



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

**Fire protection for
Offshore wind
applications**

Safe and versatile fire protection

The HI-FOG high-pressure water mist system is a perfect choice as the fixed firefighting solution for the Offshore Wind industry, including Wind turbine installation vessels (WTIV), Service operation vessels, Cable laying vessels and Offshore substations.

Marioff is a leading developer of water mist fire protection technology. We offer over 30 years of expertise for fire protecting your offshore application, with experience from thousands of marine projects.

The innovative HI-FOG high-pressure water mist fire protection system controls and suppresses fire using plain water as extinguishing agent. It also uses

significantly less water than conventional sprinkler systems, reducing water damage, cleanup time and operational downtime.

Being safe to use, it protects your crew on board vessels and offshore platforms. Environmental effects during system testing and release are close to zero as the only extinguishing media used is pure water.

The HI-FOG system can be commissioned for use during construction of the ship to provide protection against fires even during construction of the vessel.



The HI-FOG water mist fire protection system is type-approved by IMO and all major classification societies and flag states. It has been proven in full-scale fire tests to protect all spaces on board.

Benefits of the HI-FOG fire protection system

The HI-FOG high-pressure water mist system offers several benefits compared to conventional, gas and foam fire protection systems.

Safe

Water mist is a safe choice, both for people and for the environment. The HI-FOG system uses plain water as extinguishing agent, making it a sustainable fire-protection solution for all spaces.

Efficient

The HI-FOG system offers superior firefighting performance by:

COOLING – when turning into vapor, water absorbs more heat than any other extinguishing agent

INERTING – water vapor displaces oxygen

RADIANT HEAT ABSORPTION – droplets absorb and scatter heat radiation

(See more on page 7)

No downtime

There's no downtime for system recharging after the release of the HI-FOG system, as plain water is used as extinguishing agent. Low water usage minimizes water damage, renovation cost, and business downtime.

Fast

The HI-FOG system can be activated immediately, without evacuation or the need to shut down machinery. The HI-FOG system activates fast and suppresses fire effectively, also reducing the amount of toxic smoke.

Full-scale testing onboard

Full-scale onboard testing and training of the HI-FOG system is possible at all times. This ensures the system is always in full operating condition in the case of a fire.

Proven performance

The HI-FOG system's performance has been proven in thousands of full-scale fire tests. The HI-FOG system is type-approved by all major classification societies.

One system protects all spaces on board

With a single HI-FOG water mist fire protection system, you can protect all spaces on board. The system complies with IMO standards, delivering the performance and reliability needed to ensure operational continuity and personnel safety at sea.

Smooth projects

Having a single system reduces complexity in all aspects of the project: design, installation, commissioning, testing, operation, and maintenance.

Thanks to our experienced project management team and well-established worldwide partner network, we have the capacity to provide installation services for your projects globally, including newbuilds, retrofits and upgrades on sailing ships.

Easy to use

You need just one highly efficient system with a single user interface to protect the crew and business continuity. The HI-FOG system is designed to be easy to use. We also provide custom-made training programs for ship crew to deepen and refresh their knowledge of the system.

Single HI-FOG solution benefits

- Smooth project execution: design, classification, turn-key installation, commissioning and training
- Cost-efficiency in design and coordination
- One system to be trained and maintained
- One point of contact in maintenance and spare parts
- Long lifetime - cost-efficient
- Fire protection during construction
- One control system for all applications
- Potential weight savings



HI-FOG protection for all areas:

Accommodation

Resolution A.800 (19)

Deep fat fryers and ducts

ISO 15371:2000

Service Areas

Resolution A.800 (19)

Switchboard rooms & substations

Resolution A.800 (19)

Electrical rooms

Resolution A.800 (19)

Machinery space local application

MSC/Circ. 913

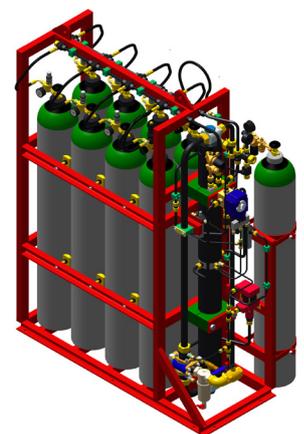
Machinery space total flooding

MSC/Circ. 1165



High quality tailored to your needs

The HI-FOG water mist fire protection system components are the key to effective fire protection. The HI-FOG system is tailored with a unique set of specialized components optimized to suit your specific fire protection needs. Because of this, you'll get a precise fire protection solution without extra parts and redundant costs.



The HI-FOG sprinklers and spray heads are engineered and manufactured by Marioff, so we know them inside and out. The HI-FOG 3000 sprinklers are equipped with a heat-sensitive glass bulb which breaks and activates the system at a certain temperature. When the bulb breaks, the HI-FOG pump unit starts automatically, and water mist is discharged through the activated sprinklers.

All HI-FOG spray heads are stainless steel, with a strainer to prevent clogging. The orifices are open, with no heat-sensitive glass bulb like our sprinklers. When the HI-FOG system is activated by a fire detection system, all spray heads are activated at once in a pre-defined fire protected area tailored to your needs.

The HI-FOG pump units are the heart of HI-FOG systems. The HI-FOG Electric Pump Unit (EPU) consists of a mechanical pump unit and a separate control cabinet. An advanced control system with frequency converter makes it possible to reach the exact pressure and flow rate needed, which conserves energy.

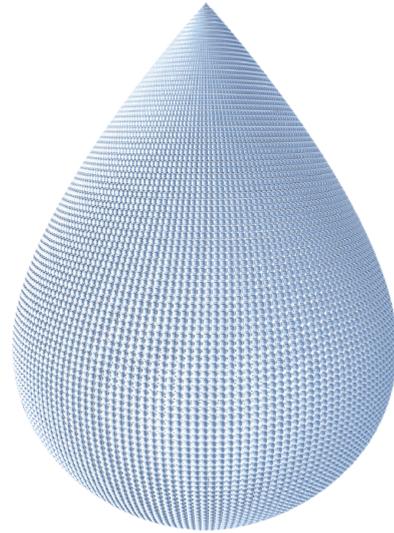
The HI-FOG Gas Pump Unit (GPU) is a self-contained pump unit, which means no external power source is needed for activating it. It operates on compressed air, which is used to produce fine water mist. The size will be adapted to cover the protected space, so it will take up the smallest possible amount of space.

Also, tubing has a central function in each HI-FOG system because it conveys water to the different parts of the system. The small diameter of HI-FOG tubing enables considerable space and weight savings – as well as fast and efficient installation of the system.

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.

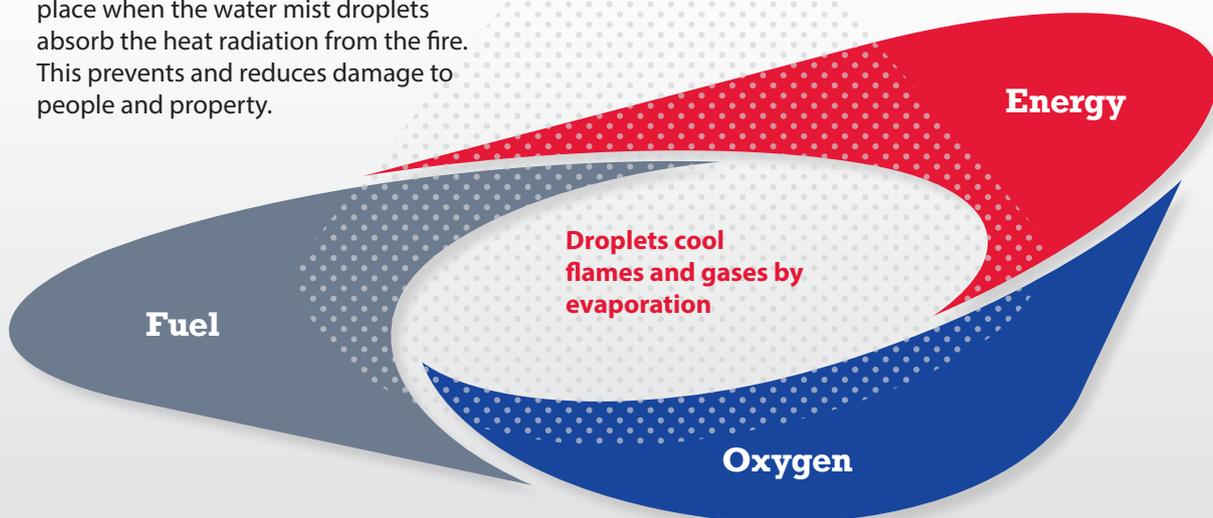
Water mist fights fire in three ways. Each of these methods affect the three elements in the "fire triangle", which consists of oxygen, heat, and fuel.



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.

Lifetime support

Marioff-certified service engineers help you to maintain your HI-FOG system and to operate it economically – from commissioning to upgrades and extensions. They train, operate and maintain HI-FOG systems according to IMO standards. Your personnel can also get custom-made training programs to deepen and refresh their knowledge of the system.

Every hour of every day, our dedicated service call center reacts promptly to your needs and provides quick action. As the original manufacturer of core HI-FOG components, we offer an extensive spare parts availability. Our strategically placed and well-stocked service hubs make it possible for us to deliver spare parts fast.

We are at your service all over the world.

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 safely 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.



Marioff

Marioff Corporation Oy
Äyritie 24
01511 Vantaa, Finland
+358 (0)10 6880 000
marioff.com

Marioff reserves the right to revise and improve its products and recommended system configurations as it deems necessary without notification. The information contained herein is intended to describe the state of HI-FOG products and system configurations at the time of its publication and may not reflect the product and or system configurations at all times in the future. All trademarks and service marks referred herein are property of their respective owners.

HI-FOG® and Marioff® are registered trademarks of Marioff Corporation Oy. Marioff is a part of Carrier, the leading global provider of healthy, safe, sustainable and intelligent building and cold chain solutions.

©2022 Carrier. All Rights Reserved. Ref. 3134A-EN



Your safety is our expertise.