

Green, greener, watermist

After three decades of rigorous testing and scrutiny of systems and equipment, the watermist community has never been more ready to face the eco-challenge.

Sustainability and eco-friendliness are en vogue. Everybody talks about climate change. People who have tried to avoid this topic in the past have to, or actually want to face it now as the need to counter steer is manifest. Humankind has an impact on nature, and all too often it is a negative one. Some people argue that the living conditions and the climate have always changed, and that of course, is absolutely true. However, Earth Overshoot Day is coming earlier every year. So, would less actually be more? Erling

Mengshoel, Prevent Systems' chairman of the board, adds: 'We live in a world that is increasingly focused on sustainability and reducing our carbon footprint.'

When did this start? In the 1980s when the world acted to save the ozone layer? Then, the news that chemicals found in many personal hygiene products had caused a hole that was getting bigger and bigger was dramatic and spurred the signing of the Montreal Protocol. One of the substances that was then banned was halon. Regarding fire protection, its phasing-out left a gap which was filled by watermist technology.

Those involved in watermist have used the time since then very well. They have

tested systems and equipment, have developed fire-test protocols for all kinds of different scenarios and different hazard categories. One of the most important outcomes was the implementation of EN 14972-1:2020 this summer. Erling Mengshoel explains: 'As standards are published and builders, contractors, consultants, designers, installers and the authorities having jurisdiction are made aware of them, it makes it easier to specify systems that comply with the standard and reject most of the solutions that do not.'

But coming back to the green aspect: What makes watermist systems green, sustainable, eco-friendly? The first two points here are that watermist systems use water and indeed not a lot of it.

They use up to 85% less water than traditional sprinkler systems and are either connected to the mains or a tank. If they are connected to a tank, this tank obviously does not need a lot of expensive square meterage. The other option – using the mains and thus the existing infrastructure – makes the systems so attractive for home and building owners. If they choose watermist, they get a system which not only protects the building itself but also increases the level of life safety, by attacking the fire without the use of harmful substances and by using less water, which reduces the possible collateral water damage.

So, with a smaller tank or a connection to the mains we are talking space savings, obviously also material savings and consequently cost savings. The same applies to other vital components such as pipes, valves and pumps.

Another point in favour of watermist is the fact that it is quick to install and easy to retrofit. Watermist systems are often integrated into existing buildings and some customers prefer not to or simply cannot give up the space for a tank. Especially in historic buildings the integration of a fire protection system can be intricate and the possibility to have no tank and to use pipes that are smaller in diameter makes

watermist systems so eligible. And should the need arise to extend an existing system with additional areas having to be included into the overall fire protection concept, the minimum required nozzle pressure can easily be reached.

When it comes to the longevity of systems, the International Water Mist Association (IWMA) strongly recommends the use of stainless steel. IWMA general manager Bettina McDowell says: 'It prevents corrosion which is not only beneficial for the conservation of the system but also lowers the risk of contamination. Plus, it is an important step towards circular construction concepts.'

A challenge in areas like the nuclear industry, pharmaceutical and electronic manufacturing is the disposal of the residue after fire incidents. The water discharged by a watermist system is much less in quantity and therefore easier to contain and much less expensive to dispose of.

The amount of water is indeed a recurring theme. Erling Mengshoel explains: 'Whoever is involved in the automatic water fire suppression systems industry should know that 5mm per square metre per minute water density is not the most effective fire suppression water density for all ordinary hazard areas. There is a difference in protecting a small office, a theatre hall, a parking garage and a void above a false ceiling, yet they all require the same water density (5mm per square metre per minute) with traditional sprinkler heads. At the same time watermist has proven for years and years that it can provide better fire suppression with a lot less water.'

Bettina McDowell adds: 'Watermist is not a one-fits-all concept. It is a performance-based technology which means that you will always get a bespoke system for your application which is based on a real-scale fire test.'

A further aspect: the reduced amount of water discharged also reduces the overall damage. An important point here is: the less water there is the quicker it evaporates. This again means cost savings because there is less downtime for businesses and looking at it from the environmental perspective we are talking about less waste and thus the possibility to salvage resources as less infrastructure, furniture, equipment have to be replaced.

Then there is also the room-filling



Image courtesy of Aquatys

▲ High-pressure watermist nozzle heads.



Image courtesy of IWMA / Marco Ter Bok

▶ Erling Mengshoel, chairman of the board of Prevent Systems.

effect: due to the size of the droplets, watermist is well distributed, fills many nooks and crevices within seconds of activation, something that the languorous sprinkler droplets cannot accomplish. It can be carried around with the air flow and is therefore not depending on hitting the fire directly. It is thus able to control or extinguish even concealed fires.

Watermist is permanently discharged and that way the area is continuously fed with new fine droplets. Most of them can directly interact with the source of the fire. All this leads to a cooling effect that prevents re-ignition and a good shielding of heat radiation and in consequence insulation of the fire. And when it comes to smoke control watermist will efficiently cool the smoke layer preventing the hot

gas layer contributing to further fire spread. The watermist will also clean out some of the smoke particles.

Based on all these facts, more end customers choose watermist. One reason is that the technology is eco-friendly in itself. The other reason is that more buildings are designed with the environment in mind and choosing a watermist system makes perfect sense.

The protection of the environment has been identified as one of the most important – if not the most important – challenge to be faced by humanity in the 21st century. One way to face the challenge is by green design – using the EN 14972-1:2020 watermist standard as a basis.

➡ For more information, go to www.iwma.net

▼ Spraying nozzles producing mist.



Image courtesy of Danabest Fire Safety