



# WATER SUPPRESSION





## WATER MIST INTERMEDIATE PRESSURE

*Intermediate Pressure Water Mist systems* are those with operating pressures greater than 12.1 bar (175 psi) but less than 34.5 bar (500 psi). The most common examples of these systems are self-contained, skidded units that have water stored at atmospheric pressure and high pressure nitrogen cylinders to provide the propellant to discharge the water. Mean droplet sizes for these systems tend to be larger than that for high pressure systems and since they have a limited water supply are usually limited to certain size risk volumes up to 1000 cubic metres.

Typical uses of Intermediate Pressure Water Mist systems include turbine enclosures, machinery spaces, hydraulic pump rooms etc. These extremely economic systems have been found to be very popular due to the self-contained skid arrangement incorporating a single connection point for water outlet and actuation as well as the ability for the releasing and control panel to be mounted directly on the skid.

## WATER MIST LOW PRESSURE

*Low Pressure Water Mist systems* are those where the distribution piping is exposed to pressures of 12.1 bar (175 psi) or less. Very similar to 'low flow' sprinkler systems where the flow rates and mean droplet size are generally higher than that for high pressure or intermediate pressure Water Mist systems.

These systems are usually installed together with conventional sprinkler alarm valve equipment and are quite economical, however the applications are somewhat limited as the extinguishment efficacy is lower than that of High and Intermediate Pressure Water Mist systems.

*Deluge Water Mist Systems;* the IFI Deluge-Tech RC150A Nozzle has a rotor that improves water droplet momentum and distribution, making it a more effective suppression nozzle than conventional deluge nozzles with deflector plates. The water is simultaneously directed at a wide angle, providing a protective water curtain, as well as forward which allows for greater reach. The nozzle is used in applications where

deluge water spray systems are installed for special hazards protection. The IFI nozzle produces superior protection with a minimum water pressure of 50 psi to a maximum pressure of 175 psi. The nozzle may be oriented in any direction necessary to protect the hazard.

## HYBRID SYSTEMS

*Hybrid Water Mist systems* are a combination of clean agent inert gas and water. The mist is produced in a manner that maximises the best attributes of each. Nitrogen is injected into the water stream at the nozzle, producing extremely small droplets and also acting to reduce the oxygen concentration in the protected risk. This translates into a Water Mist system that is practically dry making it ideal for protection of computer rooms, data centres and the like.

The Water Mist droplets (less than 10 micron) are up to 100 times smaller than water particles delivered by a traditional Water Mist system, providing 50% improved heat absorption and total extinguishment. Nearly zero water residue in protected areas means there is no water damage after the fire is extinguished. Hybrid systems easily extinguish small fires in large rooms and also work well in naturally ventilated environments.

The homogeneous mixture of water droplets and nitrogen gas is propelled with enough energy to overcome the drag effect that has limited the effectiveness of traditional Water Mist systems.



# WATER SUPPRESSION



"EVERY SOLUTION FOR YOUR SPECIAL HAZARD PROBLEMS"

*"Water Mist fire suppression systems are specifically designed to either suppress or extinguish a fire"*

**Conventional Sprinkler Systems** are designed primarily to control the fire and prevent building structural collapse, and pre-wet the surrounding combustibles to prevent fire spread. This is achieved using copious quantities of water.

Water Mist suppression systems are specifically designed to either suppress or extinguish a fire. Water is an outstanding fire suppression agent due to its high heat capacity and latent heat of vaporisation. Critical to water mist efficacy is the nozzle which is specially designed to produce a specific range of droplet sizes and velocities.

The larger droplets have sufficient energy and momentum to penetrate the fire plume and cool the fuel. The smaller droplets increase the overall enthalpy of the enclosure as well as being converted to steam at the flame front and entrained into the plume thereby displacing oxygen. Extinguishment is achieved by a combination of these mechanisms.

## WATER MIST HIGH PRESSURE

*High Pressure Water Mist systems* are those with operating pressures of 34.5 bar (500 psi) or greater. Water supply pressure can be provided by a high pressure pump (120 bar) connected to a tank or continuous water supply or by high pressure nitrogen cylinders (200 bar) driving a number of separate water containers. Mean droplet sizes of these systems are approximately 100-200µ (micron) in diameter and are ideally suited to most applications including Class A hazards.

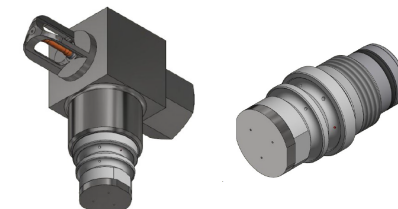
This means that High Pressure Water Mist systems can be used either in an open head configuration (deluge), or in a closed head configuration within an assumed area of operation (protection). In many cases, these systems are able to substitute for sprinkler systems providing equivalent protection with a fraction of the water usage.

A unique permutation of this technology is a Water Mist system specifically designed to extinguish fires in commercial kitchen environments, doing

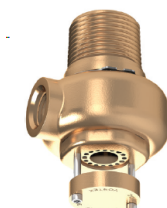
away with conventional wet chemical systems and the potential messy clean-up process. The system complies with AS 4587 and is LPCB approved for specific kitchen exhaust hood applications.



Automatic & Deluge Nozzles



New Energy Concepts Nozzles



Standard Hybrid Emitter



Intermediate Pressure Open Head Deluge Nozzle

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Novec 1230™ Fluid (FK-5-1-12)  
FM-200® / NAF S 227 (HFC-227ea.)  
Ecaro 125® / NAF S 125 (HFC-125)  
Carbon Dioxide (CO<sub>2</sub>)  
Hybrid Systems (N<sub>2</sub> / Water)  
Pressure Relief Vents  
Enclosure Integrity Testing Equipment  
Pipe & Fittings

### *Water Suppression*



Water Mist - High Pressure  
Water Mist - Intermediate Pressure  
Water Mist - Low Pressure  
Hybrid Systems (Water / N<sub>2</sub>)  
Monitors & Delivery Systems  
High Speed Deluge

### *Foam Suppression*



Foam Concentrates  
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Foam Concentrate Testing

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**‘Every solution for your special hazard problems’**