IPH

MIST SUPPRESSION LTD

Home to the only

Water Mist System

you should consider.

Documentation	An electronic copy of the ICO Fire Standard Operating and Maintenance Contracts will be provided.
Installation & Commissioning	We have assumed that all system commissioning and installation works shall be carried out on a continuous and uninterrupted basis during our normal working hours.
Tender Considerations	site visit tbc

Plans supplied by client. Quotation based on dimensions described by drawings.

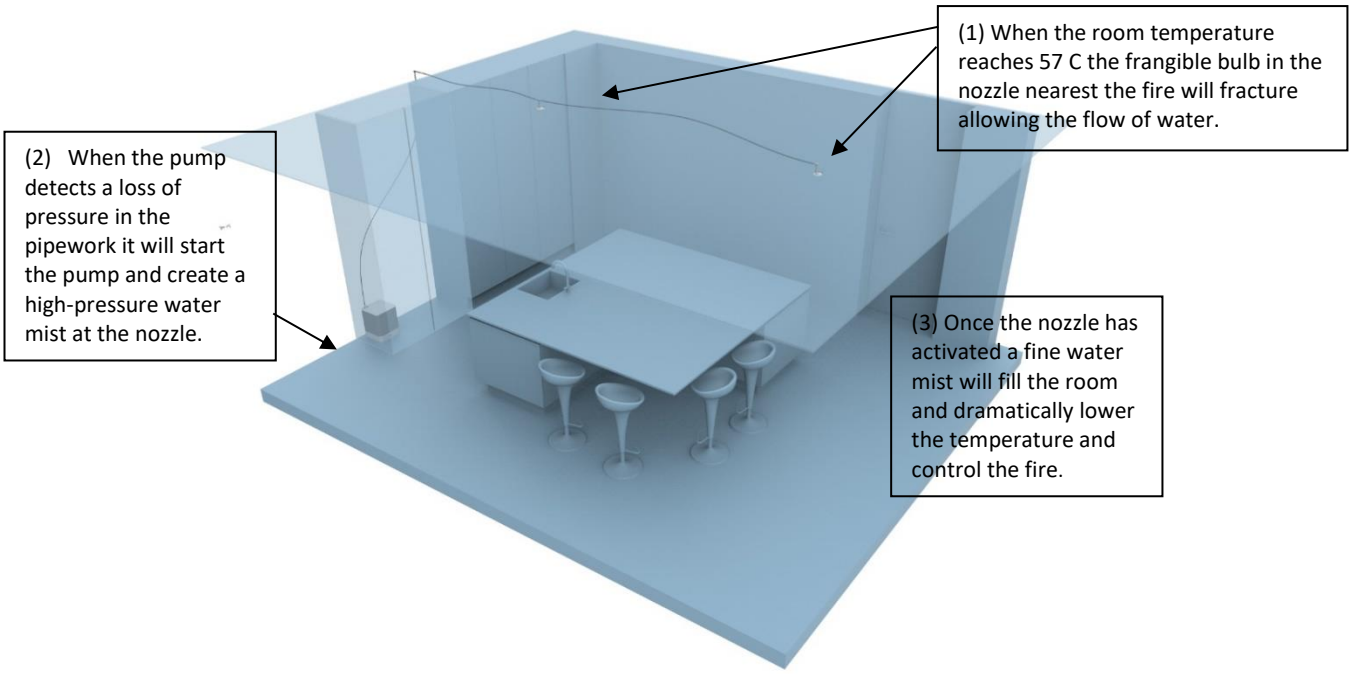
Nozzle count supplied by IPH Mist Suppression; detailed location supplied subject to acceptance of quotation.

PLEASE NOTE: When the use of an iCO System is specified to meet building regulation requirements, it is the client's responsibility to gain Building Control approval for any proposed iCO System design and installation before work commences.

Finance Available

We are delighted to offer a dedicated financial solution to clients who may require additional support to install their water mist system without delay.

Operati



Water Mist

Water mist systems optimise the quantity of water used through the distribution of very small droplets to achieve maximum cooling effect. The system operates at working pressures of 10 to 100 bars to produce droplets of very small diameter at very high speed.

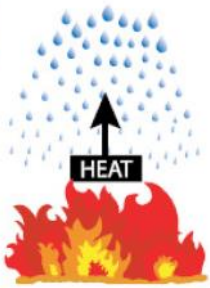
The fire extinguishing system uses water at high pressure as an agent and are based on principles of well-established hydraulic technology. The spray heads are designed to discharge water in the form of water mist. The tiny drops create a large effective surface area to cooling of the fire and surrounding volume. The high speed of the droplets means that the mist can penetrate the hot fumes and reach the combustion area.

Water spray in droplets of 700-200-micron size produces a large surface area for heat absorption. Once in contact with hot bodies and gases, these droplets turn to vapour absorbing a large quantity of heat.

The water in its vapour state occupies 1,600 times more volume than as a liquid and displaces an equivalent volume of oxygen, thus creating a smothering effect. If both the water vapour generated and the temperature in the hazard is high enough, the concentration of oxygen can fall drastically in the whole room.

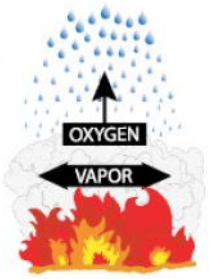
The mist cloud generated in the enclosure absorbs a large part of the radiated heat thus protecting the adjoining risks.

A



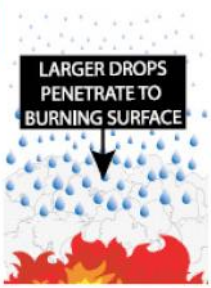
- Evaporation (heat extraction) is a function of surface area of droplets
- Reducing droplet size increases surface area
- Increase in surface area allows for larger cooling effect for a given flow

B



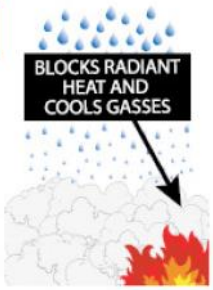
- Water converts to vapour expanding by a factor of 1650 times
- Oxygen is displaced and diluted, thereby blocking it from the fuel source
- Higher heat level causes a faster vaporization

C



- Fire extinguishment is improved with direct contact of water droplets
- This type of extinguishment is normally associated with standard sprinklers
- Important part of operation if ventilation is a factor and Class A combustibles are present

D



- Small water droplets tend to remain suspended
- The expanding mist will expand and cool the gases and other fuels in the area
- Blocks the transfer of radiant heat to the adjacent combustibles and pre-wets them

Water mist could be classified as safe for occupants and environmentally friendly as it is only made up of water droplets.

The mist fire suppression system discharges a fraction of the water normally experienced with conventional Sprinkler Systems and can be used safely and effectively on a wide range of risks without the fear of water discharge.

The mist cloud generated in the enclosure, absorbs a large part of the radiated heat thus protecting the adjoining risks.

Equipment Schedule

QT	Item
1	ICO Pump Unit
55	ICO Misting Nozzle
275	Hydraulic Flexible Hose (m)
TBC 1each	Adapters Check valve, Y Strainer, Lever ball valve, demand valve.
440	Tails & Ferrules
55	Male Elbow's and Male-Female Elbow's
55	3/8" Male Tee's
1	Inlet Manifold
1	¼" Isolation Valve
1	PDV
tbc	Tube Securing Clips
n/a	Stainless Steel Flex Fire Rated (m)
n/a	Pump internals
tbc	Springs & other accessories

Fire Testing

ICO is 3rd party fire tested to BS:8458 for use up to 80m2 (residential and domestic water mist)

ICO is 3rd party performance fire tested BS:9252 (residential and domestic sprinklers)

High Pressure Pump

The system will comprise of a compact Pump unit to be located adjacent to or in the risk in a ventilated cupboard. The pump will be connected directly to a copper water supply via a strainer and WRAS approved check valve. A water storage tank is not required.

The pump requires 230vAC 13amp power supply from an un-switched spur from a dedicated supply.

Each pump requires a minimum flow of 12ltr/min + the normal water demand for the property.
Total 24ltr/min to each dual pump location if covering more than the individual flats.

If it is not possible to achieve the required combined demand it is recommended to install a priority demand valve which will cut off the water supply to the rest of the property in the event of an activation. A priority demand valve can be supplied at an additional cost.

Pipework & Fittings

All flexible hose should be installed behind a fire rated barrier such as plaster board, any exposed pipe should be installed in stainless steel pipework. Pipework and other system components must never be exposed to temperatures below 4°C. Flexible hose should be kept away from all heat sources such as central heating pipes or lights. Pipework, fittings, and nozzles should never meet any other services.

Flexible Hydraulic Hoses will be provided in accordance with the specifications below.

Hose – 3/8” Thermoplastic Hydraulic Hose, 9.7mm internal diameter, 175bar working pressure, SAE 100 R7

½” SAE R7 Hose

Hose connection - Swaged 3/8” BSP swivel connection or Swaged 3/8” BSP male connection. (Swaged insert must not to be less than 5mm internal diameter)

Tee or elbow fittings - 3/8” bsp male hydraulic fittings or 3/8” BSP swivel fittings. Sealed with a hydraulic gasket seal and optional thread lock such as Bondloc 542

Exposed stainless steel pipework will be provided in the following size 10mm x 1mm. Fittings shall be DIN 2353 stainless steel compression fittings assembled in accordance with DIN 3859-2 or specific manufacturer’s recommendations. Other branded compression fittings may with the appropriate pressure ratings also be used.

Nozzles

The patented ICO nozzle is a multi-outlet stainless steel nozzle that sits flush to the ceiling. It is held into position with retaining springs which clip behind the plasterboard in a similar way to spotlights. The nozzle is small and discrete making it barely noticeable when installed.

Operation of the nozzles is by 57-degree liquid filled heat sensitive bulb. In the event of a fire the liquid in the bulb will expand and fracture the glass bulb which will allow water out of the nozzle and onto the fire. Only the nozzle nearest the fire will operate.

Water Supplies and Priority Demand Valve

If the water supply pipe runs through the protected area the supply pipe to the pump should be run in copper or pipework of a similar fire and heat resistance.

If plastic pipework is used for the water supply to the pump it should be installed behind and appropriate fire resisting barrier.

Where the mains water supply connection serves both the water mist system and the domestic supply, the water mist system should be capable of providing the water demand at the pump of 12lpm 1 bar plus at least 25 lpm. That is a total of 37lpm.

> NOTE 1 Attention is drawn to the water regulations, which might require a greater minimum flow rate.

Flows should be tested and verified at the main water supply pipe to the property. Should the flow be insufficient it may be required to install a priority demand solenoid valve that in the event of a system operation will shut off the water supply to the rest of the property and divert the full available flow to the ICO pump