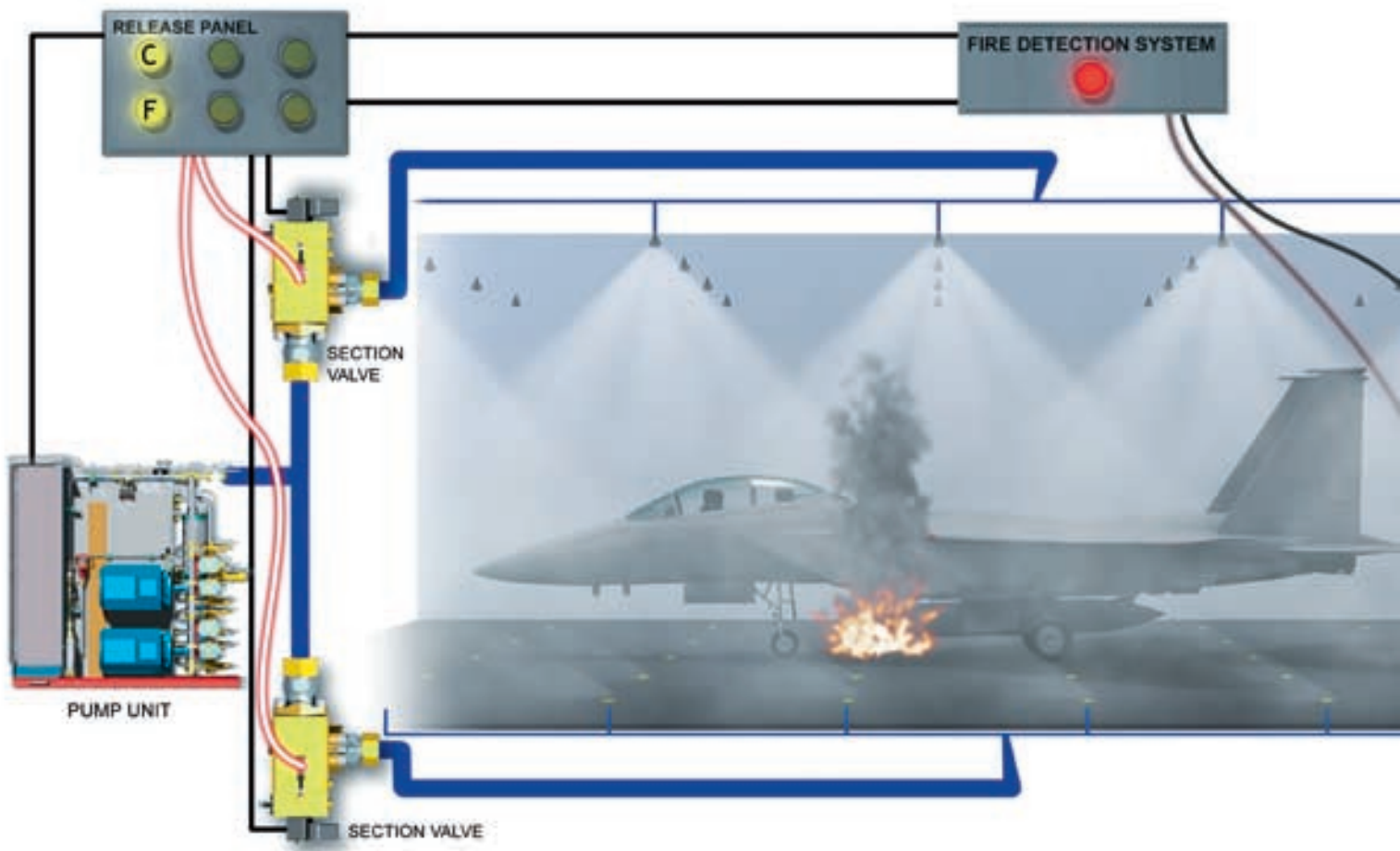


# High flying fire protection

*HI-FOG<sup>®</sup> for aircraft hangars*



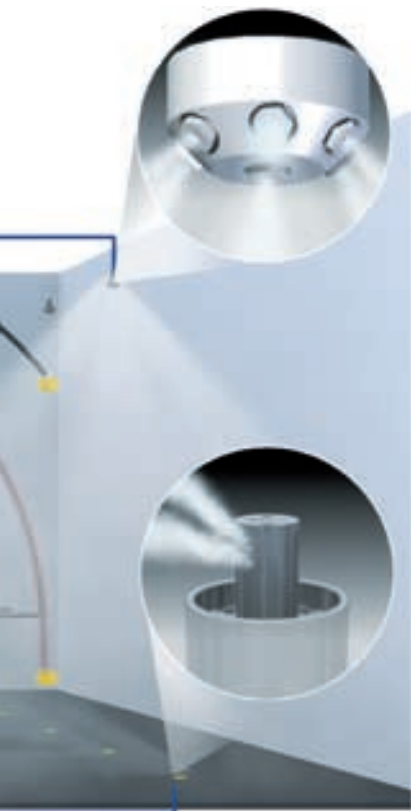
# Protecting your



The HI-FOG® Water Mist Fire Protection System is the most modern and effective fire protection that technology can provide for your aircraft hangars. In case of fire it will protect your valuable air assets, your personnel and your operational continuity using a minimum of water, causing a minimum of mess.

It's in the water mist. HI-FOG® micro-droplets represent water in its most effective fire-fighting form. The high pressure of the system ejects the micro-droplets at high velocity so they penetrate deeply into the fire and quickly fill the whole space like a gas. The air surrounding the fire is cooled very effectively,

# aviation assets



The HI-FOG® Water Mist Fire Protection System for aircraft hangars is provided in two parts for aircraft hangar fire protection: an overhead system equipped with spray heads and a floor-mounted system equipped with special pop-up spray heads.

The most effective solution consists of a combined overhead and floor-mounted system for total hangar protection, but this will depend upon your requirements. The floor-mounted system provides the essential protection: it protects your valuable aircraft where fire is most likely to occur – at floor level, near their vulnerable underbellies.

The ceiling-mounted system protects the top surfaces of the aircraft and areas around it.

suppressing the fire before it can spread. Soot particles bind to the mist, so smoke damage is minimized. Remarkably little water is used and operational downtime is kept to an absolute minimum.

Your flight schedules are disrupted as little as possible. Your aviation assets and people are safe.



HI-FOG® pop-up spray head for hangars, closed position



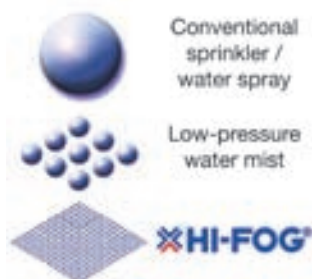
HI-FOG® pop-up spray head for hangars, operating position, cover ejected to floor

**A typical HI-FOG® system for aircraft hangars consists of a combined floor-mounted and overhead system featuring:**

- A high-pressure pump unit, either diesel or electrically-driven
- A water supply, fire main or tank: size depends on your requirements
- Small-diameter stainless steel tubing to distribute the water to the protected areas
- Floor-mounted pop-up spray heads, spaced strategically to protect aircraft
- Ceiling-mounted spray heads

# Foam systems work...

Conventional sprinkler and foam systems work. They suppress or extinguish hangar fires, saving lives and aircraft. The damage they leave behind in the aftermath of a fire is a secondary consideration. The primary consideration is that the fire is controlled. At Marioff we recognize that conventional sprinkler and foam systems protect against hangar fire, but we make the case that HI-FOG® is the best fire protection an aircraft hangar can have. HI-FOG® deals with hangar fire more effectively and safely than conventional sprinkler and foam systems.



Typical drop size range (mm)	Number of droplets per litre of water	Surface area (m <sup>2</sup> )
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 <i>Superior cooling and local wetting</i>	30...250 <i>Superior blocking of radiant heat</i>

The smaller the water droplet, the greater the surface area of the water in the volume of space and the greater the system's fire fighting effectiveness. HI-FOG® water mist is unparalleled in its ability to attack two of the three things that fire needs to grow – heat and oxygen (the combustible material being the third) – while being entirely harmless to people and the environment.

# HI-FOG® works better

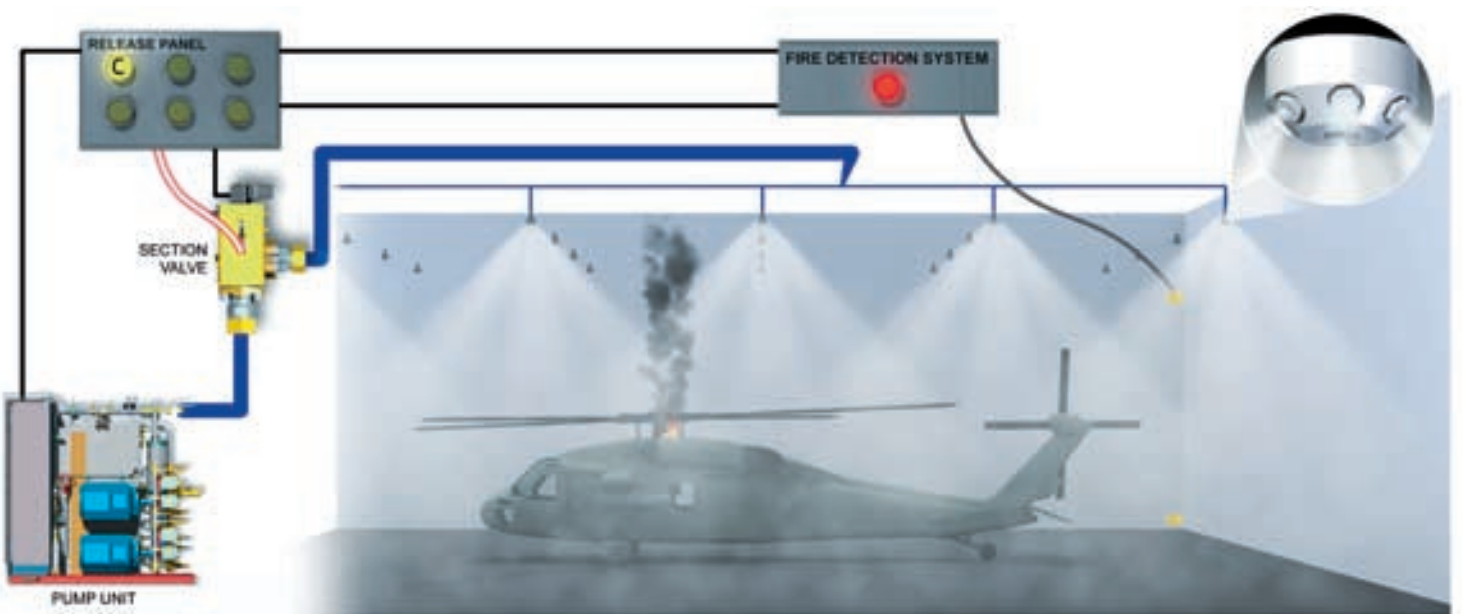
## Protection where it's needed most

The HI-FOG® system protects aircraft very effectively where they are most at risk of fire – underneath, where the risk of fuel or hydraulic spills and fire is greatest. The floor-mounted HI-FOG® pop-up spray heads are positioned around and below the aircraft so as to concentrate protection in this area of highest risk. The system provides a high degree of radiant heat blocking to protect adjacent aircraft and equipment, and can operate in windy conditions so enclosure integrity is unnecessary.

The ceiling-mounted HI-FOG® system is illustrated below. This system can be an important supplement to the floor-mounted system. For certain applications it can be a very effective stand-alone system.



- Fast fire suppression and extinguishing
- Strong cooling effect
- Efficient radiant heat blocking
- Minimal water damage and water consumption
- Fast clean-up
- No obstruction to normal hangar operations
- Easy and fast installation, minimal space requirement
- Safe for people, aircraft, equipment and the environment



# Forecast calls for HI-FOG®

The HI-FOG® Water Mist Fire Protection System will help you operate your aircraft hangar safely and efficiently by minimizing the threat posed by fire. This is a long-term proposition, and Marioff supports HI-FOG® over the complete lifecycle of the system.

## Design services

Marioff will design the right HI-FOG® system for your hangar based on its size, the number of aircraft requiring

protection, and any special protection requirements for associated technical and crew areas.

## Installation

Marioff is expert at installation. In a working hangar, HI-FOG® is installed in accordance with your operations to ensure safety and minimize disruption. Because HI-FOG® uses very little water, it requires very little space. HI-FOG® tubing is much smaller in diameter (as small



as 12 mm) than conventional sprinkler piping.

## Low maintenance costs, long system life

The HI-FOG® system is made of high-quality components and stainless steel tubes to ensure long system life and minimal maintenance costs. Marioff provides a full palette of services to ensure that your HI-FOG® system stays in peak condition throughout its lifecycle.

## Environmentally friendly

HI-FOG® uses very little water (potable, supplied through the regular mains) to ensure environmentally safe and responsible performance. The system will not fall foul of future environmental regulations.

## Training

As part of your overall safety regimen, Marioff will train your staff to operate and maintain the HI-FOG® system to make sure it performs at its best when it really matters – all the time.



# The world's pre-eminent water mist company

Founded in 1985, Marioff is the world's leading provider of water mist systems on land and at sea. About 1,000 passenger cruise ships, ferries and naval vessels are protected by HI-FOG® at sea. About 1,500 installations are protected by HI-FOG® on land: heritage buildings and museums, hospitals, libraries and archives, IT and telecommunications

facilities, energy facilities, road tunnels, metro trains and stations, factories – the list is long and growing fast.

#### Relentless fire testing

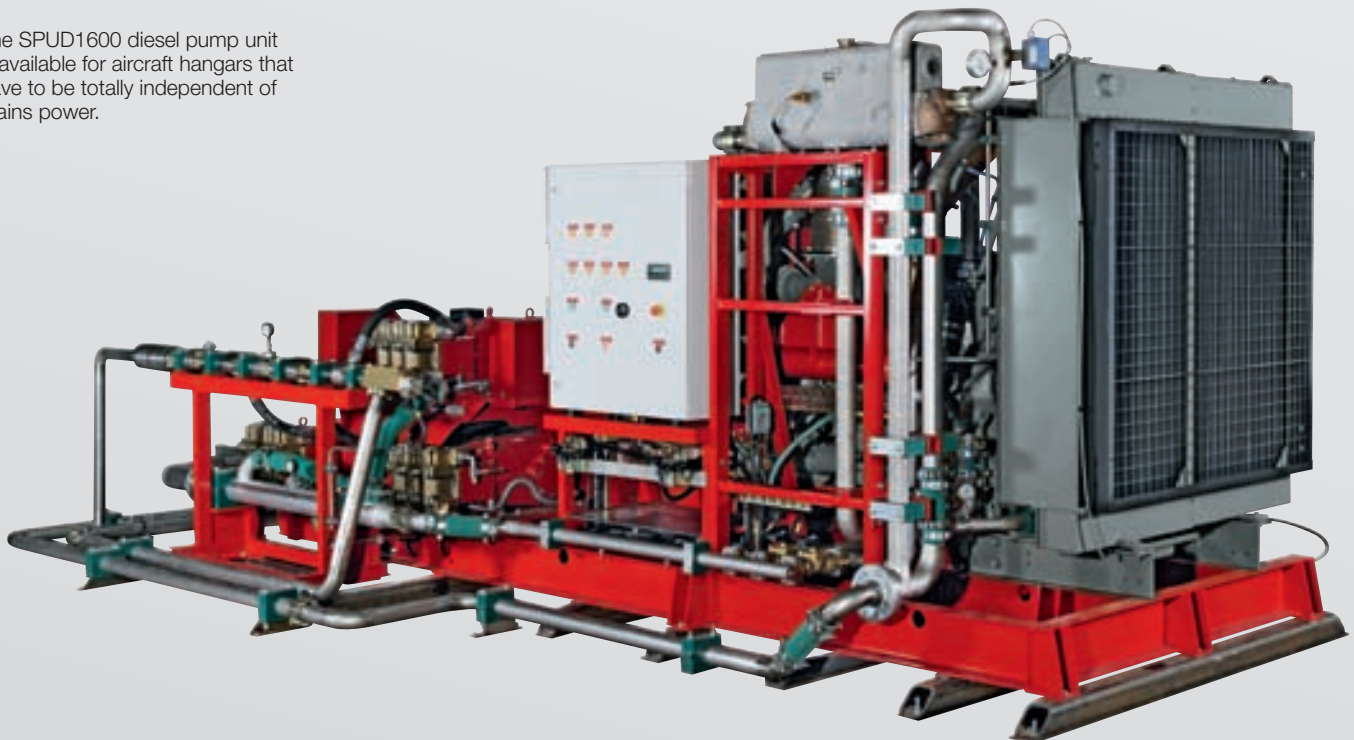
With over 6,000 full-scale fire tests behind it, the HI-FOG® Water Mist Fire Protection System is the world's most tested water mist system. HI-FOG® is fully tested for

aircraft hangar fire protection and its performance in this environment is a known, impressive quantity.

#### World's most approved water mist system

HI-FOG® has received more type approvals, across more application areas, than any other water mist system.

The SPUD1600 diesel pump unit is available for aircraft hangars that have to be totally independent of mains power.





HI-FOG® 4S 1MC 8MB  
1000 spray head for  
overhead system



HI-FOG® 5S 1MC 8MC  
1000 spray head for  
overhead system



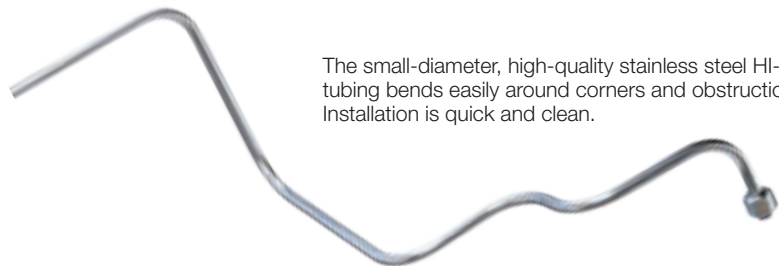
FH11 NE-16S hangar spray head  
for hangar floor system, in operating  
position with cover ejected



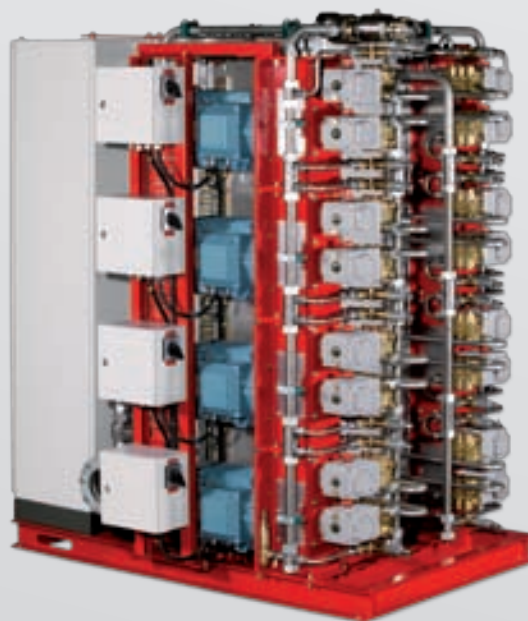
12 mm stainless-steel HI-FOG® tube.  
Final tube to the spray heads. Actual size.



25 mm stainless-steel HI-FOG® tube. Main tube,  
installed in hangar floor. Actual size.



The small-diameter, high-quality stainless steel HI-FOG®  
tubing bends easily around corners and obstructions.  
Installation is quick and clean.



The HI-FOG® high-pressure,  
electrically-driven pump unit.  
Provides a constant flow of 140 bar  
pressure during activation. Can be  
reset quickly and automatically after  
a discharge. Large-capacity diesel-  
driven pump units are available if  
the system is required to be entirely  
independent of mains electricity.



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