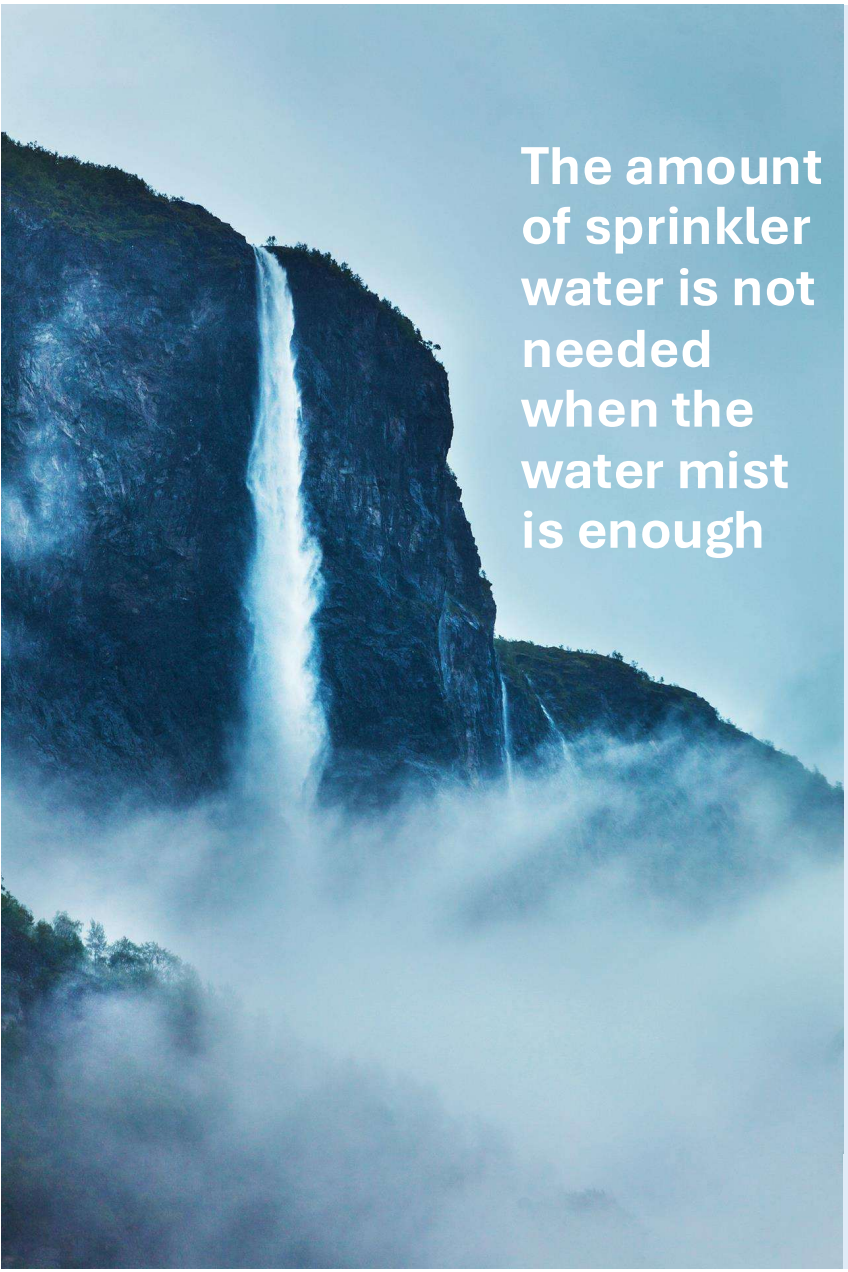


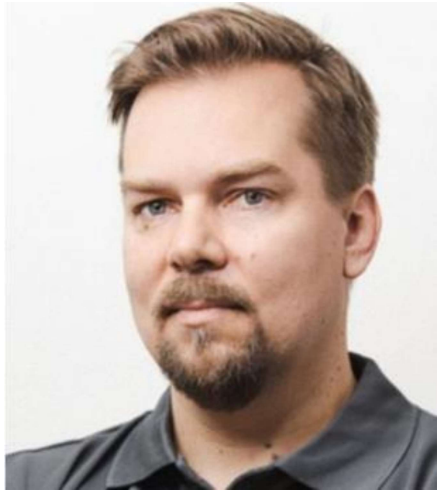
IWMA 2025

Aquapix - new water mist technology

Antti Virtanen

Bachelor of Engineering in Building Services Engineering, Antti Virtanen is the Chairman of the Board at Firex Aquapix company and the CEO of Afire Oy, Finland's largest fire suppression system contractor.

Antti has been an authorized sprinkler and water mist responsible person since 2003/2012. Antti is a second-generation sprinkler professional and has been in the fire protection industry for nearly 49 years



FIREX

Alternative high-pressure water mist nozzle technology – No drilled holes or micro nozzles

Previously, the water mist system technology commonly used in water mist extinguishing systems has been the hole nozzle.

With this method, small nozzles have been installed in a machined frame or holes have been drilled to provide water mist. Water impact and rotation nozzles have also been used.

Alternative high-pressure water mist nozzle technology – No drilled holes or micro nozzles

The aim in developing the Aquapix nozzle was to create a new, simpler technology for a high-pressure water mist nozzle. The Aquapix system is based on an Aquapix-plate that is pressed between two body parts. In this case, different water mist can be produced with the same body part simply by changing the Aquapix-plate to a different one.

Alternative high-pressure water mist nozzle technology – No drilled holes or micro nozzles

Alternative high-pressure water mist nozzle technology – No drilled holes or micro nozzles

Simple structure.

Aquapix nozzle is a revolutionary invention with a 2-part nozzle body that allows for the implementation of all nozzle types on the same body.

Only the dispersal plate (Aquapix-plate) between the nozzle body parts changes.

This enables a cost effective manufacturing process. The same nozzle components are compatible with different nozzle types; only the Aquapix plate changes.

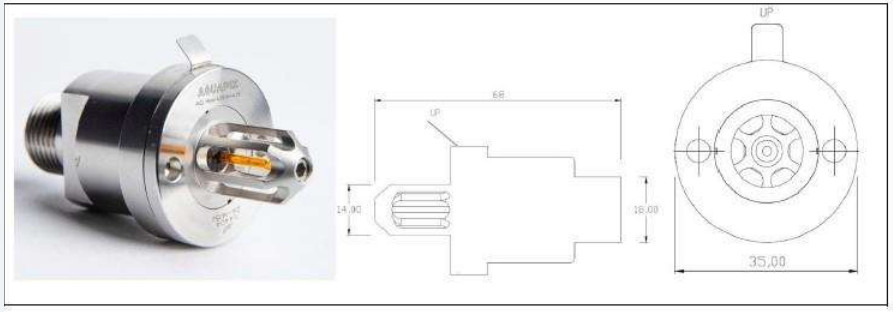
Aquapix Hsw 4.15 data sheet

AQUAPIX.com
The Finnish Water Mist

Technical specification AQ HSW4.15 24.6.2024 (V1.01)

Aquapix Sidewall 4.15 Automatic High-Pressure Water Mist Nozzle for OH1 Applications:

Aquapix high-pressure water mist nozzles are suitable for use in automatic high-pressure water mist fire suppression systems in residential buildings, care facilities, hospitals, office buildings, hotels, museums, schools and other low fire load environments.



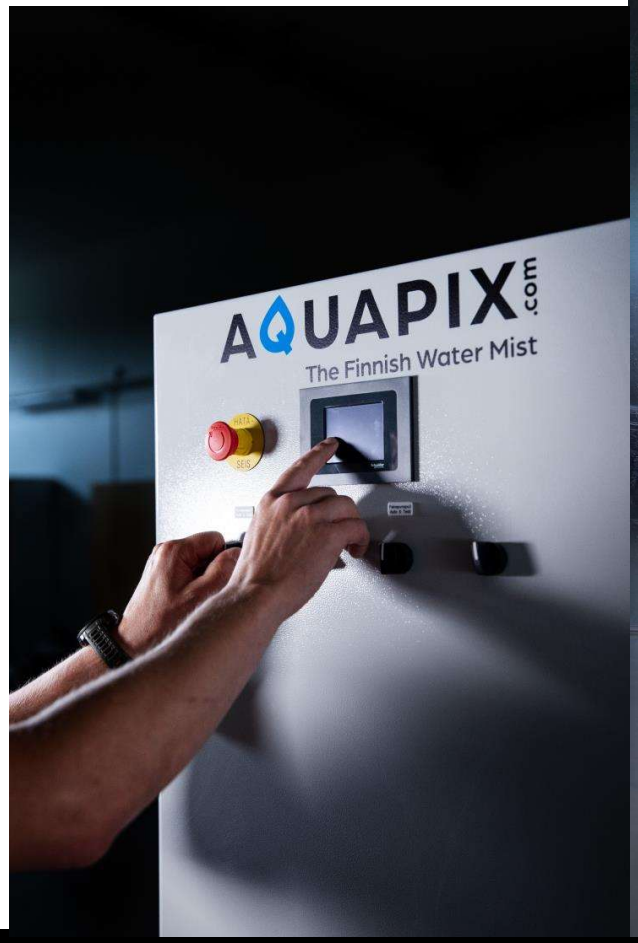
FEATURES	DESCRIPTION
Aquapix Sidewall 4.15	Horizontally Mounted High-Pressure Water Mist Nozzle
Manufacturing material	1.4404 (AISI 316L)
Activation Mechanism	Thermally responsive glass bulb (F2x16)
Operating Temperature	57°C (orange), 68°C (red), 93°C (green) 141°C (blue)
Threaded connection	DIN 2353 / ISO 8434-1 L12
Minimum operating pressure	60 bar
Maximum operating pressure	140bar
Filter	120 µm
Flow at minimum operating pressure	32,14 l/min
K-factor	4,15
Tested room height	3,0 m
Tested nozzle spacing (width x length)	4,0 m x 6,0 m
Tested installation distance from the ceiling	0,15 m
Tested coverage area	24 m²
Design guidelines	EN14972-1:2020 Aquapix DIOM
Fire test approvals	VdS 3883-2 – Protection of Offices and Accommodation Areas with Water Mist Sidewall Sprinkler. Test Report No.TRBFL2408, Baltic Fire Laboratory 06/2024

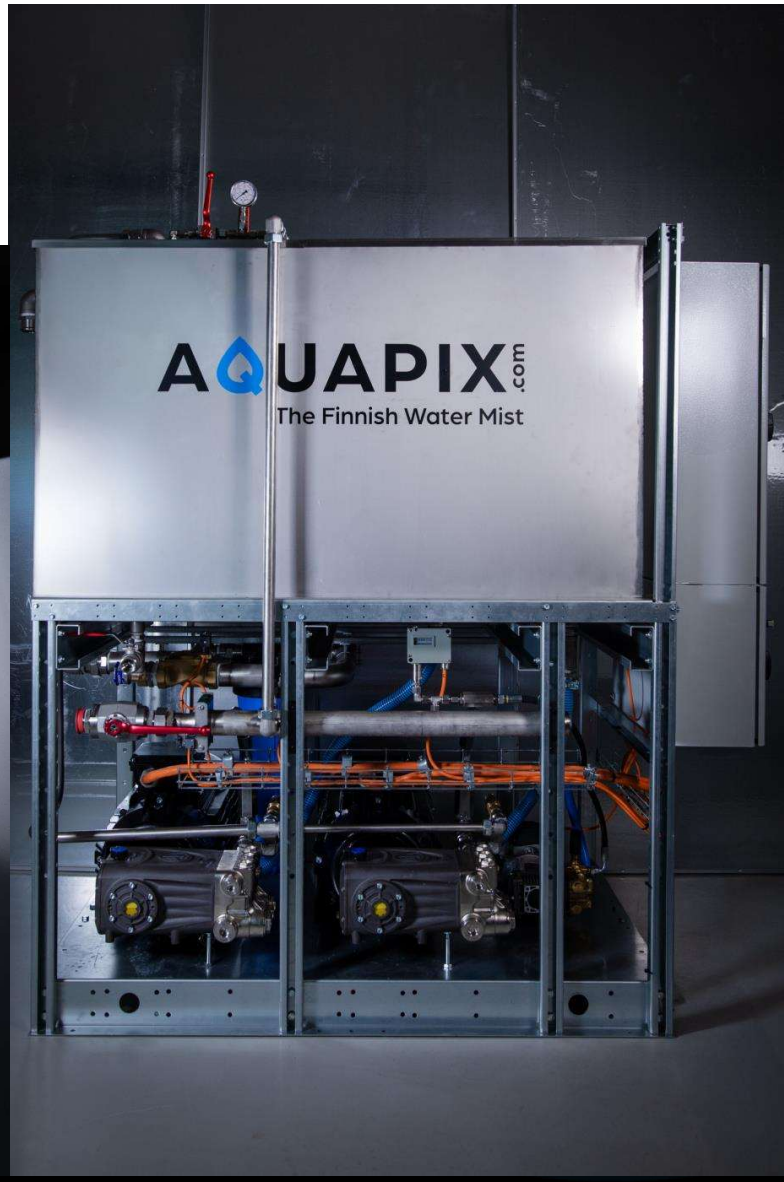
The assembly of products is done in Finland

- **The products are assembled entirely in Finland.**
- **The products are made of high-quality materials and components manufactured in Europe by various subcontractors.**

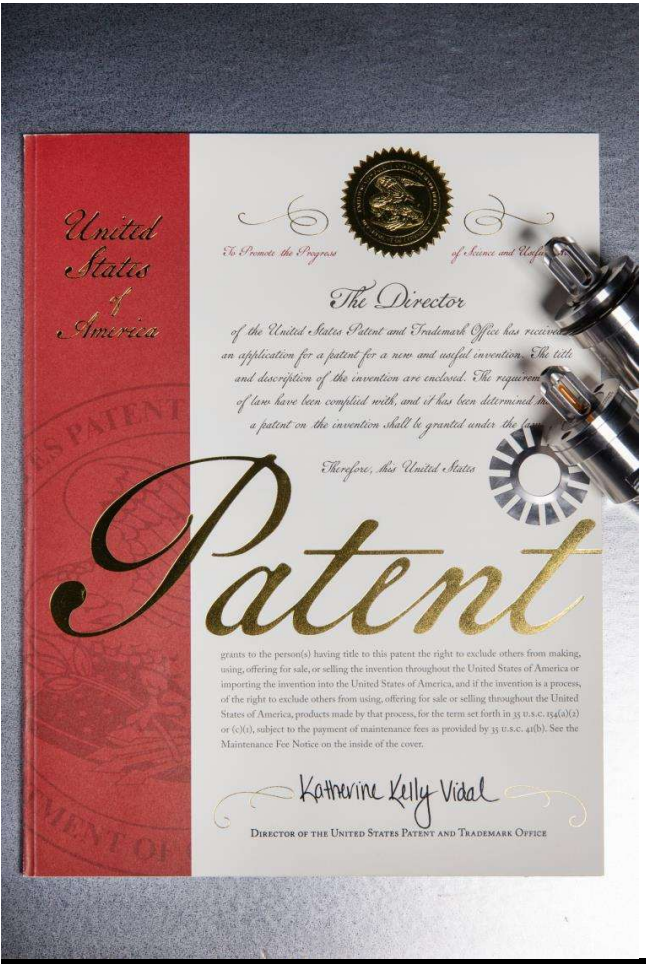
Installation for new and existing water mist systems

- Aquapix is also suitable as an extension for all existing water mist systems, as long as the pump station provides the pressure and flow rate required by the nozzle.
- The pump station can be any high-pressure mist pump provided by any supplier As long as the system requirements are met





Globally patented high-pressure water mist nozzle technology.



The structure/technology of the nozzle is patented worldwide, and the patents also cover all applications beyond fire suppression.

Other applications for nozzles include humidification and dust suppression systems.

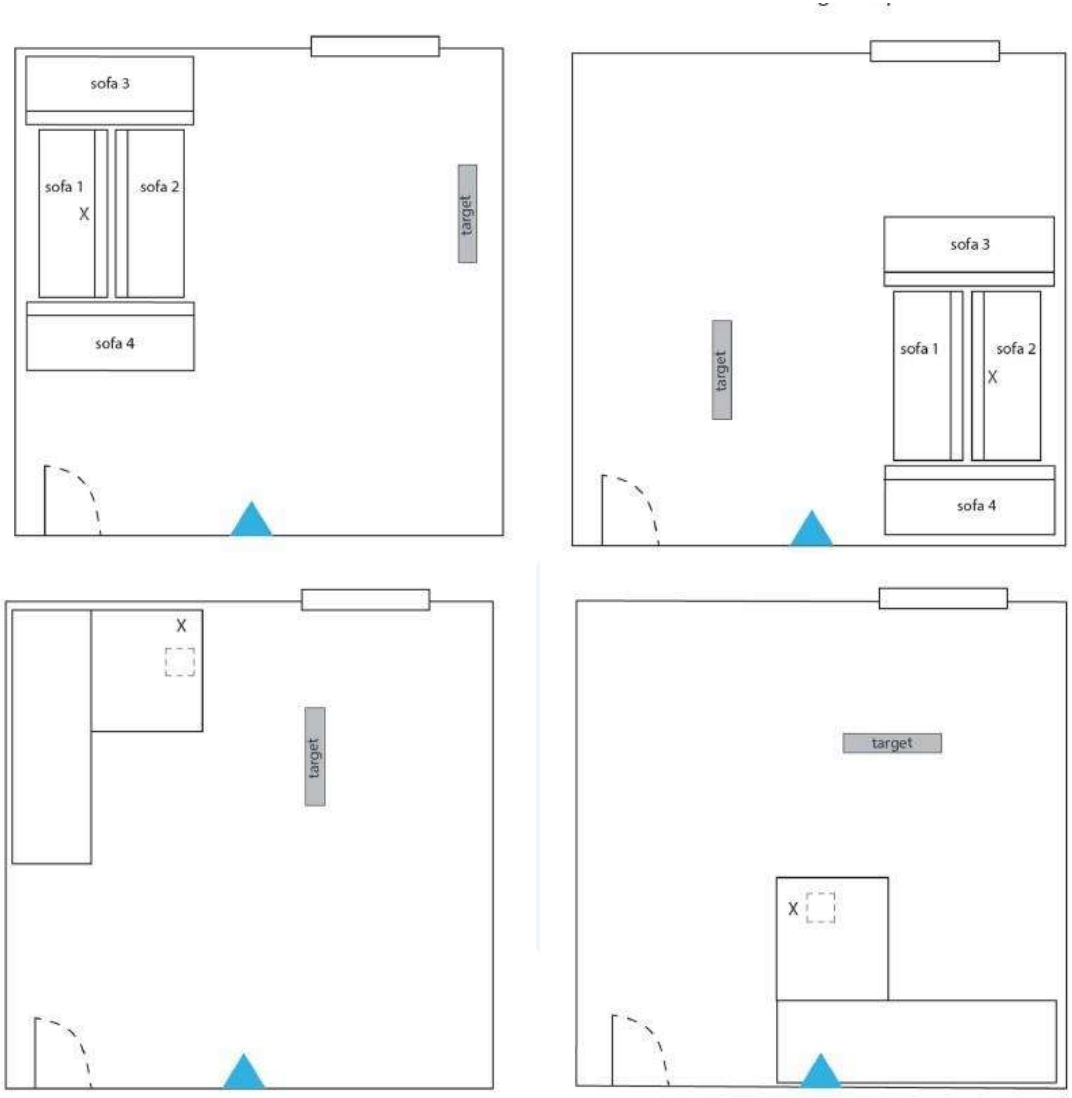
These systems use open nozzles whose performance can be fine-tuned in various ways by selecting different Aqua-plates.

Fire test

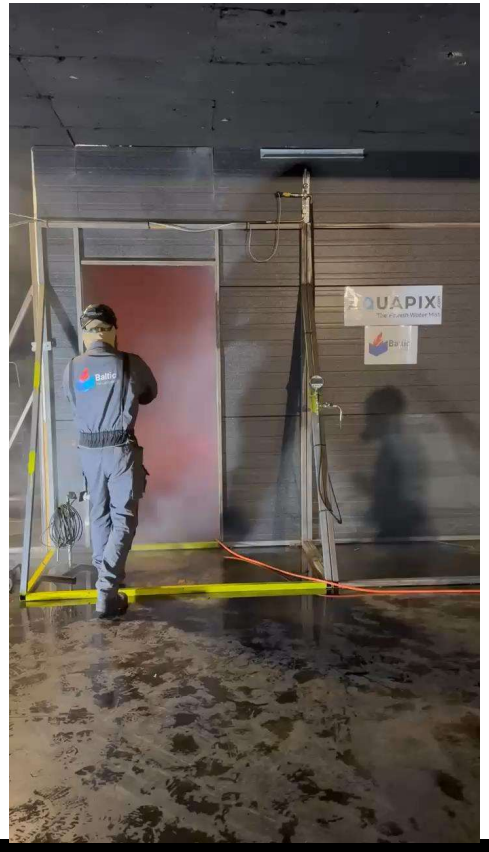
Introduction to Residential Sprinkler Comparison

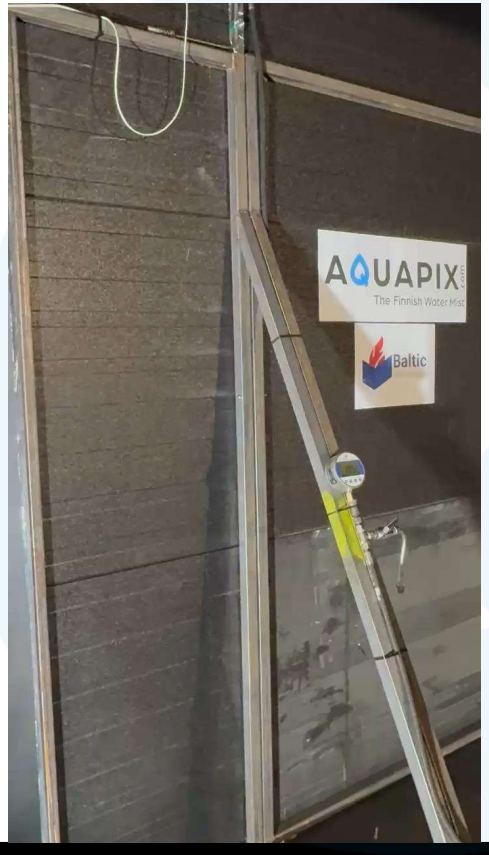
In June 2024, the Aquapix sidewall nozzle successfully passed a fire test in accordance with VdS 3883-2, earning official approval. The tests included four different test scenarios

- Hotel test room 1
- Hotel test room 2
- Office test room 1
- Office test room 1



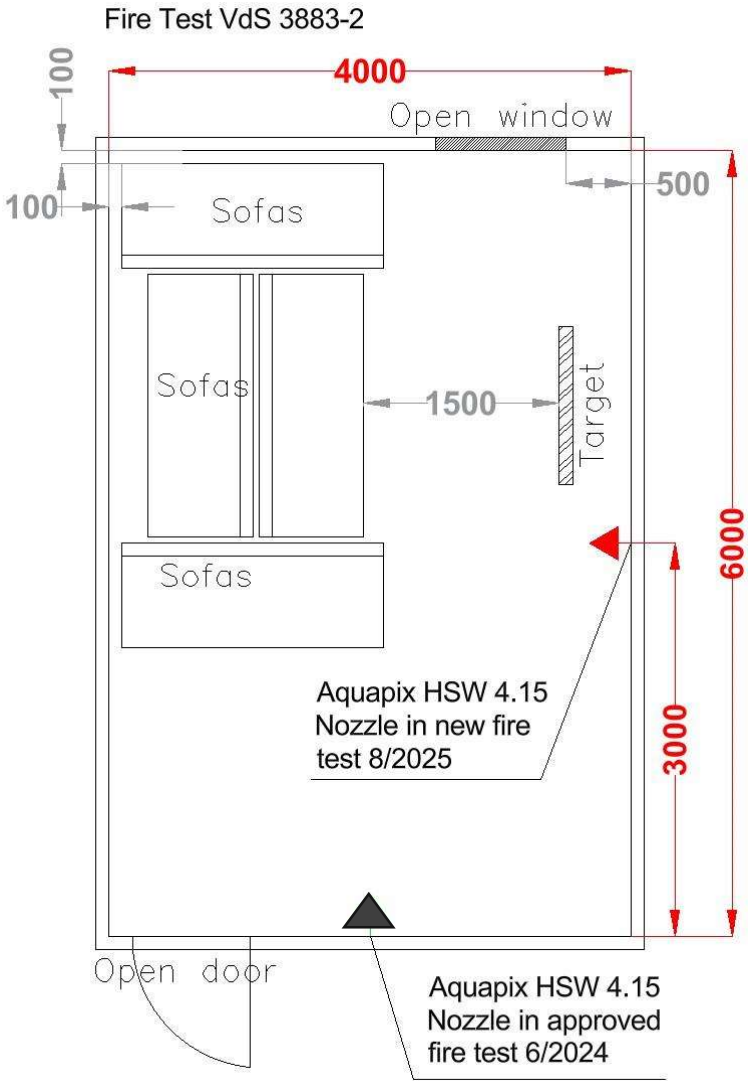
Fire test VdS 3883-2 in June 2024





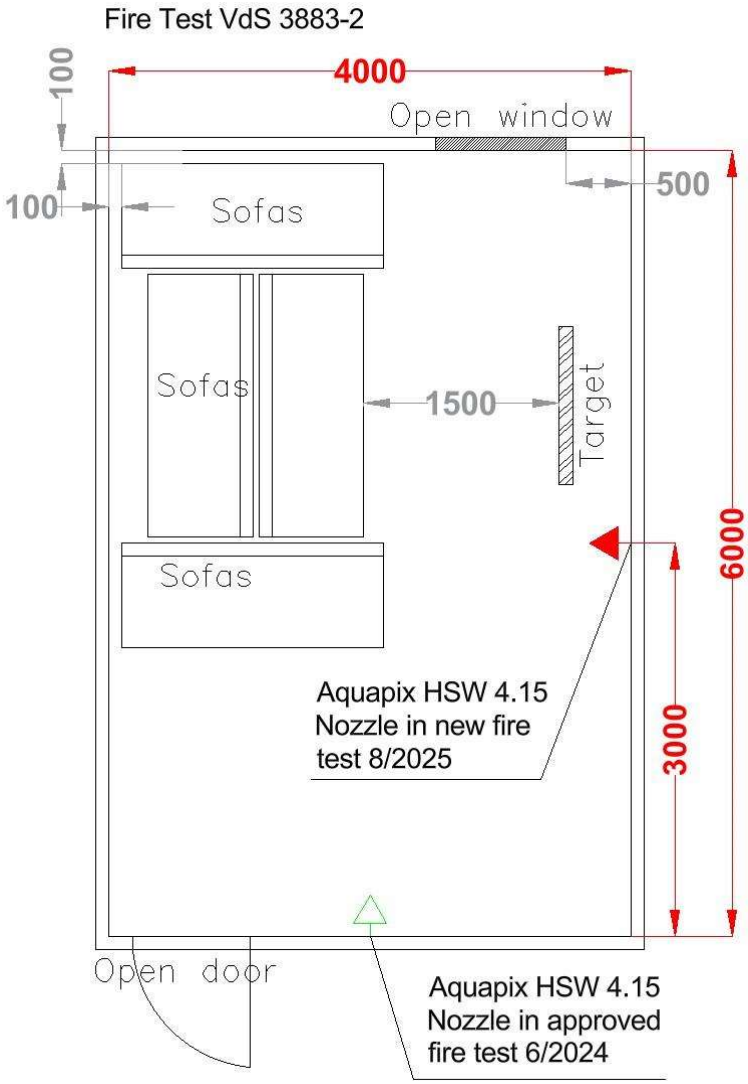
Fire test 8/2025
Residential sprinkler vs. High pressure water mist

- The purpose of the test was to examine in a fire laboratory how a water mist nozzle performs in a fire test when the protection area of 4 meters in width and 6 meters in length is rotated 90 degrees—meaning the width becomes 6 meters and the length 4 meters
- **The protection area remained the same 24m2**
- The aim of the test was to determine whether the room dimensions can deviate as long as the protection area and maximum dimensions are maintained



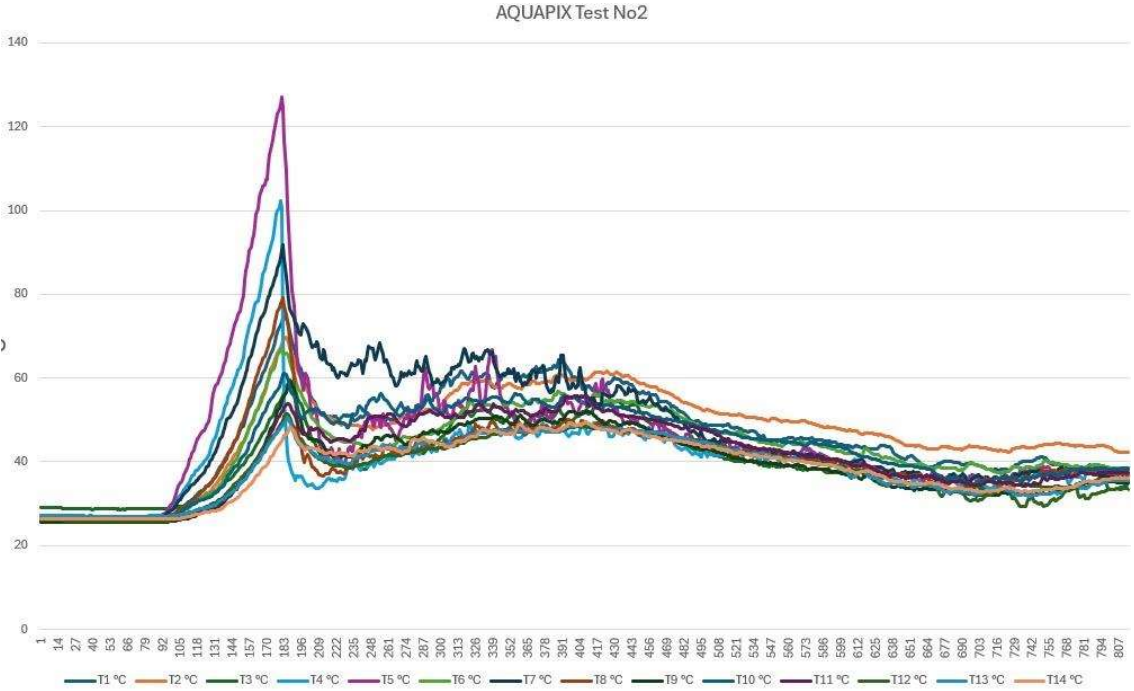
Fire test 8/2025 Residential sprinkler vs. Water mist

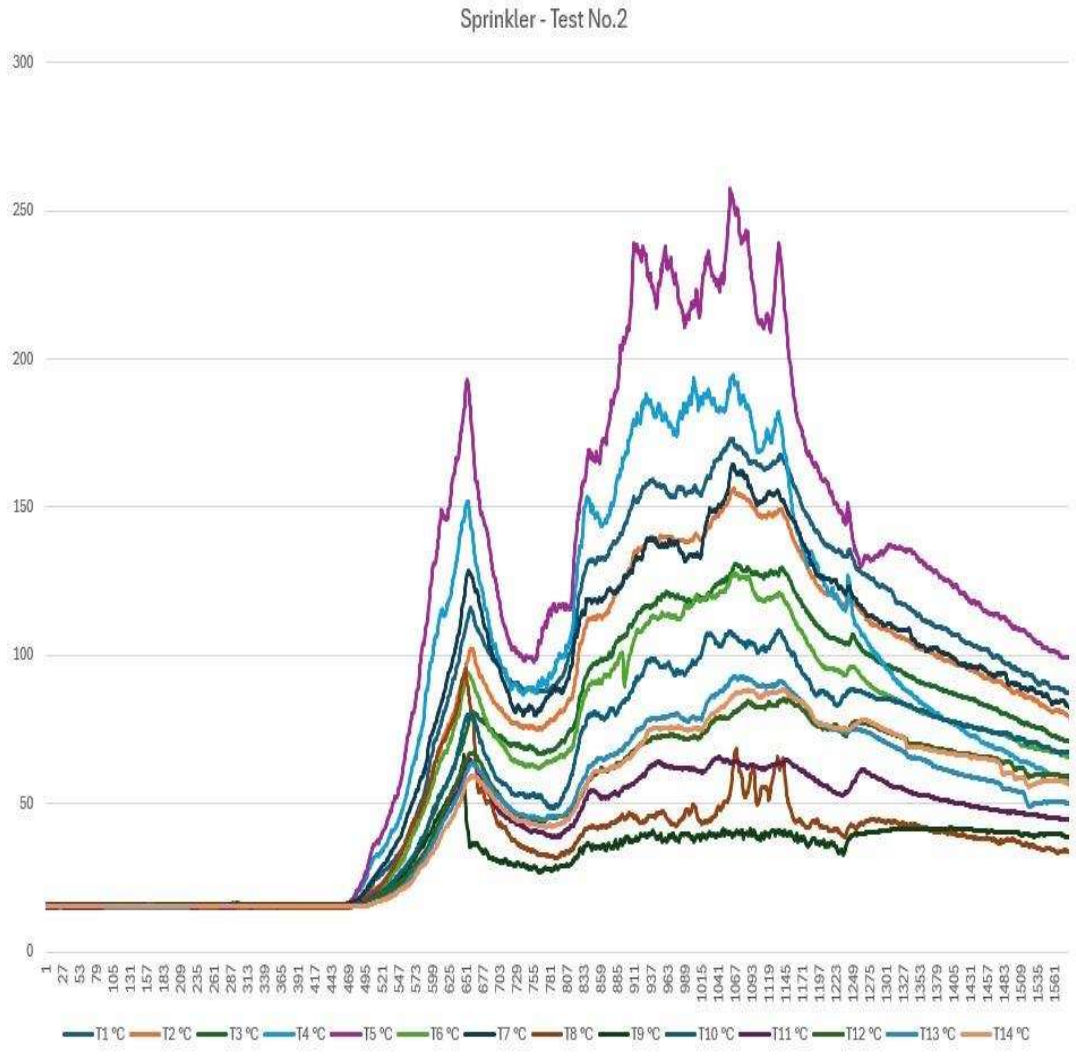
- As an informative test, the same test was also conducted using a residential sprinkler nozzle
- A residential sprinkler nozzle with sufficient approval for the corresponding protection area was selected for the test.
- In this case, the sprinkler nozzle was approved for a protection area of 6.1 meters by 6.1 meters.



Fire test Watermist vs Residential sprinkler

Temperature curves from fire tests on Aquapix nozzle and residential nozzle





Fire test results

- Based on the test results, the Aquapix nozzle performed effectively even when the protection area was rotated. The room temperature dropped rapidly after activation, and fire damage remained minimal
- In contrast, the residential sprinkler nozzle resulted in significantly higher temperatures and more extensive fire damage.
- The Aquapix nozzle met all VdS 3883-2 test criteria.
- The residential sprinkler nozzle did not meet the test requirements (It should be noted that the test conducted was an OH1 test, not a residential test for which the sprinkler nozzle is approved)

Thank you!

Any questions?

Antti Virtanen

www.aquapix.com

AQUAPIX FIREX