

Watermist - Building protection in accordance with EN14972 and other guidelines

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BIO: Hans Schipper, with a background as a mechanical engineer in the process industry started his career with JCI more than 15 years ago as a Technical Service Engineer for fire suppression systems. Through the years he primarily focused on water mist and sprinkler systems and got promoted to Senior Engineer of the Technical Service and Training department for Water Mist Fire Suppression Systems. In this role Hans is the Technical Trainer and Engineering contact for in- and external customers to develop new opportunities for today's and future developments in the water mist industry.

Hans Schipper is a delegate committee member of the CEN/TC 191 WG10 'Watermist systems'. He also has extensive relationships within the industry and AHJ bodies. Hans Schipper is a certified engineer for Water Mist Fire Suppression Systems and Sprinkler Systems

Abstract

[Background]

Usually, gas or sprinkler systems are used to protect fire risks or hazards in buildings (Building Protection). Sprinklers protect the majority hazards of a building whereby gas systems are utilized for special hazards. However, due to an increasing environmental discussion in reducing water demand, reducing of the building infrastructure cost (building space needed for the fire suppressing system) and to avoid discussion about gas system's agents, a demand for optional fire protection systems – Watermist Systems - has arisen over last couple of years. Beneficially for this development the first European Norm for Watermist System, the EN14972 series, has been published in 2021

[Objective]

A series of fire tests protocols have been developed and released by accredited laboratories or insurers or being in the content EN14972 Parts 2-17 to validate the performance of Watermist systems in buildings. The fire test protocols are available for typical sprinkler and gas applications. Beside these fire test protocols every Watermist system shall be planned, installed and maintained in accordance with EN14972 Part 1.

[Method]

By today the following Watermist system test protocols are available:

- Light & Ordinary hazard risks
- Residential risks
- Storage & Shopping areas, Libraries and Archives
- Parking Garages
- Offices, Kitchens, Restaurants
- Hotel and Accommodation areas
- Data Centres/Halls, IT Rooms
- Small Fryer protection in Kitchens
- Cable tunnels
- Machinery Rooms, Turbine/Generator Enclosures
- Local protection of Machinery equipment
- Automotive Manufacturing Lines
- Paint booth
- Flammable liquid storage rooms
- Local Protection Wood Press Machines
- Local Protection of Large-scale Industrial Fryers

[Results]

The tests of “suppression type” Watermist systems have given in the fire test evidence for proper performance. These tested Watermist systems have demonstrated their ability to suppress fires, means they have demonstrated in the conducted fire tests their ability to reduce the fire damage and ceiling temperatures.

The test of the “extinguishment type” Watermist systems have given as well in the fire test evidence for proper performance. These systems met the requirement of the dedicated fire test protocols in the means of having the ability to extinguish a fire test scenario in the predefined (required) time.

Each EN 14972 test protocol (Parts 2-17) has been in specific developed for the assessed fire risk/hazard. Most of the fire test protocols require additional parameters to be met/passed beside the above-mentioned generic fire protection system goals.

Content of this presentation refers only to the “suppression type” Watermist systems (OH/HC classification, closed nozzles/Watermist sprinklers).

[Main conclusions and recommendations]

It can be concluded that for the protection of Buildings Watermist systems, having executed the fire test protocols of the EN14972 parts 2-17, planned in accordance with 14972-1 and having validated/proofed components in their systems (laboratory component test passed) are a valuable and economic alternative for sprinkler/gas systems. Watermist Systems can provide the same safety and performance level by using less water compared to a conventional sprinkler system to protect buildings.

KEYWORD: water mist systems, building protection, EN14972