Protecting your Future
The Benefits of High Pressure Water Mist

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High pressure water mist sprinkler system for fighting fires

3rd IWMA Water Mist Seminar in Dubai on 21st January 2018 / Intersec 2018
Introduction

• Brief introduction to Ultra Fog
• The principles of water mist
• Where we can use water mist
• The multiple benefits of water mist
Ultra Fog - Background

• 1990 Ultra Fog was founded, has since designed & developing high-pressure water mist systems.
• Nov 2010 New Owners, who have invested already >€3 m on testing next generation of nozzles.
• 2012 new UK / USA Divisions.
• 2013 gained ISO 9001 quality system certification.
• 2015 new Italian Division opened.
• 2016 new Polish Division opened.
Ultra Fog - Experience

Ultra Fog: A World Leader in the Development and Application of custom quality fire protection solutions.

**Rolling Stock**
High-speed trains, regional trains, passengers carriages, metro trains and trams.

**Marine Applications**
Cruise ships, Ro-Ro, Ro-Pax, tankers, naval vessels, historic ships, special purpose vessels, luxury yachts.

**Land Applications**
Hotels, commercial offices, shopping malls, schools, historic buildings, museums, archives, restaurants, construction, care homes, hospitals, power plants.

**Offshore Applications**
Machinery space, engine rooms, thruster rooms, control rooms, accommodation, spaces, turbine enclosures, galleys, deep fat fryers and ducts, paint lockers.

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Water Mist Principles

- Water + high pressure + special design nozzles = Water mist
- High pressure creates smaller droplets
- Small droplets give you a larger surface area
- Larger surface area gives you a faster heat transfer
- Ultimately giving faster fire suppression and less damage
Nozzle type 603-260-061-O
In practice

- 48m² cabin – Single nozzle – 32 l/min
In practice

- Temperature increases, convection occurs
In practice

- Nozzle activates releasing 2 million droplets per second

>57°C
In practice

- Vapourisation, expansion, cooling

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In practice

• Break the triangle!
Where can water mist be used?

- Cruise ships
- Ro-Ro
- Ro-Pax
- Tankers
- Military Vessels
- Historic Ships
- Luxury yachts
Specifically within Marine

- Cabin balconies: MSC 1/Circ 1268
- Galley & Stores: MSC. 265/84
- Public spaces: MSC. 265/84
- Deep fat fryers and Galley ducts: ISO 15371:2009 and type approvals
- RO-RO and special category spaces: MSC. 1/Circ. 1272
- Machinery space local application: MSC/Circ.913
- Machinery space total flooding: MSC/Circ. 1165

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Visual Example
Where can water mist be used? Land...

- Hotels
- Residential
- Commercial offices
- Shopping malls
- Schools
- Historic buildings
- Museums
- Archive stores
- Restaurants
- Construction
- Care homes
- Hospitals
- Deep fat fryers
- Transformers
- Helicopter hangers
Specifically within Land
Land – Visual Example

FIRE TEST, 1 M2 POOL FIRE, WITH HELICOPTER FUEL
Where can water mist be used? Offshore...

- Drilling rigs
- Windpower power plants
- FPSOs
- Machinery spaces
- Control rooms
- Turbine enclosures
Specifically within Offshore
Where can water mist be used? Rolling Stock...

- High-speed trains
- Regional trains
- Passenger carriages
- Metro trains
- Trams
The Benefits Of Watermist

- Only water is used
- 1L of water turns into 1700 litres of vapour!
- 80-90% less water than traditional sprinkler system = less damage
- High Cooling Effect
- Large expansion during vaporisation, stops/reduces oxygen to the fire.
- Shield against heat radiation
The Benefits
Comparision against conventional sprinkler systems

- 80% less water used
- Smaller tanks / water consumption
- Reduced pipework size
- Cleaner stainless steel pipework used
- Less space, less weight
- Faster fire suppression = less damage
The Benefits
Recovery / Clean Up Post Fire

• Less water means less water damage, less clean up time
• Less damage replacement costs
• Small bulb is the only part to be replaced post fire
• No chemicals to clean up
• Quick restart

Water Quantity Example
• $10mH \times 10mW \times 5mH = 500m^3 = 9 \times k0.73$ nozzles
• $= 66 \text{ l/min.}$
• $= 0.66 \text{ l/m}^2/\text{min}$
• $0.66 \text{ mm water depth per min per m}^2$. 
The Benefits
Environmental

• Only water is used
• Abundant supply
• No chemicals used in the water
• No harm to humans
The Benefits
Aesthetically

• Modern looking stainless steel design
• Unnoticeable in the ceiling
• Can be painted
The Benefits
Retrofit with ease
The Benefits
Maintenance of the system

- Tested in situ
- Can be dismantled
- Bleed air from the pipework
- Minimal weekly, monthly, yearly testing/ checks
To Summarise

I have discussed;

• The principles of water mist
• Where we can use water mist in industry
• The various benefits of water mist
Thank you!

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