



Water Mist

**Water Mist Systems
For whole Building Protection
in Accordance with Fire Protection Standards**

Hans Schipper, October 2023

The power behind **your mission**

Agenda

- Water Mist for whole building protection
 - Building protection principles
- Water Mist Standards
 - Design, Installation, Inspection and Maintenance
 - Performance and component test protocols
- BUILDING PROTECTION according to EN14972
 - Application overview



Building Protection

Fire Characteristics

- Ordinary Combustibles
- Low Heat Release Rates

System Type

- Automatic / “Wet” System

Objective

- Control

Alternative to

- Conventional Sprinklers

Advantages

- Up to >60% Reduction in Water Demand
- Reduced Water Supply Infrastructure
- Reduced Pipe Sizes
- Limited Consequential Damage
- Better environmental footprint (reduced materials)



Office Buildings



Hotels / Apartments



Hotels



Care Homes



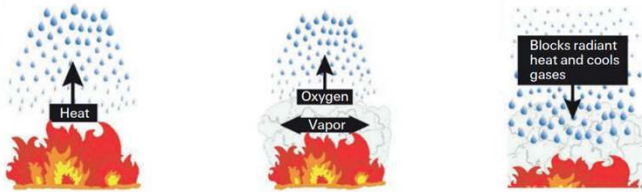
Libraries



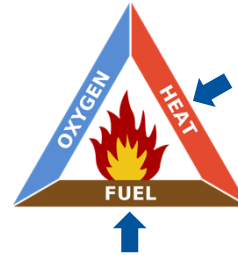
Sales areas

Advantages of using Watermist

- Water Mist works in three ways:
 - Heat absorption / Cooling
 - Oxygen Displacement around the fire
 - Radiant heat blocking / pre-wetting

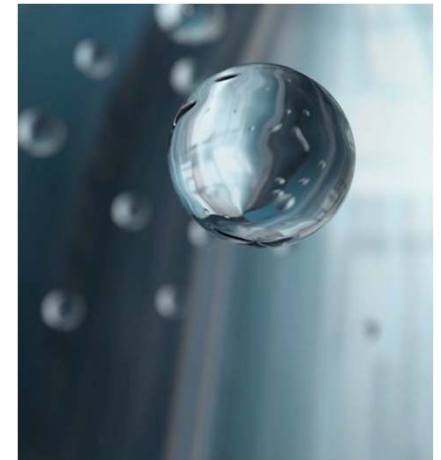


- Reduction in Fire Damage
 - Up to ~80% less than compared to sprinklers
- Reduction in Temperatures
 - Up to ~80% less than compared to sprinklers
- Requires less water
 - Up to ~60% less than compared to sprinklers
 - Reduction in pipe diameters
 - Reduction in tank capacity & overall storage space



Building Protection:
Control

 AquaMist



Comparison with Conventional Sprinklers (OH-1)



Building Protection
Ordinary Hazard 1 (OH-1)
Aquamist ULF AM29 Nozzle
23.5 l/min



Building Protection
Ordinary Hazard 1 (OH-1)
Standard Coverage Sprinkler
60.0 l/min



Watermist Design Standards and Fire Test Protocols



CEN	VdS	NFPA	FM
<p>EN 14972-1</p> <ul style="list-style-type: none">Fixed firefighting systems Watermist systems Design and installation	<p>VdS 3188</p> <ul style="list-style-type: none">Water Mist Sprinkler Systems and Water Mist Extinguishing Systems (High Pressure Systems) - Planning and Installation <p>VdS CEA 4001</p> <ul style="list-style-type: none">Water Mist Sprinkler Systems (Low Pressure Systems) - Planning and Installation	<p>NFPA 750</p> <ul style="list-style-type: none">Standard on Water Mist Fire Protection Systems	<p>FM 4-2</p> <ul style="list-style-type: none">Water Mist Systems
<p>EN 14972-2...17 (FM, VdS, LPCB, DFL, ISO)</p>	<p>VdS 3883-1...8 Reference Tested Against Conventional Sprinklers</p>	<p>FM 5560 Appendix A...P UL2167 VdS 3883-1...8 EN 14972-2...17</p>	<p>FM 5560 Appendix A...P</p>



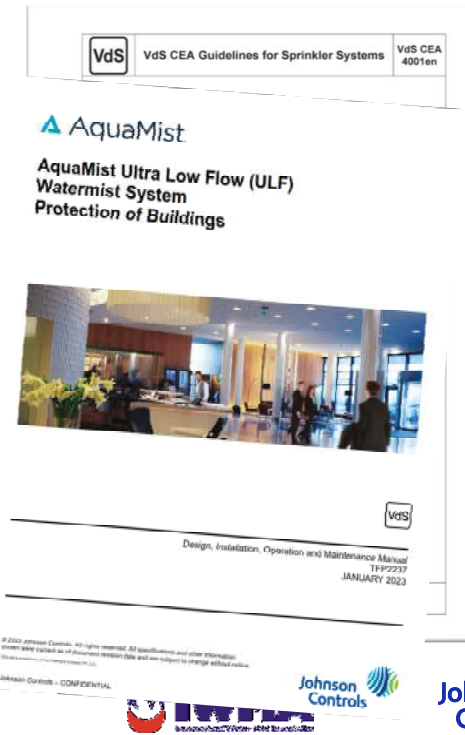
Water Mist Systems Approval process



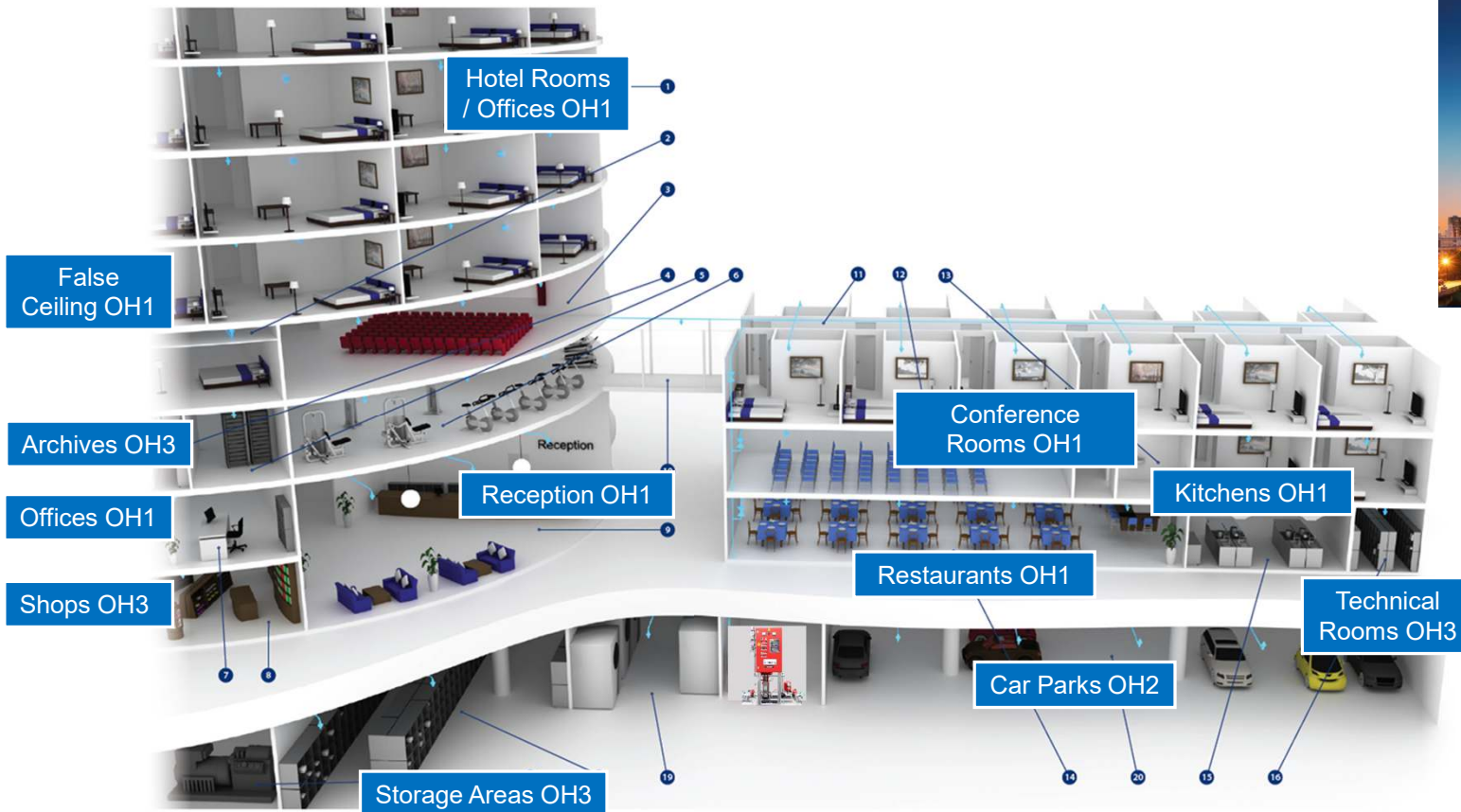
3rd party type approvals to VdS, FM, etc

- Full Scale Fire Test
 - Approved by third party
- Components Test
 - Approved by third party

- Manufacturers DIOM



Building Protection areas according EN14972



Water Mist Standard – EN14972 fire test protocols parts 2-17



EN 14972 consists of the following parts:	Section name	Based on	Status Sept 2023
EN 14972 part 1	Design, Installation, inspection and Maintenance		published
EN 14972 part 2	Shopping and sales areas	VdS	Enquiry
EN 14972 part 3	Office, school and hotel	VdS	published
EN 14972 part 4	Non storage occupancies	FM5560	Formal Vote
EN 14972 part 5	Car garage	VdS	Enquiry
EN 14972 part 6	False floor and ceiling	VdS	published
EN 14972 part 7	Commercial low hazard occupancies	BS8489	published
EN 14972 part 8	Machinery enclosures>260m ³	FM5560	published
EN 14972 part 9	Machinery enclosures<260m ³	FM5560	published
EN 14972 part 10	Atrium	DFL	published
EN 14972 part 11	Cable tunnels	VdS	published
EN 14972 part 12	Commercial deep fat fryers	ISO	Formal Vote
EN 14972 part 13	Wet benches and similar processing equipment	FM5560	Will be transferred to CEN layout
EN 14972 part 14	Combustion turbine enclosures>260m ³	FM5560	published
EN 14972 part 15	Combustion turbine enclosures<260m ³	FM5560	published
EN 14972 part 16	Industrial Oil cookers	FM5560	published
EN 14972 part 17	Residential and domestic occupancies	BS8458	comments received tbd



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



EN14972 part 2 – Sales, Storage & Technical Areas

- Typical OH2 and OH3 applications
- ST1 – ST6
- VdS 3883-5



Sales Areas

- Unlimited Area Coverage



Storerooms

- Unlimited Area Coverage



Archives / Libraries

- Unlimited Area Coverage



Technical Areas

- Unlimited Area Coverage
- Other comparable areas



EN14972 part 3 – Offices, schools and hotels



- Typical OH1 applications
- VdS 3883-1, offices and hotels
- VdS 3883-2, offices and hotel (sidewall)
- VdS 3883-3, false ceiling, false floors



Offices

- Unlimited Area Coverage

Public Areas

- Unlimited Area Coverage

Hotels / Apartments

- Unlimited Area Coverage

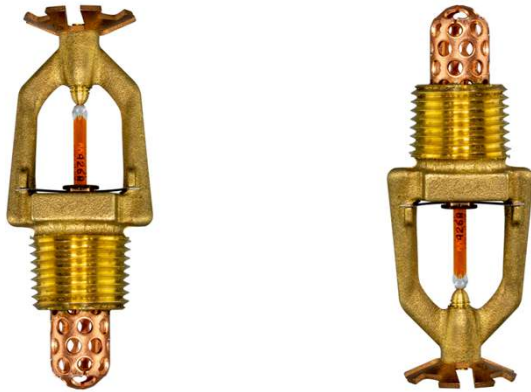
Other Comparable Risks

- Schools
- Recreation areas
- Domestic & residential applications
- Etc.



EN14972 part 5 – Car Garages

- Typical OH2 applications
- Dry pipe systems, upright nozzles
- Wet pipe systems, pendent nozzles
- VdS 3883-4



Underground parkings

- Unlimited Area Coverage

Summary



- In general, it can be concluded that for the protection of Buildings Watermist systems, having **executed the fire test protocols** of the EN14972 parts 2-17 or equivalent test protocols like **VdS 3883, FM5560**, DFL etc, planned in accordance with 14972-1, manufacturers **DIOM** and having **validated/proved components** in their systems (laboratory component test passed) Water Mist systems are a valuable and economic alternative to conventional sprinkler systems.
- AquaMist Water Mist systems have proven enhanced cooling capabilities compared to conventional sprinkler systems (40-50% lower ceiling temperatures).
- AquaMist Water Mist systems have proven providing the same safety and performance level by using up to 60% less water compared to a conventional sprinkler system to protect your buildings.
- **Need to be adjusted.**

Thank You.

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Water Mist Systems

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