Showcasing Low Pressure Water Mist Benefits in real Projects

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Why are we here?

Ignition
Introduction
Agenda

1. Watermist – a justification of its place in the market
   - Justification in regards to fire fighting capabilities
   - Justification in regards to creating other values

2. Examples
   - Building
   - Industry
Watermist – a justification of its place in the market

“Conventional” fire fighting technologies

Fire Sprinklers  Waterspray Systems  Gas Systems  Foam system

Justification: Must be better to fight fire or generate other value to stakeholders.
What is a fire?

Air: 21% O₂ + 78.8% N₂ + ?
Fuels: Carbon + Hydrogen + ?

Energy to Fuel (heat)

Pyrolysis process
Fuel => Pyrolysis gasses
Example: CH₄

Fire ignition

Fire example:
CH₄ + 2O₂
=> 2H₂O + CO₂ + E
Example

1. Pyrolysis gases are created.

2. Oxidation process happens.

3. Energy is released (seen as flames).
## Justification in relation to fire fighting capabilities

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<tr>
<th>Technology</th>
<th>Fire fighting method</th>
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<tbody>
<tr>
<td>Fire Sprinklers</td>
<td>Fighting the PYROLYSIS process on the fuel surface.</td>
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<td>Waterspray Systems</td>
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<td>Foam system</td>
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<tr>
<td>Watermist</td>
<td>Fighting the PYROLYSIS and the OXIDATION process on the fuel surface and in the volume.</td>
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</tbody>
</table>

Weeting surface = No Pyrolysis gasses  
Reducing O2 = No Oxidation  
Cooling in fire = Reduce fire energy + Create inert gasses
Justification in relation to creating other values

Some values compared to Sprinklers / Waterspray:

- Use less water “green technology” (typical between 60%-90% saving).
- Smaller pipe dimensions.
- Systems weigh less.
- Less water damages in case of (false) activation.
- Faster activation in case of fire due to lower RTI values.
- Less corrosion problems due to non-corrosive systems.
- Esthetic better looking (innovative designs) on visible parts.
Justification in relation to creating other values

Some values compared to Gas Systems:

- No use of chemicals or gasses which harms people or equipment.
- No noise harming equipment.
- No re-filling costs after tests / false activations / real activation.
- Works also if the room is not tight, if doors/windows are open etc.
- Shorter laydown time as the fire is fought locally at the fire origin and not in the entire volume.
- Does not kill people in case of false activations such as CO2 does.
- Can help create a “green profile” for the owner.
Justification in relation to creating other values

Some values compared to Foam Systems:

- Use less water “green technology” (typical between 60%-90% saving).
- No corrosion and less damage in the environment / equipment located in the room where the fire is.
- Faster and cheaper clean up in case of fire.
- No harm for people compared to foam agents.
- Fights the fire locally and does not need to fill the entire room.
Examples
Watermist vs. Sprinklers

Application example: High-end hotel requiring architectural features
Conventional solution: Concealed Sprinklers.
Motivation to change to watermist: Concealed sprinkler use too much water & risk of detection-air-gap gets painted/closed, plate drops down or corrosion inside the sprinkler.
Watermist vs. Sprinklers

Plaster closing air gap

Corrosion inside sprinkler
Solution

Pressure: 8 bar
Density: 2.3 l/min/m² (46% watersaving)
Fire fighting medium: Pure water
Approval: FM Approved
Verification of the solution

Pressure: 8 bar
Density: 2.3 l/min/m² (46% watersaving)
Fire fighting medium: Pure water

How the nozzle operates

Test from FM5560 “HC1”
Installation example

Installation site: Nobu Hotel London
Watermist vs. Foam System

Application example: Aircraft hangar
Conventional solution: High Expansion Foam System
Motivation to change to watermist: Creates risk of corrosion in airplanes located in the hangar and recent findings (Australia + USA) shows that these systems can generate large environmental problems in the vicinity of the hangar and air field.

Qantas to stop using toxic firefighting foam after Brisbane river spill

Airline will make a national-level switch to foam that does not contain the group of chemicals known as Pfas
● ‘Children are being poisoned’: fury at scandal of toxic firefighting chemicals


Phas = Per- and poly-fluoroalkyl substances (PFAS), also known as perfluorinated chemicals.
Solution

- Pressure: 8 bar
- Density: 3.5 l/min/m²
- Fire fighting medium: Pure water
- Approval: NATO approved
Verification of the solution

Pressure: 8 bar
Density: 3.5 l/min/m²
Fire fighting medium: Pure water

How the nozzle operates
Test with 6m² jet fuel fire
Installation example

Installation site: confidential
Summery

1. Watermist has a place in the fire protection industry because:
   
   - Its firefighting capabilities are unique. Some fires are fought better than “conventional” solutions and some fires are fought equally but with much less water.

   - It offers unique values to stakeholders which “conventional” solutions cannot offer.
Questions...

Thank you for your attention