued in new parts in the future (in new EN series EN17450)

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 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.



- EN 17450 part 1-X: Requirements for watermist components such as nozzles, valves, filters/strainers, pumps

Typical areas covered with part 2-17

- 1. generator rooms
- 2. technical rooms
- 3. server rooms
- 4. conference rooms
- 5. reception/lobby area
- 6. kitchens
- 7. restaurant and canteen
- 8. storage rooms
- 9. offices
- 10. hotel rooms
- 11. corridors
- 12. concealed spaces
- 13. shops
- 14. atriums
- 15. fitness area
- 16. spa area
- 17. enclosed car parks



In accordance with this annex it is possible to:

- Develop a test method for a specific application to any system type.
- Authorities involved in the project, accepts the protocol
- Conduct the fire tests described in the developed standard.
- Get the test results evaluated and documented in a test report.
- An ISO17025 accredited fire test laboratory shall conduct the fire test.
- Often the AHJ is involved throughout the entire test project.

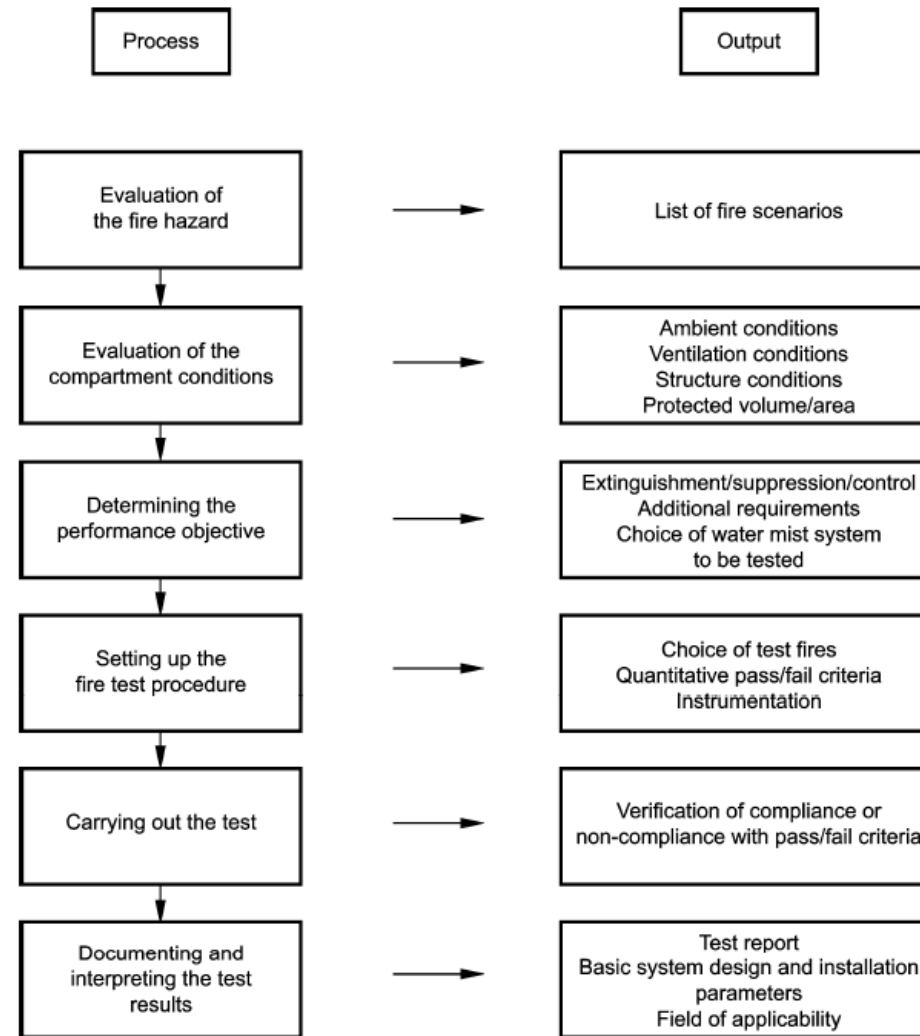


Figure B.1 — Process of developing a fire test procedure

prEN14972 will be sent for second FORMAL VOTE in beginning of 2021.

If yes, then the EN14972 will become official from mid 2021.

How to work with EN14972?

Sufficient system documentation



OK documentation: Certificate

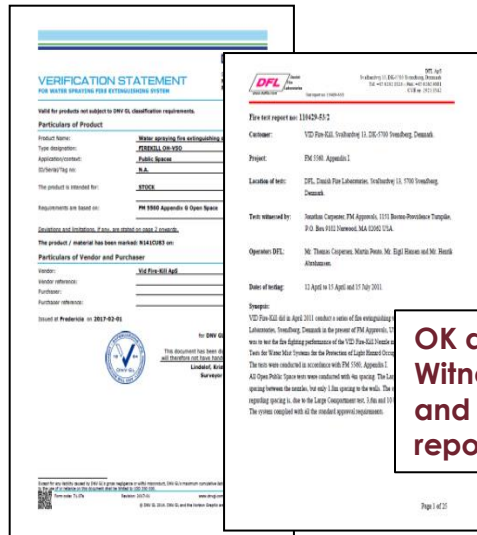
3. party to witness fire tests / approve test report and approve DIOM manual.



Successful testing conducted in ISO 17025 accredited test lab to a fire test method found in CEN/EN 14972 part 2-17 + component test method for nozzles found in EN17450 series



Product + datasheet sent to fire and component test lab.



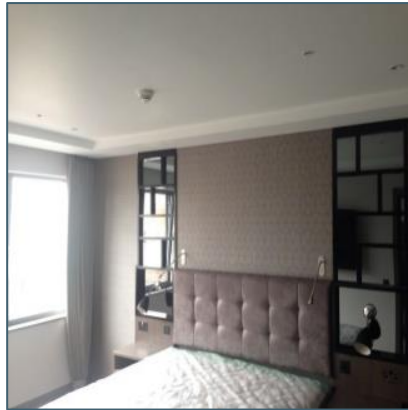
OK documentation: Witness letter + fire- and component test report

Manufacturer makes DIOM manual based on results found in tests including all system specific details.



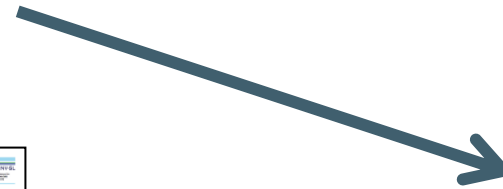
EN14972 in a project

Installer/Consultant define the application and applications specific details such as ceiling heights, room sizes, etc.



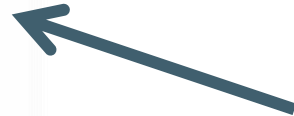
The Installer/Consultant looks into EN 14972 part 1 and verifies if there is a test method scope that match the application and the application specific details.

If yes, then the installer can find suppliers that offer products 3. party verified to the specific test method (EN 14972 part 2-17) and chose the one that suits them best.



All information to work with an appropriate watermist solution can be found in manufacturers "verified" DIOM manual + EN 14972 part 1.

Successful watermist project



Local AHJ checks manufacturers documentation (the documents from previous slide) + that general requirements from EN 14972 part 1 is fulfilled



NFPA750

The “American” watermist standard

Important Documents

Technology	Main standard (the general information)	Manufacturers unique information	Fire test protocols	System Component test protocols
Watermist	NFPA 750	DIOM manual (design, installation, operation and maintenance manual).	Listed or/and approved components. A component that is approved is not necessarily listed. Components critical to the proper operation of a system, such as valves, sprinklers/nozzles, and hangers, must be both listed and approved. Noncritical components that should not have an effect on system performance, such as drain valves, are not required to be listed but are required to be approved.	
Sprinkler	NFPA 13	Datasheet, literature or/and manual.		

Note: NFPA does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories.

In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with a NFPA standard.

“Listing” definition from chapter 3.2.3 NPFA750

- *Equipment, materials, or services included in a list **published by an organization** that is **acceptable** to the **authority having jurisdiction** and concerned with evaluation of products or services, that maintains **periodic inspection** of production of listed equipment or materials or periodic **evaluation** of services, and whose listing states that either the equipment, material, or service **meets appropriate designated standards** or has **been tested and found suitable for a specified purpose.***



Listed watermist components are components that have been successfully fire and component tested to recognized test standards by a Notifying Body that lists the component thereafter.

Example of NPFA750 recognized test standards:

Marine: IMO 668 (1165) and IMO A800 (MSC 265)



Land: FM5560, UL2167, prEN 14972, etc.



Note: Other test standards can be used as well as long as the authority having jurisdiction finds the standard for the application / project.

FM code 5560

The FM Approvals watermist standard

Fire test and component test standard:

Code FM5560

General Design, Installation and Maintenance standard:

Datasheet 4-2: WATER MIST SYSTEMS

Code FM5560

+

Special design requirements (examples) for sole protection watermist solutions:

HC-1 occupancies: Datasheet 3-26: FIRE PROTECTION FOR NONSTORAGE OCCUPANCIES

Data processing equipment rooms: Datasheet 5-32: DATA CENTERS AND RELATED FACILITIES

Special design requirements (examples) for supplementary protection watermist solutions:

Transformers: Datasheet 5-4 TRANSFORMERS + Datasheet 7-32 Ignitable Liquid Operations.

Industrial oil cookers: Datasheet 7-2 OIL COOKERS



Important Documents

Technology	Main standard (the general information)	Manufacturers unique information	Fire test protocols	System Component test protocols
Watermist	FM Code 5560 & FM Datasheet 4-2	DIOM manual (design, installation, operation and maintenance manual).	FM approved to FM5560 and listed on www.approvalguide.com	

Listed watermist components by FM Approvals



Certificate of Compliance

This certificate is issued for the following:

Water Mist System

System Designation:	FIREKILL™ Low Pressure Water Mist System for the Protection of Data Processing Equipment Rooms/Halls - Above and Below Raised Floor
Design, Installation, Operation and Maintenance Manual:	FIREKILL™ Low Pressure Water Mist System for Protection of Data Processing Equipment Rooms/Halls Above and Below Raised Floors Design, Installation, Operation, and Maintenance (DIOM) Manual, Document ID: 180209-01-16, Revision: 06, Date of Issue: 23-04-2019

Prepared for:
VID FIRE-KILL APS
SVALBARDVEJ 13
SVENDBORG
DK-5700
DENMARK

Manufactured at:
VID FIRE-KILL APS
SVALBARDVEJ 13
SVENDBORG
DK-5700
DENMARK

FM Approvals Standard Class: 5560 - April 2016

Approval Identification: PR448914 Approval Granted: May 30, 2019

To verify the availability of the Approved product, please refer to www.approvalguide.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in the Approval Guide, an online resource of FM Approvals.


 David B. Fuller
 VP, Manager - Fire Protection
 FM Approvals
 1151 Boston-Providence Turnpike
 Norwood, MA 02062 USA


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APPROVAL REPORT

Project No:	PR448914
Supplements Project No.:	-
Class:	5560
Product Name:	FIREKILL™ Low Pressure Water Mist System for the Protection of Data Processing Equipment Rooms/Halls
Product Type:	Water Mist System
Name of Report Holder:	VID Fire-Kill ApS
Address of Report Holder:	Svalbardvej 13 Svendborg DK-5700 Denmark
Customer ID:	119774-1
Customer website:	http://www.vid.eu

Prepared by


 Jonathan Carpenter
 Senior Engineer

Reviewed by


 Brian K. MacDonald
 AVP, Technical Team Manager


Authorized by


 David B. Fuller
 VP, Manager - Fire Protection

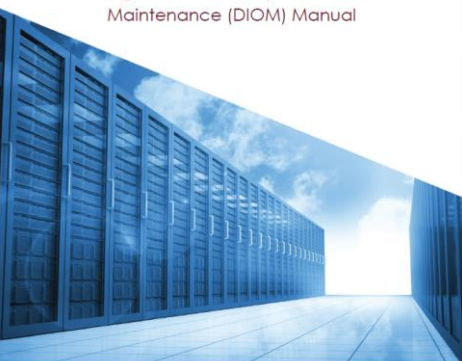
May 30, 2019
Date of Approval

FM Approvals
1151 Boston-Providence Turnpike
PO Box 9102
Norwood, MA 02062

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more than just fire protection

FIRE-KILL™ Low-pressure water mist system for protection of Data Processing Equipment Rooms/Halls Above and Below Raised Floors.
Design, Installation, Operation and Maintenance (DIOM) Manual



LOW PRESSURE WATERMIST

Thank you for your attention