



*Intelligent Fire Fighting with Water*



# Intelligent fire fighting with water

## What our customers say:

### Heritage:

"Safeguarding the nation's heritage is an awesome task which we don't take lightly. It calls for a fire suppression system which is not only highly responsive, but also minimises after fire trauma to priceless heirlooms and the fabric of the architecture."

### Manufacturing:

"I am pleased to say that the installation was accomplished without undue noise and mess; a critical factor when it comes to the manufacturing of delicate measuring instruments of the type we produce."

### Facilities management:

"Even though (thankfully) we have had no need to try the effectiveness of the Ultra fire suppression system, we are confident it provides one of the best value systems available on the market today."

### Leisure:

"Safeguarding the welfare of our customers is our top priority. For that reason we will not compromise and invest in the best fire suppression system that money can buy."

### Food:

"Involvement in the food industry is potentially hazardous bearing in mind the high temperatures and flammability of some of the products we use. We believe the quick response and effectiveness of the Ultra system is ideally suited to our needs."

The advantage of fighting fire with a fine spray instead of a high pressure water hose was first realised nearly seven decades ago. However, it took the application of modern technology to develop this pioneering idea into the environmentally friendly, intelligent fire suppression systems that are available today from Ultra.

The benefits of the water mist approach are numerous. It is free of chemicals, uses less water than conventional systems and results in significantly less post-fire trauma. Consequently full service can be resumed with minimum delay and cost.

Ultra's High pressure, Low pressure and Dynamic Flashover Control water mist systems offer solutions for leisure centres, offices, hotels and shops, and more extreme environments such as factories, restaurants with deep fat fryers, machinery and plant spaces, computer rooms, laboratories, historic buildings, power generation and telecommunications.

## Why you should consider water mist?

- **Neat, economical installation with small diameter pipes**
- **Low cost reinstatement after system discharge**
- **Causes minimal damage to surroundings**
- **Electric, pneumatic or manual activation**
- **Safe for personnel in occupied areas**
- **Rapid fire suppression and control**
- **Corrosion resistant components**
- **Enclosure integrity not required**
- **Uses existing control systems**
- **Smoke damage reduced**
- **Low water consumption**
- **Minimal whole-life costs**
- **Low maintenance costs**
- **Environmentally sound**
- **Easy to retrofit**

# A winning combination - high and low pressure water mist

## Environmentally correct

Ultra Suppression Systems is one of the UK's leading providers of high and low pressure water mist fire fighting systems plus supporting equipment. This includes extinguishing control systems and associated detection.

Our experience is not limited to water mist, we also have considerable expertise in specialist detection systems and a range of gaseous extinguishing systems.

## ULTRA - at the forefront.

Ultra is focussed on providing the highest quality fire fighting systems, best practice customer support, consulting expertise, technical guidance and advice. We can also provide service and maintenance.

The water mist systems Ultra supply have been fire tested by the Swedish Test Laboratory (SP) and the Norwegian Test Laboratory (SINTEF) to the standards laid down by IMO and SOLAS. The systems all comply with the requirements of the NFPA (National Fire Association Protection Code, USA).

## Why is water mist so effective?

- **Fast activation – no need for time delays**
- **Small droplets rapidly vaporize in flames and on overheated surfaces**
- **One litre of water mist produces 1760 litres of steam**
- **Expansion into steam starves fire of oxygen and absorbs heat energy**
- **One litre of water absorbs 2257kj of energy**
- **Water mist blocks radiated heat to prevent spread of fire**





## Low pressure water mist Life safety solutions

The non invasive qualities of the Ultra low pressure fire suppression system make it the preferred choice for people-based environments such as:

### **Hotels, Offices, Stately Homes, Utilities, Tunnels, Food Production, Leisure Industry, Replacement for Sprinkler Systems**

Ease of installation allows the system to be deployed for a wide range of architectural applications whether historic or state of the art. Once in place, its unobtrusiveness helps it to blend effortlessly into the background decor; always there, always ready!

The Ultra low pressure water mist system uses the minimum quantity of water necessary to fight the fire. Damage to the surroundings and clean-up time are therefore minimised.

It is for this reason that the Ultra low pressure water mist system is much favoured by the heritage sector.

# Fogtube and Dynamic Flashover Control

FogTube®  
is the latest  
product to be  
offered by Ultra  
Suppression Systems.

On first examination this appears a relatively simple product - but its simplicity belies the many years of development and full-scale fire testing undertaken before introducing this highly effective product to the fire fighting market.

Essentially FogTube® is a precision adapted tube that creates a water mist without the need for separate discharge heads. It is ideal for fire fighting in those applications where the discharge pipe network is normally exposed. A FogTube® system runs at low pressure (typically 4 – 16 bar) and offers very cost effective and efficient fire suppression and control at discharge rates far lower than conventional sprinklers.

A Dynamic Flashover Control System is where the water mist produced by FogTube® is used to control fire in an enclosed space by cooling the smoke plume and suppressing the fire beneath it. The system offers a temperature-dependant staged release of the minimum possible quantities of water mist necessary to control an incident. Without control, the temperature of the plume in the enclosure would increase to a point where the Carbon Monoxide would ignite if sufficient Oxygen became available. This phenomenon is known as 'Flashover' and can rapidly cause total destruction.

Being a low pressure system the Flashover Control can be installed as a dry pipe system connected to the Fire Service water inlet.

Alternatively, like all FogTube® systems, it can be connected to a guaranteed water supply, possibly with the assistance of electric or pneumatic pumps, and operated manually or automatically via control valves. Where water and electrical supplies are poor or non-existent, the FogTube® can be supplied with water from an accumulator pressurised by inert gas.

## **ULTRAFOG<sup>®</sup> high pressure water mist** **An engineering solution**

Cheviot Foods, manufacturers of ready to heat and eat foods, suffered a fire in a deep fat fryer that led to the destruction of 25% of their factory. It was found that the existing CO<sub>2</sub> system had failed to control the fire and it was agreed to replace it with a water mist system. Following a comprehensive site survey, Ultra designed and installed a central-bank high pressure water mist system. This was done during a plant shutdown with no disruption to production whilst, at the same time, the old system was removed.

The water mist is directed at each fryer via diverter valves and is controlled by a master panel in the process office. This alerts staff via sounders once fire has been detected by stainless steel heat probes. On receipt of a fire signal, the system discharges a water mist into the affected area for 10 minutes whilst relays and an interface in the control panel shut down the fryers. The staff is simultaneously alerted to the danger by the house fire alarm.

After the main cylinder bank has been discharged the reserve bank can be switched on with a key-switch mounted on the control panel. This enables water mist protection to continue until the main cylinder bank is replenished.

The non-invasive qualities of the Ultra high pressure water mist system make it the preferred choice for people-based environments such as:

**High Voltage Applications, Hotels, Offices, Gas Turbines, Stately Homes, Utilities, Tunnels, Food Production, Machinery Spaces, Leisure Industry, Replacement for Sprinkler Systems**

# Ultra high pressure water mist systems

## Definition

ULTRAFOG® is a Class I high pressure water mist system as defined by the National Fire Protection Association (NFPA 750) and draft European (CEN) standards. The systems operate between approximately 60 and 200 bar with droplet sizes ranging between 10 and 200 microns.

## Performance

The use of high pressures and a range of specially developed discharge heads mean an ULTRAFOG® system will generate a range of droplet sizes that ensure effective fire fighting. The efficiency of an ULTRAFOG® system is such that it will use less than 20% of the water discharged by a comparable conventional sprinkler system.

ULTRAFOG® systems and components are tested by the Swedish Test Laboratory (SP) that is fully authorised by the International Marine Organisation (IMO) and accepted by NFPA. The systems are tested and approved to the requirements of IMO Res. A.800 for accommodation spaces, stores and service spaces, IMO Msc/Circ. 668+728 and IMO Msc/Circ. 913 for machinery spaces and pump rooms. Component testing is also undertaken by Underwriters Laboratories.

## Intelligent Options

ULTRAFOG® systems can be configured in several ways:

### Open (Deluge)

A water fog system using open discharge heads attached to a pipe network that is connected via a valve to a pressurised water supply. The valve is controlled mechanically or by means of a detection system. When the valve is opened, water flows into the pipe network and is discharged through all the heads attached to that network.

### Wet Pipe

A water fog system using automatic (frangible bulb) discharge heads attached to a pipe network containing water and connected to a pressurised water supply. The water will discharge immediately from any head opened by the heat of a fire.

### Dry Pipe

A water fog system with its pipe network filled with compressed air. When a discharge head is opened by the heat of a fire the drop in pressure causes a dry pipe valve to open. Water under pressure then enters the pipe network and discharges through any opened heads.

### Pre-Action

A water fog system as described above but with a supplemental smoke or flame detection system covering the same area. Actuation of the detection system will also open the dry pipe valve and allow water to fill the pipe network. If heat then opens one or more automatic heads, water will be discharged immediately.

## **Gaseous Suppression Systems**

Gaseous suppression systems are used extensively for the protection of assets. Typical examples are small Hub rooms and other EDP areas. Ultra Suppression Systems are able to provide a range of gaseous fire suppression systems using well-proven proprietary equipment. The range includes inert gases (e.g. Pro-Inert, Argonite), Carbon Dioxide and the clean chemical gases FM200, Novec 1230 and FE25.

Using isometric design and flow calculations, we can install brand new systems as well as extend or modify existing systems.

A number of the gaseous systems will increase the air pressure within the protected space. Where the fabric of the building requires excess pressure to be avoided, Ultra will include for over-pressure relief ventilation in their proposals.



## **Extinguishing Control Systems**

To monitor and control fire fighting systems, Ultra is able to provide the latest detection, alarm and control systems to comply with the recommendations of British Standards 6266, 7273 and 5839.

We also have considerable expertise in the application of high sensitivity aspirating smoke detection and can provide systems complying with the BFPSA Code of Practice.

## **Enclosure Integrity Testing**

It is important that spaces protected by gaseous fire suppression systems do not allow the fire fighting agent to leak away. To ensure the space is suitable we offer a room integrity fan pressure testing service. We also offer this service as part of our preventative maintenance package, particularly where the room is subject to regular equipment and cabling modifications.

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