

# Protecting national treasure for future generations

*HI-FOG<sup>®</sup> for cultural heritage*







# Minimizing fire and water damage

When fire occurs in a cultural heritage site, protecting the irreplaceable assets is a top priority. Rapid recovery after a fire is also essential. With fast control and localised suppression of fire, using small amounts of water, HI-FOG® keeps collateral damage and downtime to a minimum.

Thanks to narrow tubing, HI-FOG® is also easy to install, minimizing structural impact and preserving aesthetic integrity in the heritage buildings.

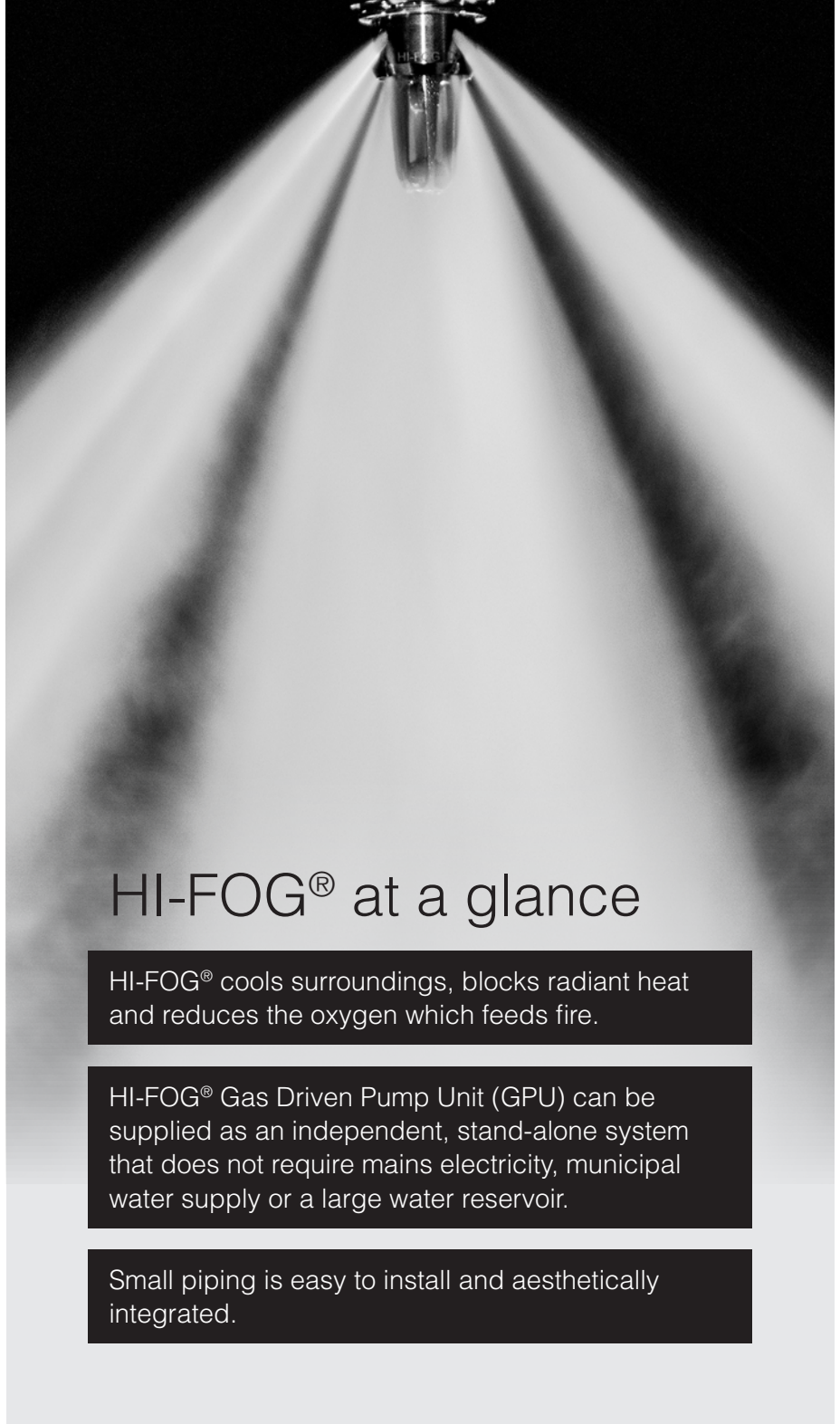
Fire destroys commercial assets worth billions every year, with the ensuing damage caused by both fire and the water used to fight it. Traditional water-based systems rely on wetting to fight fire, but the flooding is often devastating and can spread far beyond the fire area. This leads to downtime because weeks or even months can pass while the damage is repaired.

In cultural heritage sites, collateral damage can never be a secondary consideration. HI-FOG® uses significantly less water compared to conventional sprinkler systems.





© Maik Schuck



## HI-FOG® at a glance

HI-FOG® cools surroundings, blocks radiant heat and reduces the oxygen which feeds fire.

HI-FOG® Gas Driven Pump Unit (GPU) can be supplied as an independent, stand-alone system that does not require mains electricity, municipal water supply or a large water reservoir.

Small piping is easy to install and aesthetically integrated.

With fast control and suppression of fire using small amounts of water, HI-FOG® keeps damage to the building itself and its irreplaceable collections to a minimum.

Thanks to narrow tubing, compact pump units, small water tanks and discrete sprinkler and spray heads, HI-FOG® is easy to install into retrofits and new structures alike, therefore minimizing structural impact and preserving aesthetic integrity.

### HI-FOG® fire protection:

- Museums and art galleries
- Cathedrals and churches
- Theatres and music houses
- Libraries and archives
- Historic buildings and tourist attractions
- Heritage hotels

### HI-FOG® can protect all areas:

- Exhibition galleries
- Storage rooms and archives
- Lobbies and corridors
- Auditoriums and conference rooms
- Offices, shops and restaurants
- Domes, cupolas, attics and roof structures

# Unrivalled experier

Marioff has vast experience in protecting cultural heritage sites. HI-FOG® protects internationally renowned places as well as historic sites of local importance.



© Bristol Old Vic

## Bristol Old Vic

Built in 1766, this 18th century Grade 1 listed Georgian theatre is the oldest working theatre in the UK. The HI-FOG® system was installed during a complete refurbishment of the theatre, with the tubing installed within some very tight spaces of the building fabric.

Throughout the building the sprinkler heads had to be positioned to meet both the system design criteria and exacting



Bristol Old Vic

architectural heritage constraints, especially within the auditorium decorative ceiling where the sprinkler heads have become a subtle and integral part of the pattern.

The Old Vic Theatre Project was an ongoing National Lottery funded refurbishment programme. The client had originally planned to extend the traditional sprinkler system but this was not practical for the fabric of the building

because of the large pipe sizes that go hand in hand with that type of system.

HI-FOG® protects the heritage part of the theatre, which includes the seating areas, the Royal Box and the wooden beamed roof space which is open to public viewing.

Basement plant areas were also at a premium, making the installation of the modular MSPU4+1 pump unit, control



# nce in heritage sites



© Bristol Old Vic



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Marriott Renaissance at St. Pancras International.

panel and sectional water storage tank an ideal solution.

**Marriott Renaissance at St. Pancras Int.** The old Midlands hotel at St. Pancras Station in London was reborn as the five-star luxury Marriott Renaissance at St. Pancras International. Finding its rightful place on the English Heritage list, this magnificent building was saved from demolition and turned into luxury apartments atop a new Marriott hotel.

Minimizing structural impact was paramount. Thanks to the narrow HI-FOG® tubing, existing spaces could be used to run the tubing into each individual room. The system is fed by a full capacity stand-alone water tank and HI-FOG® pump unit that are installed in a small basement vault room.

As the system also protects the apartments above the hotel, the local authorities allowed the building owners

to forgo installing a fire barrier between the hotel and apartments, saving money and structure integrity.





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### **The National Library of the Czech Republic**

The National Library of the Czech Republic is an iconic and well-loved institution in the city of Prague. Built over 400 years ago, the library holds more than six million volumes and serves the needs of more than one million visitors every year. Due to the history of the building and its irreplaceable historic books, the refurbishment that occurred in 2011 had to be meticulously and sensitively planned.

To safeguard the library's delicate interior and irreplaceable book collections, reliable fire protection was required.

The HI-FOG® GPU unit was the perfect fit for the customer due to its low use of water, very narrow tubing and inconspicuous installation. Furthermore, it had to cause minimal damage to the valuable books and interior in case of a fire.

The four floors of the library are now protected with the system that was cho-

sen after consulting several historical building refurbishment projects.

After installation a number of other HI-FOG® benefits were discovered. There is no need for an electric supply to keep the GPU unit running, it only requires minimal storage space and it is able to work alongside with the other systems already in place. Enhanced protection for one of the most valuable cultural heritages of the Czech Republic was installed.

### **The Academy of Arts**

HI-FOG® was chosen to protect Berlin's renowned Akademie der Künste (Academy of Arts). After decades of use, it was decided the building should be returned to its original condition while bringing the facilities, including fire protection, up to modern standards.

The Academy of Arts includes 2,000 square meters of exhibition area, a studio with a stage, two auditoria seating 700 guests, club rooms, apartments and art studios. The Academy archives includes 1100 individual collections, a

special library of 550,000 volumes and an art collection of 60,000 objects.

Where cultural heritage is concerned, reducing the chance of water damaging the precious collections was crucial. It was also important that the installation was largely unnoticeable. The HI-FOG® installation protects the Academy's exhibition areas, administration offices, as well as the special suspended ceilings in the theatre.

**”** *We decided on a high pressure water mist system because it needs less water. A further advantage is the smoke scrubbing effect. In smoky rooms it provides very fast, sufficient visibility enabling safe evacuation.*

– Mr. Manfred Fischer, Director of Administration, Academy of Arts





### Duchess Anna Amalia Library

HI-FOG® protects the Duchess Anna Amalia Library, a UNESCO World Heritage Site which houses a priceless collection of manuscripts, medieval autographs, incunabula and works of art.

The library experienced a catastrophic fire in 2004 which was caused by a mere electric fault. HI-FOG® system was in-

stalled as part of the restoration work to protect the library's four floors, Roccoco Room and tower.

HI-FOG® was chosen because it would cause a minimum collateral damage to the library's dedicate collection upon activation. Secondly, the stand-alone system independent of water and power supply was able to protect the library

even during power outage. Thirdly, the system could be installed unobtrusively thanks to small diameter piping. Finally, the pre-action system minimizes the risk of accidental discharges as it activates only after a fire has been detected and an ambient temperature is high enough to break the bulb.

### The Celle

The Celle Palace is one of the most beautiful palaces of the Welfs and one of the oldest princely houses existing still today.

Over the centuries, the originally simple castle has undergone reconstructions and was constantly extended to become an elaborate and magnificent four-wing construction.

The palace accommodates a palace theatre. HI-FOG® protects the stage areas and the theatre's attic with HI-FOG® Gas-Driven Pump Units (GPU), independent of power supply.





HI-FOG® 1000-series  
sprinkler



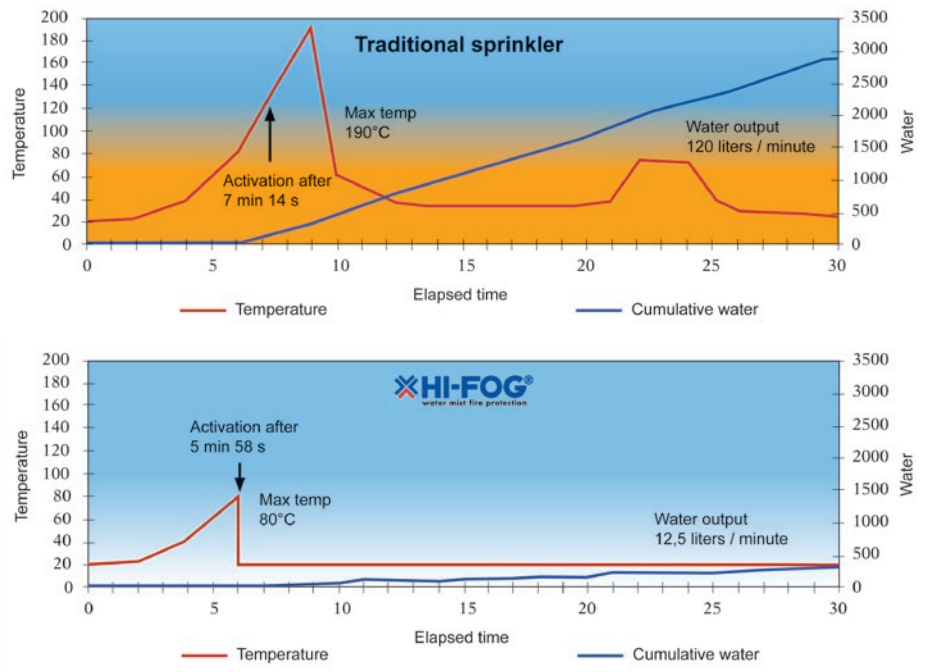
HI-FOG® 2000-series  
sprinkler



HI-FOG® Gas-Driven Pump Unit (GPU)

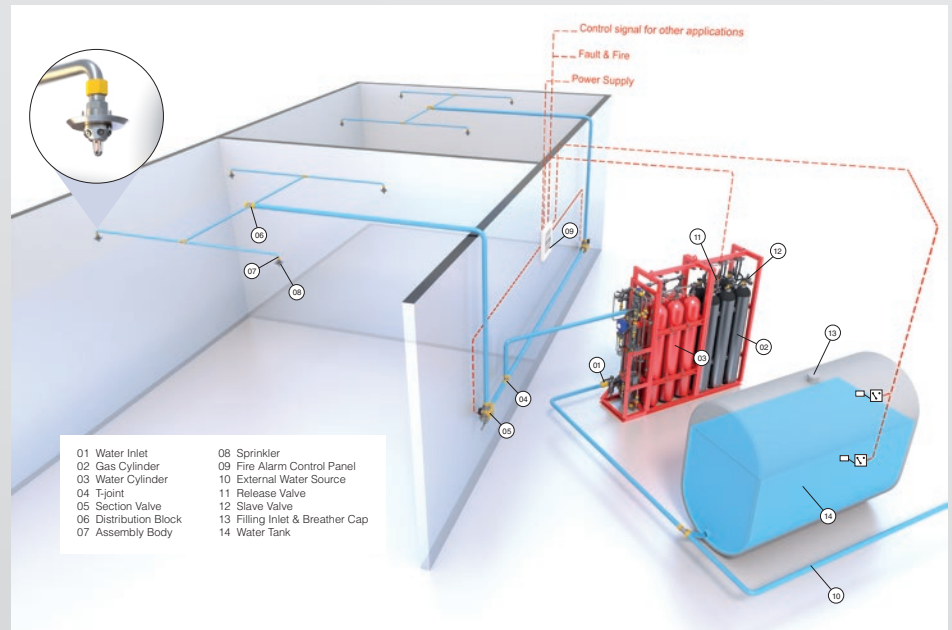


HI-FOG® Electric Pump Unit (EPU)



Figures are based on fire test series conducted in accordance of VdS fire test protocol for Ordinary Hazard Group 1 occupancies.

Based on the results of two identical fire tests, the HI-FOG® GPU system had better fire suppression capabilities than traditional system, simultaneously using 90% less water. The HI-FOG® system had a faster activation time and only one sprinkler discharged whereas with the traditional system two sprinklers activated. As a result, fire, smoke and water damages were minimized.



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

Information on Marioff group companies, agents/distributors and references can be found at [www.marioff.com](http://www.marioff.com).

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