

WATER MIST FIRE PROTECTION FOR DATA CENTRES

Water mist systems are increasingly protecting hyperscale data centres, combining efficient fire suppression with reduced water demand and infrastructure impact

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The market for water mist is growing. One of the applications at the forefront is the protection of data centres.

LOW-PRESSURE WATER MIST PROTECTS HYPERSCALE DATA CENTRE FACILITIES IN PARIS

The rapid expansion of hyperscale digital infrastructure is creating new challenges for fire protection engineering. Data centres combine high-density electrical equipment, critical IT infrastructure and complex mechanical systems, requiring fire protection solutions that can respond quickly while minimising the potential impact on sensitive equipment.

An example of where this technology has been implemented is the Digital Park campus in La Courneuve, north of Paris which was developed and is operated by Digital Realty. The campus consists of four facilities delivering a combined IT capacity of 76 MW.

Within this development, engineering contractor Mercury led the delivery of the PAR10 and PAR11 facilities, supporting the construction of highly resilient data centre infrastructure designed to meet the growing demand for cloud computing, Artificial Intelligence and digital services.

The PAR10 and PAR11 buildings required a fire protection solution capable of protecting multiple operational areas, including data halls, technical rooms and generator areas. To address these requirements, a low-pressure water mist system was implemented to provide integral protection across the facilities.

The installation includes approximately 7,000 water mist nozzles and around 200 control valves integrated within the building infrastructure. The system suppresses fire primarily through rapid cooling of the fire environment, as fine water droplets absorb heat and reduce temperatures in the combustion zone.

Riccardo Cerati, Global Business Development Director at VID Firekill, said: “Unlike traditional sprinkler systems, water mist technology can significantly reduce water demand while allowing more compact piping networks.

“This allows for more compact on-site water reserves and drainage systems while maintaining the level of protection required for critical infrastructure environments.”

THE IMPORTANCE OF APPROVED INSTALLATION

Lee Haines, IWMA (International Water Mist Association) Director and Sales Director at Fireworks Fire Protection Ltd, said: “The installation of water mist fire protection systems is a highly specialised activity that must be undertaken by a competent and approved installation company. It is imperative that the installer is an authorised partner or distributor of the original equipment manufacturer (OEM). This approval demonstrates that the installer has direct access to the OEM’s technical support, system components and up-to-date design requirements.”

Approved installers are required to have completed OEM led training and certification. This training ensures that engineers fully understand system design principles, hydraulic calculations, component selection, commissioning requirements and ongoing maintenance obligations. Certification provides assurance that the system will be installed in accordance with the manufacturer’s tested and approved methodology.

Prior to installation, the OEM must have undertaken comprehensive fire testing at an ISO accredited fire test laboratory. These full-scale fire tests form the basis of the system’s performance claims and are essential in demonstrating compliance with recognised standards. The test programme results are captured within a Design, Installation, Operation and Maintenance (DIOM) manual which defines the exact conditions under which the system has been proven to perform, and which installers must strictly follow to ensure that real world installations replicate the tested configuration.

Correct installation by an approved and trained contractor is therefore critical to system effectiveness, regulatory compliance and life safety. **FB**



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