



In case of fire, you
don't need this.



You need this.



 **HI-FOG[®]**
water mist fire protection

About 5,500 HI-FOG[®] Water Mist Fire Protection Systems are installed and working worldwide. On land, HI-FOG[®] is protecting industrial and energy installations, buildings, metro systems, road tunnels, museums and hotels. At sea, HI-FOG[®] protects most of the world's largest cruise ships.

The performance record of the HI-FOG[®] installed base is exemplary. The system's efficacy, reliability and long service life are proven both in the field and in the 6,000+ full-scale fire tests conducted by Marioff to test the outer limits of the system's performance.

HI-FOG[®] has earned more type approvals than any other water mist system. Visit www.marioff.com for more.


A UTC Fire & Security Company



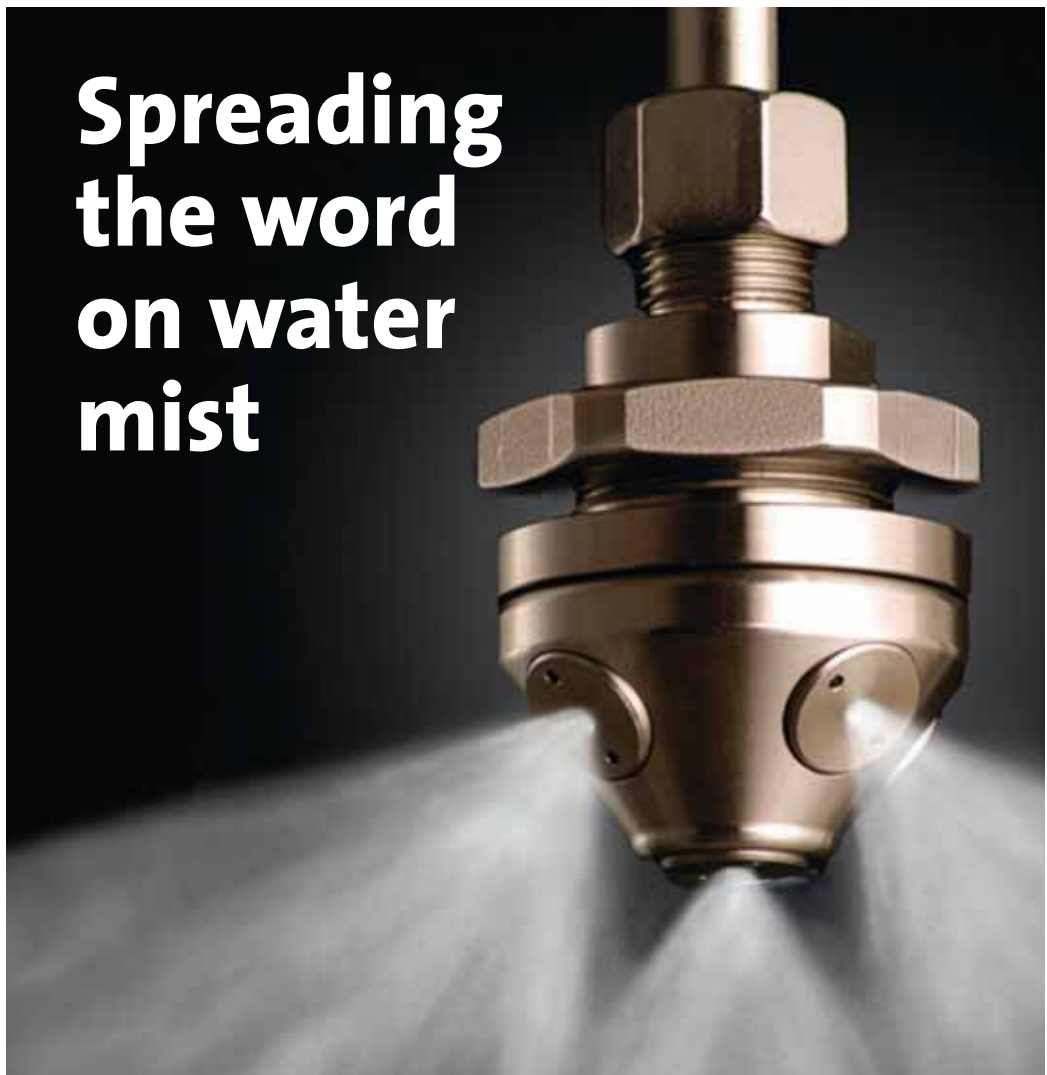
While water mist continues to find new industrial applications it still faces a safety culture reluctant to change. Dan Worth reports.

“Because we use only pure water with no extra chemicals, it is very safe. This means you can set it off straightaway without having to wait for people to evacuate, like you do with gases and foams, by which time a fire can have already taken hold.”

Marco Pesaola
Eusebi Impianti

Top: LPG water mist nozzle. LPG's Alex Paulau admits that water mist does have its limitations – it is not so good at dealing with fires inside computers, for example.

Spreading the word on water mist



Marioff, a Finnish company that has been operating since 1985, supplies one of the leading high-pressure water mist systems for fire protection, known as Hi-Fog, used in many land-based and marine-based applications. On the marine side, Hi-Fog protects the majority of large cruise ships.

The marine environment offers many challenges because space and weight constraints are a major issue in ship and oil rig designs. Communication Manager at Marioff, Svend Videbæk, explains that in these environments traditional sprinkler systems require too much water and take up a lot of space, and gas and foam systems can be very dangerous to humans and so are not feasible. “Our Hi-Fog water mist system uses very little water and is very compact so installation is simple; in one major European shipyard we have kept to every single section installation deadline for a number of years.”

In marine applications, the benefits of a fire protection system that uses water while taking up little space are clearly huge, and it is no surprise that Hi-Fog has consequently become the de facto standard, notes Svend. “Since this technology came along in 1991 the regulations have evolved to match the technology and validate its performance. When it first appeared, there were no industry standards for this type of technology doing the job of fire protection, which underlines just what an impact it has made.”

On the land side however some resistance has been

encountered – or lack of knowledge – regarding water mist systems for fire protection. Svend concedes there is much work to be done: “It is in human nature to stay with what you are comfortable with and what you know works, but we have the arguments and experience to convince people to evaluate our Hi-fog water mist system so that they can see (for themselves) it is the better solution.”

Water mist technology for fire protection is rising in land-based applications however, because of the advantages in terms of reduced water usage and damage in case of fire.

It can cover very large installations across many different applications such as tunnel fire protection – a relatively new area for water mist technology – and here Marioff has won a major contract for the protection of the A86 West tunnel, part of the super ring-road project in Paris. On this project work is proceeding apace, remarks Svend, “When the installation is finished it will be the largest high-pressure water mist system in the world.”

The ease of installation of water mist systems is another of its major advantages. Because the systems can operate with less nozzles than sprinklers (roughly one water mist nozzle to four sprinklers), it makes installation cheaper, easier and more efficient. Fewer nozzles can be concealed discreetly, which is an important factor in many buildings – industrial or non-industrial – such as the National Gallery in London.

The continuing rise in water mist systems usage

VID APS pipes being tested in a chemical plant. Being able to carry out regular system tests is another benefit of water mist systems.

“This would reduce the dangers of ships flooding under the weight of water being used when fires are being fought – something that traditional sprinkler systems sometimes caused.”

Marco Pesaola
Eusebi Impianti



underlines its numerous benefits. Marco Pesaola of Eusebi Impianti explains that there are safety aspects of water mist that make it a much better option in areas where people are working, such as in shipyards or oil refineries.

“Because we use only pure water with no extra chemicals, it is very safe. This means you can set it off straightaway without having to wait for people to evacuate, like you do with gases and foams, by which time a fire can have already taken hold. Even if it’s a false alarm there is no harm done – although the workers do get wet!”

Additionally, the fine mist means that visibility is not reduced that much, so workers can still safely evacuate the facility even as the water mist is running.

The amount of water used is another major benefit. In recent tests in areas of 2,000 cubic meters the water mist system performed very well, using six

litres a minute, over 15 minutes, from eight different nozzles (as per IMO/MSC 1165 standard). As Marco notes, “This works out at just 0.024 liters per nozzle per minute per cubic meter to extinguish the fire, which is a very low amount.”

This low water usage has led the International Maritime Organisation (IMO) to approve a new standard that would make water mist the compulsory system for car decks in ferries. Marco explains, “This would reduce the dangers of ships flooding under the weight of water being used when fires are being fought – something that traditional sprinkler systems sometimes caused. The standard will now go before the Maritime Safety Committee (MSC) for final approval.”

Cost factor is another advantage of low-pressure systems, explains Carsten Palle of VID APS. “The complete system can be installed as a single complete unit, making it easier and cheaper. And as it is made with thin-walled stainless steel pipes you can, in the long run, save money on the maintenance of many installations. Furthermore, it is possible to carry out tests on the system once a year, which is something you cannot do with foams or gases.”

The use of water mist in processing plants is another example of the capabilities of this system, especially when fighting oil fires and other flammable liquid fires. Due to the small size of the water drops and their relatively large surfaces (compared to their volumes), the water easily evaporates into steam, reducing the oxygen concentration in the air.

Carsten points out that raising awareness of this technology is something that takes time and the data and trials need to prove that it works: “You need statistics to get people to see that the technology does work and at first it was hard to do this. But enough people have started to use the systems and so we have been able to collate information and get good data.”

However, this is not to say that water mist will replace sprinkler systems or gas systems in every

Marioff is currently building the largest high-pressure water mist system in the world, the A86 West Tunnel, part of the super ring road project in Paris.



application. "I worked in the sprinkler industry before this," says Carsten, "and I have seen the benefits of both. I believe both have their different roles within different applications. Water mist is an excellent addition to the firefighting systems range, alongside gases, foams and sprinklers, but as much as educating people about its benefits, it's important to remember it is not a catch-all system for all areas, so people need to make sure they choose the correct system for their specific needs."

This is a sentiment that Alex Paulau of LPG echoes; "Water mist is a great system but like everything it has limitations that people need to be aware of."

"It isn't quite so good at dealing with small fires inside things, such as computers, and in areas where electrical equipment must be kept operating, again in computer housings, gaseous systems are as effective and shouldn't interfere with electrics."

However, Alex is quick to point out that the environmental impact of water mist is very low. "We don't use any additives in our water, and this also means workers can feel safe while they work."

As well as oil rigs and refineries LPG have begun installing water mist systems in aircraft hangars. "The use of foams has been the traditionally favoured system for hangars, but the danger of foam to workers means that water mist could become a more standard installation in these areas as well."

Diep Ngoc Phan of Danish company Novenco underlines the growing use of water mist. Novenco has been operating low pressure water mist systems for around six years on sea and three years on land environments. It now has installations covering industrial applications in Norway, Iceland and Oman. "We have around 40 projects ongoing and several that have finished recently."

In the UK, Novenco manages its operations through

a company called Ultra Suppression Systems. Managing Director Peter Kemp explains further how water mist nozzles can operate more efficiently than sprinklers; "Low pressure systems are targeted to building protection using 4-12 Bar of water pressure through a pump and tank system. The unique 25m² range of each nozzle means you need fewer nozzles than traditional systems, and as the system uses less water than traditional sprinkler it means you can have smaller pipe sizes, pumps and tanks." The smaller, more efficient nature of water mist means it can be used to greater effect in areas where space is at a premium. The approval for water mist systems is something else that is taking some time to become better understood.

Sprinklers have for a long time been the mainstay of marine and land industrial applications, and water mist systems need to make sure they surpass the standards required of them. The need to make water mist a more accepted system is clear to Peter Kemp because its benefits are making it the favoured system in many areas. But proof is still necessary: "As certain authorities require hard approvals which are traditionally based around sprinklers, we use practical modern fire tests based on fire loads and compartment openings principally found in public spaces, cabins and machinery spaces."

Water mist seems to have many answers to many problems but like every technology it suffered from misunderstandings at its inception. While it isn't a perfect solution for every application (and doesn't claim to be), it clearly has a large role to play. Peter Kemp of Ultramist perhaps sums it up best. "Water mist technology is a dynamic industry where a cohesive effort is needed to co-ordinate the knowledge and methods for a greater understanding of its uses and applications." ■

"Water mist technology is a dynamic industry where a cohesive effort is needed to co-ordinate the knowledge and methods for a greater understanding of its uses and applications."

Richard Kemp

Ultra Suppression Systems

LIFTING OUT OF LIMITS!



Aircraft Recovery Systems

- new technology runs on 1.0 bar
- quick-action filling
- special recovery system / upgrade set for A380
- individual contour adjustment sets
- special constructions on request
- high flow rate of the controllers

VETTER Aircraft Recovery Systems

IDEX CORPORATION



Aircraft Lifting Bags



Contour adjustment with vacuum chambers



Lifting tackles

Please ask for the new catalogues!



Vetter GmbH
A Unit of IDEX Corporation
Blatzheimer Str. 10-12
D-53909 Zülpich - Germany
Fon: +49 (0) 22 52 / 30 08 - 60
Fax: +49 (0) 22 52 / 30 08 - 71
vetter.info@idexcorp.com
www.vetter.de

JAWS OF LIFE.