



Marioff HI-FOG® high-pressure  
water mist fire suppression.

# Fire protection on Land

# A world leader in water mist fire protection

With us, you get a high-quality HI-FOG fire protection system and a complete end-to-end solution with professional support throughout the system's lifecycle.

Since its launch in 1991, our HI-FOG water mist fire protection system has had a reputation for reliable fire suppression performance, and has become an industry benchmark for water mist fire protection.

Today we are a leading supplier of high-pressure water mist fire protection systems, and the challenge of keeping your people and business safe drives our team of specialists forward. We find solutions that fit our customers' needs best.

## **A trusted building and industrial fire protection system**

The HI-FOG high-pressure water mist fire suppression system secures the fire safety of many types of buildings, industrial processes and equipment as well as infrastructure.

We have the expertise to design and manage large and complex fire protection systems worldwide. Our solutions can be installed in even the most challenging areas in your buildings and processes.



A photograph of a modern office interior with large glass windows and a blue overlay on the left side containing text. The office has a high ceiling, metal beams, and a polished floor. A man and a woman in business attire are standing near a glass railing, looking at a document. The blue overlay is semi-transparent and contains white text.

## HI-FOG water mist fire protection system

The HI-FOG system discharges a fine water mist at high velocity and requires only a small amount of pure water to suppress fire effectively. With very little clean-up needed, downtime is kept to a minimum and business continues.

### Reasons to choose HI-FOG

- Excellent firefighting performance proven through recognized third-party testing and approvals
- Low water usage that minimizes water damage, renovation cost, and business downtime
- Water mist is a safe choice, both for people and for the environment
- High-quality system components that ensure a long system lifetime, making HI-FOG systems a sensible choice both ecologically and economically
- HI-FOG systems are scalable to cover various needs
- Easy installation saves time and is cost-effective
- Space-saving piping and water supply solutions leave more room for your operations

# Tested and type approved

We make no compromises in protecting life and business. Our in-house R&D, manufacturing and quality control with actual fire tests have shaped HI-FOG into a top-notch fire protection system.

Thousands of full-scale fire tests performed on our products ensure that the performance of HI-FOG systems is top-quality. The HI-FOG system has received over a hundred type approval certificates for a wide range of applications.

This approach ensures that our products and systems meet the highest quality standards, are certified for their intended use and meet the needs of your business.

We have promoted setting standards for water mist fire protection systems globally since the 1990s.



# When should you choose a high-pressure water mist firefighting system?

The HI-FOG high-pressure water mist firefighting system is an effective, safe, and versatile choice for the fire protection of a wide range of applications both on land and at sea. It uses natural water mist to fire protect buildings, people, and property.

## HI-FOG water mist firefighting systems for different fire classes

Fire classes divide fires based on the fire hazard, i.e. which type of combustible fuel is present. Fire class standards vary across the world, and we have included the United States and European fire class standards in the table below. Each fire class is best served by a specific HI-FOG system type. You can always contact us to discuss your local needs.

When to choose water mist fire protection?

Symbol						
Fire Class (EU)	A	B	C	D	Unclassified	F
Fire Class (US)	A	B	B	D	C	K
Fire Hazards	Ordinary solid combustibles	Flammable liquids	Flammable gases	Combustible metals	Energetized electrical equipment	Cooking oils
HI-FOG® water mist system applicability	✓	✓	✓ (*)	✓ (*)	✓ (**)	✓
HI-FOG® system type	Sprinkler system	Deluge system	Deluge system	Deluge system	Sprinkler system	Deluge system
Example reference	Hotels Cruise ships	Machinery spaces	Industrial applications	Industrial applications	Data centers	Industrial oil cookers

(\* contact Marioff to verify application)

(\*\* electrical safety measures need to be evaluated)

# Water mist system performance

There are many factors which affect the performance of a water mist system:

- Water mist spray quality
  - Water pressure
  - Droplet size distribution
  - Flux density
  - Spray dynamics
- Water mist system type
- Sprinkler and spray head spacing
- Size and features of the protected space

With our expertise, we can help you to choose a water mist system to fit your unique needs.

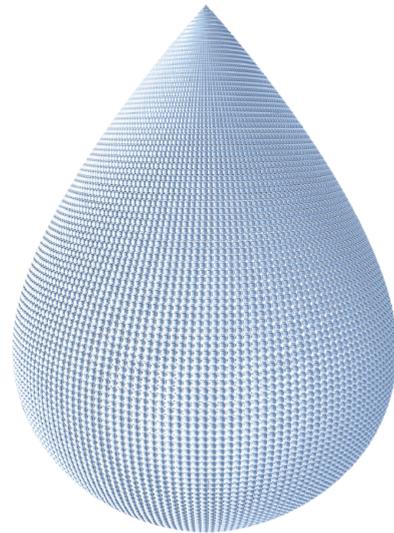
The HI-FOG fire protection systems are the result of a simple yet brilliant innovation which allows for fighting fire with a minimal amount of water: the combination of high water pressure and specialized sprinklers and spray heads allows the fine water mist to disperse effectively. The water mist produced by the HI-FOG systems is therefore optimized specifically for fire protection purposes.



## Water mist fire protection in brief

Water mist consists of very small water droplets. The superior fire suppression capability of water mist is based on evaporation: when tiny water mist droplets turn into vapor, a great amount of energy is absorbed from the fire. This makes water mist an excellent choice for fire protection.

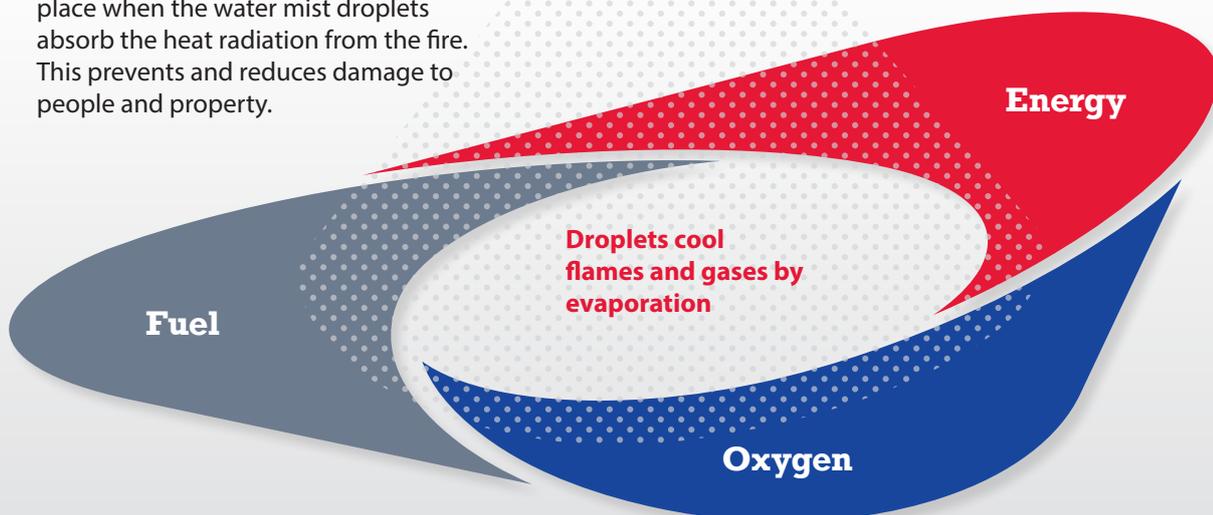
Water mist fights fire in three ways. Each of these methods affect the three elements in the "fire triangle", which consists of oxygen, heat, and fuel.



### Cooling the heat

The cooling effect of water mist takes place when the water mist droplets absorb the heat radiation from the fire. This prevents and reduces damage to people and property.

Nozzles discharge fine water mist at high-velocity



### Wetting the fuel

Wetting the fuel and the area around the fire is an effective way to suppress fires involving solid fuel, and it also prevents the fire from spreading to other areas.

### Displacing the oxygen

Oxygen displacement happens at the heart of the fire, when water mist droplets turn into vapor and take oxygen from the fire.

# Types of HI-FOG water mist systems

The HI-FOG water mist systems can be optimized to offer fire protection for a variety of locations. The HI-FOG components are chosen based on the needs and risks of the protected space. Because of this, you'll get a precise fire protection solution without extra parts and redundant costs.

In addition to being able to customize single systems, we offer holistic fire protection solutions by combining different types of water mist systems to secure demanding locations.



## Wet pipe fire suppression systems for buildings

Wet pipe fire suppression systems have water in their tubing under normal conditions. In the case of a fire, the water is discharged as fine water mist through the sprinklers. Since water is already in the tubing, discharge begins immediately after the sprinkler opens.

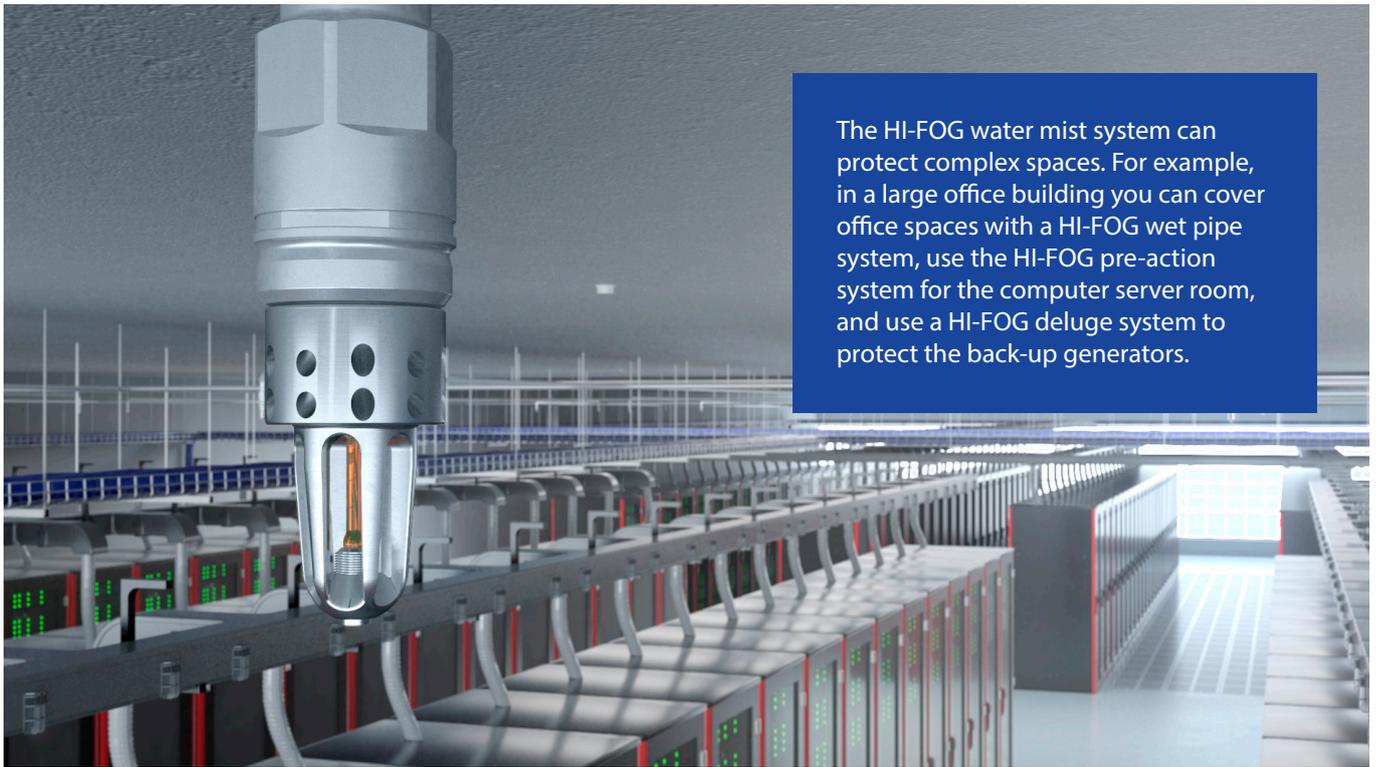
HI-FOG wet pipe fire suppression systems are a dependable choice for many different types of applications, such as offices, hotels, accommodation areas, and service spaces.



## Deluge fire suppression systems for industries

Deluge systems have dry tubing and open spray heads under normal conditions. When the system is activated, a section valve in between the piping and the water supply is opened.

Deluge systems for local application systems are activated only around the specific object, so they provide targeted protection for critical machinery. Volume protection systems (total flooding systems) activate an entire water mist system section at once and protect a larger area.



## Dry pipe fire suppression systems for freezing conditions

Because the piping in the dry pipe fire suppression system is not filled with water but instead with compressed air, the pipes will not freeze even when the temperature drops below zero. A valve keeps the water on the side of the pump in the tubing network.

They are a safe choice for challenging environments where frozen pipes could cause problems.



## Pre-action fire suppression systems for water sensitive sites

Pre-action fire suppression systems are connected to a fire detection system. The piping is dry under normal conditions, and water flow is prevented by a valve. Before water is discharged as fine water mist, the system requires both a signal from the fire detection system and the sprinkler bulb to break from heat.

Pre-action systems are an ideal solution for water sensitive environments, for example data centers, museums, archives, and heritage buildings.

# HI-FOG system components

The HI-FOG water mist fire protection system components are the key to effective fire protection. Each HI-FOG system is tailored with a unique set of specialized components optimized to suit your specific fire protection needs.

The HI-FOG pump units typically use a feed pump which moves the water from the water source to the HI-FOG system at a steady pressure. Maintaining the correct pressure in the inlet water flow is important, as it ensures

that the system functions correctly. The water is then moved along the tubing network to the sprinklers or spray heads where it is discharged as high-pressure water mist.

The HI-FOG systems can use either water supply lines, water tanks or water cylinders as their water supply.



## Sprinklers and spray heads

High quality HI-FOG sprinklers and spray heads make our system ideal for fire protection. In sprinklers, a heat-sensitive glass bulb breaks during a fire, allowing water to discharge. Spray heads are activated manually – or automatically with the help of a fire detection system.

The reliability of the sprinklers and spray heads has been verified through numerous type approvals. Our in-house R&D, manufacturing, and quality control ensure the quality of every HI-FOG component.



## HI-FOG Land Pump Unit (LPU)

The LPU is the robust and reliable heart of your HI-FOG system. After VdS full-scale product tests, the Land Pump Unit is certified for all VdS approved HI-FOG applications with electrical pump unit. It is optimized to work with HI-FOG sprinklers and spray heads, making the total HI-FOG water mist solution highly efficient.

The LPU is modular, which means you can get the exact number of pumps you need, and the unit fits different kinds of pump rooms. We can optimize the features of the LPU to fit your specific need.

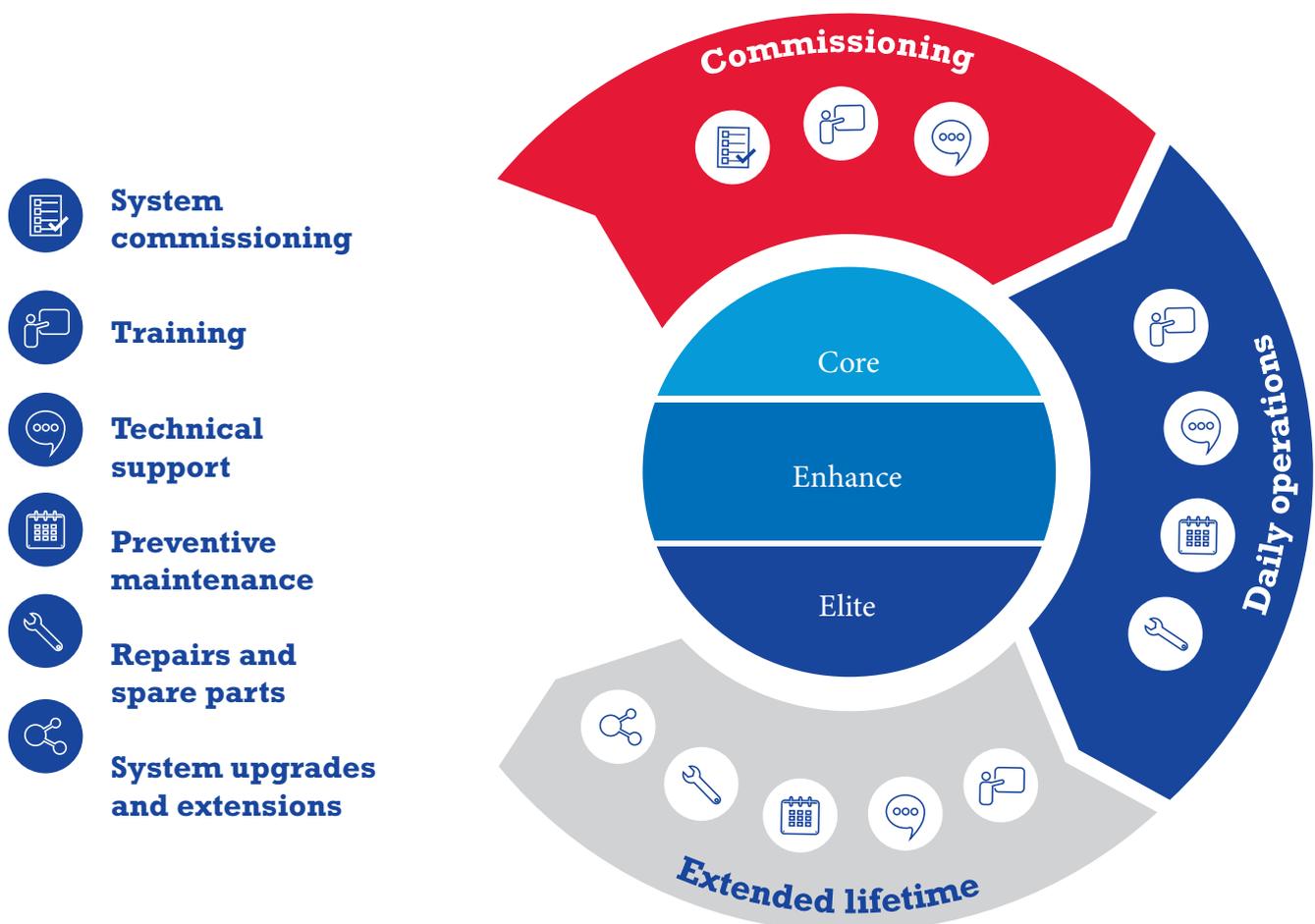
# Lifecycle services for your safety

Your safety is our expertise. When you choose the HI-FOG water mist fire suppression system, you get an original system manufacturer as a partner who will help you maintain the system and keep it operational, upgraded and fully certified throughout its entire lifetime. We are at your service during every step of your water mist system's lifecycle, offering top-quality support. We want to keep people and business operations safe.

When you need support with commissioning, preventive maintenance, training, repairs and spare parts, as well as system upgrades and extensions, we are always ready to help you. Thanks to our strong global service network, we can provide you with prompt and expert support all over the world.

Marioff-certified service engineers will ensure your system is maintained according to applicable international approvals and standards, as well as local and authorities' requirements. Regular maintenance lowers the lifetime cost of the system, reducing your operating expenses and keeping your budget and calendar steady.

The Marioff BluEdge™ tiered service model is designed to support your day-to-day operations and the needs of your business on an on-demand basis or with service agreements. There's a tier for every business.





*Marioff is a leading developer of water mist fire protection technology and supplies system solutions worldwide. The company's innovative HI-FOG water mist fire protection system controls and suppresses fire using significantly less water than conventional sprinkler systems, reducing water damage, cleanup time and operational downtime. For more information, visit [www.marioff.com](http://www.marioff.com).*

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**Your safety is our expertise.**