

Fire protection for the high seas

HI-FOG® for marine and offshore applications



ROYAL CARIBBEAN INTERNATIONAL

Providing maximum

If a ship fails to meet the marine industry's tough global safety regulations, the costs could be measured in lives. The HI-FOG® Water Mist Fire Protection System is proven to meet these regulations. HI-FOG® ensures the smooth-running continuity of your shipping business.

HI-FOG®'s proven operational strength over decades is reflected in more than a thousand of vessels currently fitted with the system and numerous real case fires successfully suppressed. Originally developed for protecting accommodation spaces of passenger ships, HI-FOG® is now being used for the protection of all spaces on every types of vessels.



HI-FOG® delivers extremely good performance, combating fire by removing two of the main elements a fire needs to survive: heat and oxygen.

The HI-FOG® water mist displaces oxygen at the seat of the fire and quickly cools the surrounding air, effectively suppressing and controlling the fire before it can spread or reignite.

This is achieved with remarkably little water: HI-FOG® uses up to 90% less water than conventional sprinkler solutions.



fire safety at sea



HI-FOG® benefits:

- **Fast:** immediate activation
- **Proven:** success in countless real fires
- **Safe:** harmless to people and the environment
- **Cooling:** prevents fire from reigniting
- **Short downtime:** economic risk reduction
- **Low water usage:** minimized damages
- **Flexibility:** single central pump can service the entire integrated system

Immediate activation

The moment the fire is detected, HI-FOG® springs into action, immediately attacking the fire. HI-FOG® controls, suppresses and extinguishes the fire. The water mist cools the surroundings, preventing the fire from reigniting.

Spaces do not need to be evacuated or closed off for HI-FOG® to be activated. This dramatically reduces the potential damage fire can cause.

Safety

HI-FOG® is entirely safe for people and the environment. Premises can be entered while the system is discharging as it does not affect the system's fire fighting efficiency or pose any danger to people.

HI-FOG® makes evacuation and fire fighting safer by blocking the radiant heat emitted by the fire.

Never depleted

Remaining protected also after fire is very important. While most other solutions need recharging or special service after activation, HI-FOG® is ready to go again without delay.

The system is designed so that the water supply is never depleted. If the water tanks are emptied, HI-FOG® can switch to sea water for continued fire protection.

Meeting the needs of



HI-FOG® is fitted on nearly every modern cruise liner. And the story doesn't end there. Through intensive research and full-scale testing, HI-FOG® has become a high performance solution well suited for all kinds of marine and offshore applications.

From control and suppression in accommodation and service spaces to completely extinguishing fire in machinery rooms, HI-FOG® does the job. Installations can be combined with single central pump unit serving the entire, integrated system.

HI-FOG® protects all types of vessels:

- Cruise ships and ferries
- Ro-Ro/Ro-Pax vessels
- Cargo ships
- Workboats
- Luxury yachts
- Naval vessels
- Offshore exploration and production units
- Service vessels

HI-FOG® protects all spaces:

- Accommodation and service spaces
- Machinery spaces and pump rooms
- Ro-Ro decks and special category spaces
- Deep-fat fryers and ducts
- Balconies



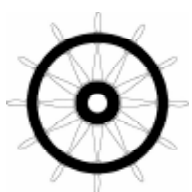
all maritime operations



STX EUROPE



ROYAL CARIBBEAN INTERNATIONAL



Reliable

Countless tests and numerous real case fires have proven HI-FOG's value time and again.

Fully approved by the International Maritime Organization, HI-FOG delivers the performance and reliability needed to protect your business from fire. HI-FOG is compliant with the latest SOLAS regulations and the relevant marine type approvals.

A short selection of HI-FOG approvals

Proven success in all marine applications



Oasis of the Seas

One of the largest cruise vessels ever build, the 225,000 GT Oasis of the Seas can carry up to 5,400 passengers. The HI-FOG® system for Oasis of the Seas is the largest marine fire fighting protection ever done covering all accommodation, public and service spaces. In addition, HI-FOG® protects machinery spaces in accordance with RCCL safety standards, along with laundry facilities, galley ducts and deep fat fryers.

Bourbon Hamos, GPA 670 MKII (PSV)

This was the first of four Platform Support Vessels for Bourbon Offshore. The vessel is designed for world-wide, deep water and shallow water operations. The HI-FOG® system protects the machinery spaces as well as the deep fat fryer and galley duct.

Colour Fantasy

This massive ferry has been described as 'a cruise ship with a car deck'. She can carry 2,770 passengers and 750 cars, and operates between Oslo and Kiel. Fire protection is based on the HI-FOG® 2000 sprinkler system. In addition, the vessel has a HI-FOG® local application system, as well as a HI-FOG® system for the protection of deep fat fryers.

Visby

Each kilogram was critical for this new, ultra hi-tech carbon fibre naval vessel, the first to feature fully developed stealth technology. It required an effective fire protection system which could withstand battle conditions and be as light as possible. All accommodation spaces have protection coverage provided by HI-FOG®.

Manon

As a car and truck carrier leading the way in quality, safety and environmental principles, Wallenius brought 27 of its ships in line with the IMO MSC/Circ.913 fire protection standards by installing the HI-FOG®. The systems protect engine room hot spots including main engines, auxiliary engines, purifiers and boiler fronts. The retrofit program was carried out on ships docked in harbours around the world, as well as on some while they were in service.

M/Y Katrion

Luxury yachts are built to the highest standards of quality, performance and design. HI-FOG® combines safety and elegance into one compact, efficient fire protection system. The HI-FOG® system protects both accommodation and machinery spaces of a 38m super yacht M/Y Katrion.

Customized solutions and expert services



Marioff provides the entire solution with top quality professional services for the lifetime of the installation.

We offer after-sales support and services all around the world to maintain the safety and operability of every vessel fitted with the HI-FOG® system. Along with comprehensive systems and components support, we also provide crew training to all our customers.

Design & project management

Marioff designs the right HI-FOG® system for each vessel based on the fire risk assessment, water supply and any special protection requirements. A Marioff project manager ensures smooth and correct system delivery. Marioff also takes responsibility for regulatory approvals of each installation.

Installation

Marioff is expert at installation in various environments world-wide. The full range of our experience will be placed at your disposal in the project planning stages. The work is scheduled in accordance with the operations with minimal disruption.

Marioff Services

Marioff provides annual, 5-year and 10-year service packages. All activities are performed by certified service engineers who have a deep understanding of HI-FOG® systems.

Monitoring and regular checks help ensure the system operates as expected. Marioff offers basic operator training to all HI-FOG® customers. Each course is tailored based on the customer-specific HI-FOG® installation.

As the original manufacturer of HI-FOG® components, the system will be well supported with the timely supply of top-quality spares.



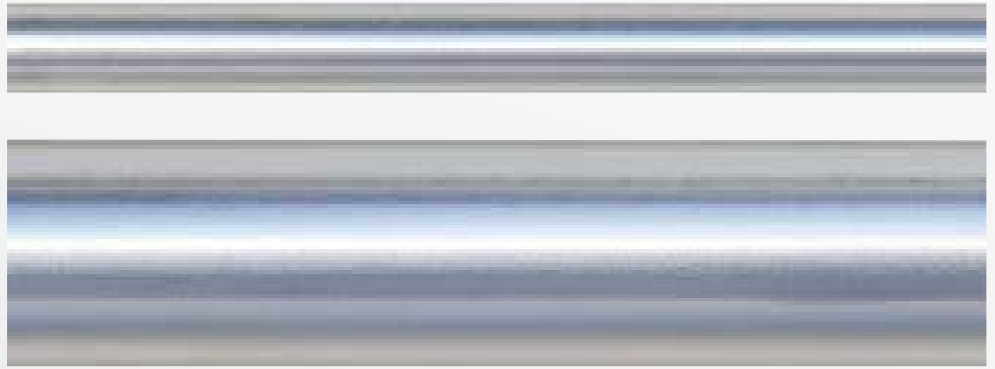
HI-FOG® 2000-series nozzle



HI-FOG® 1000-series nozzle



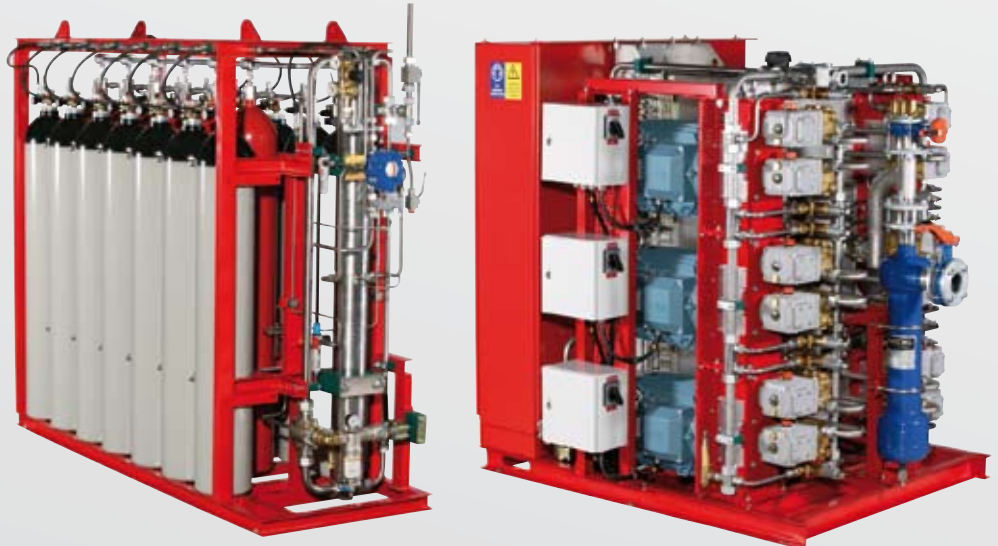
HI-FOG® sprayhead



12mm and 30mm stainless steel tubes in actual sizes.



The HI-FOG® system uses small diameter stainless steel tubes that can be easily hidden above the inner ceiling. The high quality tubing bends easily around corners and obstructions.



The HI-FOG® gas-driven pump unit (GPU).

The HI-FOG® electrically-driven pump unit (SPU). The picture shows a SPU 5+1 pump unit that is the most common unit used for marine applications.



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