

What is HI-FOG®?

The natural enemy of fire



Using water wisely in the fight against fire

COOLS

HI-FOG® attacks the fire, cooling the fire itself and the space it is in. Water absorbs more heat (>2 MJ/kg) than any other extinguishing agent when it turns into vapour.

INERTS

HI-FOG® locally starves the fire of oxygen. It inerts the atmosphere around the fire by displacing oxygen: water expands >1,760 times in volume when it turns into vapour.

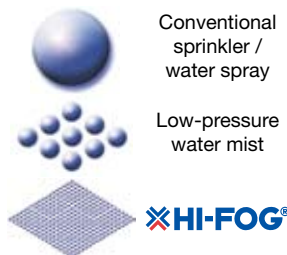
BLOCKS RADIANT HEAT

HI-FOG® micro-droplets efficiently absorb and scatter the heat radiated by the fire, protecting the immediate surroundings.

HI-FOG® is the world's leading water mist fire protection system, originally developed by Marioff for use on passenger cruise ships and now also protecting a growing range of applications on land. HI-FOG® water mist is the natural enemy of fire as proven by thousands of full-scale fire tests, a fast-growing installed base and many successfully suppressed real-world fires.

Traditional low-pressure sprinkler and deluge systems use large volumes of water to fight fire by wetting and cooling combustible surfaces. HI-FOG® uses up to 90% less water to produce a fine mist representing water in its most effective fire-fighting form.

HI-FOG® water mist penetrates fire like a gas and cools the surrounding air very effectively, suppressing the fire before it can spread.



Typical drop size range (mm)	Number of droplets per litre of water	Surface area (m ²)
1...5	15 thousand to 2 million	1...6
0.2...1	2 million to 250 million	6...30
0.025...0.2	250 million to 150 billion Superior cooling and local inerting	30...250 Superior blocking of radiant heat



Protects people



Protects property



Protects the environment



In suppressing a fire, traditional low-pressure sprinkler and deluge systems often cause significant water damage that can be greater than the damage caused by the fire itself. Such systems can also be difficult to install, especially in retrofit projects.

Traditional gas-based systems are unsuitable for many high-risk areas because of the difficulty involved in guaranteeing enclosure integrity, high recharge costs and personnel and environmental safety issues. Traditional foam-based systems cause collateral damage and present the problem of toxic run-off to municipal sewage systems.

HI-FOG® offers equivalent or better fire suppression than traditional systems with minimal water discharge, minimizing damage to property and reducing the time and cost of clean-up.

HI-FOG® tubes are small in diameter, making installation fast and easy especially in retrofits. Finally, HI-FOG® uses pure and potable water: it is totally safe for people, property and the environment.

- Suppresses fire efficiently
- Uses very little water
- Easy to install
- Safe for people, property and the environment

 **HI-FOG®**
water mist fire protection

Drop

Traditional low-pressure sprinkler and deluge systems work primarily by wetting combustible surfaces. They discharge a shower of water drops which suppresses the fire by gradually wetting the burning material and the surroundings of the fire. Unfortunately, such systems can cause significant collateral damage — damage that can be greater than that caused by the fire itself.

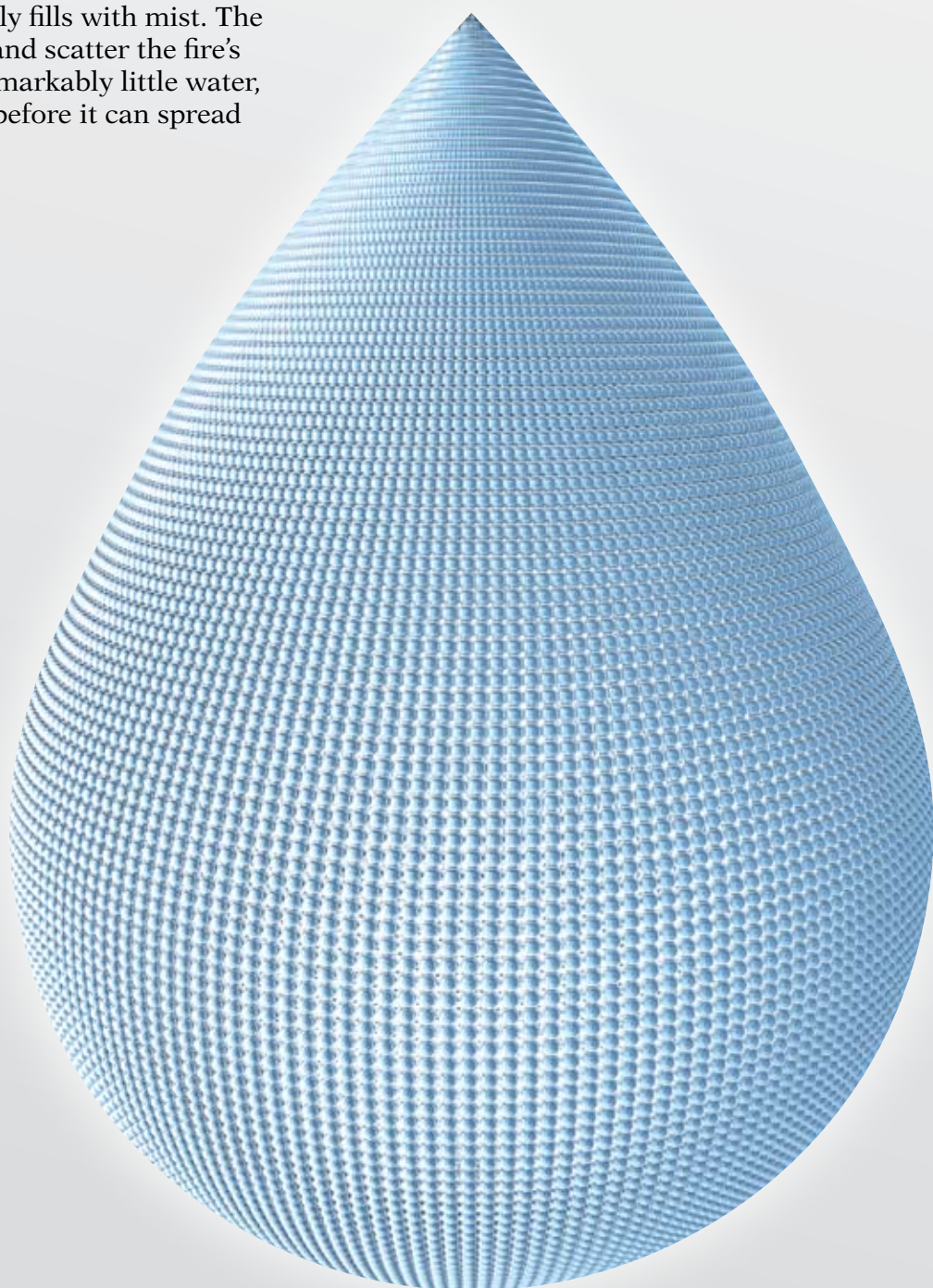
Inefficient



HI-FOG® micro-droplets

HI-FOG® water mist is composed of tiny micro-droplets that represent water in its most efficient fire-fighting form. When a HI-FOG® system activates, it instantly attacks the fire with high-velocity water mist that penetrates the fire plume. The space cools as it quickly fills with mist. The micro-droplets block and scatter the fire's radiant heat. Using remarkably little water, the fire is suppressed before it can spread and do serious harm.

Efficient



What makes up a HI-FOG®

A basic HI-FOG® system as designed, delivered and often installed by Marioff will typically comprise a high-pressure pump unit, valves, stainless steel tubing and HI-FOG® sprinklers and/or spray heads.



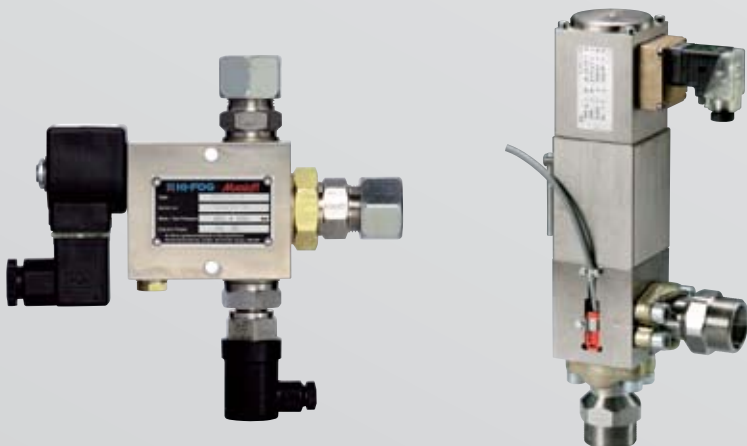
HI-FOG® sprinkler heads

HI-FOG® sprinkler heads are “closed”, meaning they are equipped with heat-sensitive glass bulbs. They are selected for the application and the temperature at which activation is to occur and provide maximum fire suppression performance with minimum water usage. HI-FOG® sprinkler heads are available in a variety of finishes with different mounting options.



HI-FOG® spray heads

HI-FOG® spray heads are “open”, meaning they do not have heat-sensitive glass bulbs. Made of high-quality stainless steel, they are designed for specific applications and fire hazards, and provide maximum fire suppression performance with minimum water usage.



HI-FOG® valves

HI-FOG® valves are made of either brass or stainless steel. They can be activated either manually or automatically by electrical, hydraulic or pneumatic signals.



HI-FOG® tubes

HI-FOG® tubes are made of high-quality stainless steel. Ranging in diameter from 12 – 60 mm, they are very small compared to traditional sprinkler system pipes. They are bent into shape on-site and easy to install discretely in tight spaces.

system?



HI-FOG® SPU (Sprinkler Pump Unit)

Suitable for almost any application, available in a range of sizes and configurations depending on the application, e.g. sprinkler applications and the total volume fire protection of large machinery spaces. A diesel version (SPUD) is also available.

- Modular motor/pump assembly
- Continuous operation: extended protection time



HI-FOG® GPU (Gas-driven Pump Unit)

Used when a normal electrical power supply is unavailable or when water discharge must be kept to an absolute minimum.

- Nitrogen-driven or air-driven
- No external power needed
- Manual, pneumatic or electrical release
- Connected to the water mains or a water tank



HI-FOG® MAU (Machinery Space Accumulator Unit)

For the total volume protection of small enclosed spaces against flammable liquid fires and special hazards.

- Nitrogen or air-powered
- Unpressurized water cylinders
- Easy installation & maintenance
- Easy integration with fire detection systems
- Manual, pneumatic or electrical release

Where is HI-FOG® used?



Buildings

Hotels, historical buildings, churches and cathedrals, art galleries, theatres, data centres, hospitals, libraries, museums, archives, residential developments, high-rise buildings, prisons



Marine

Cruise ships, ferries, Ro-Ro vessels, cargo ships, workboats, yachts



Transportation infrastructure

Road tunnels, trains, metro train stations, terminals, airports



Navies

Surface vessels and submarines



Industry and energy facilities

Machinery spaces, gas turbines, wind turbines, SX plants, industrial fryers, transformers, cable tunnels



Offshore structures

Offshore platforms and production facilities



Defence applications

Aircraft hangars, service/maintenance and training facilities, command centres



Head Office

Marioff Corporation Oy
Virratie 3, FI-01300 Vantaa, Finland
Tel. +358 (0)9 8708 51
Fax +358 (0)9 8708 5399
Email: info@marioff.fi



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