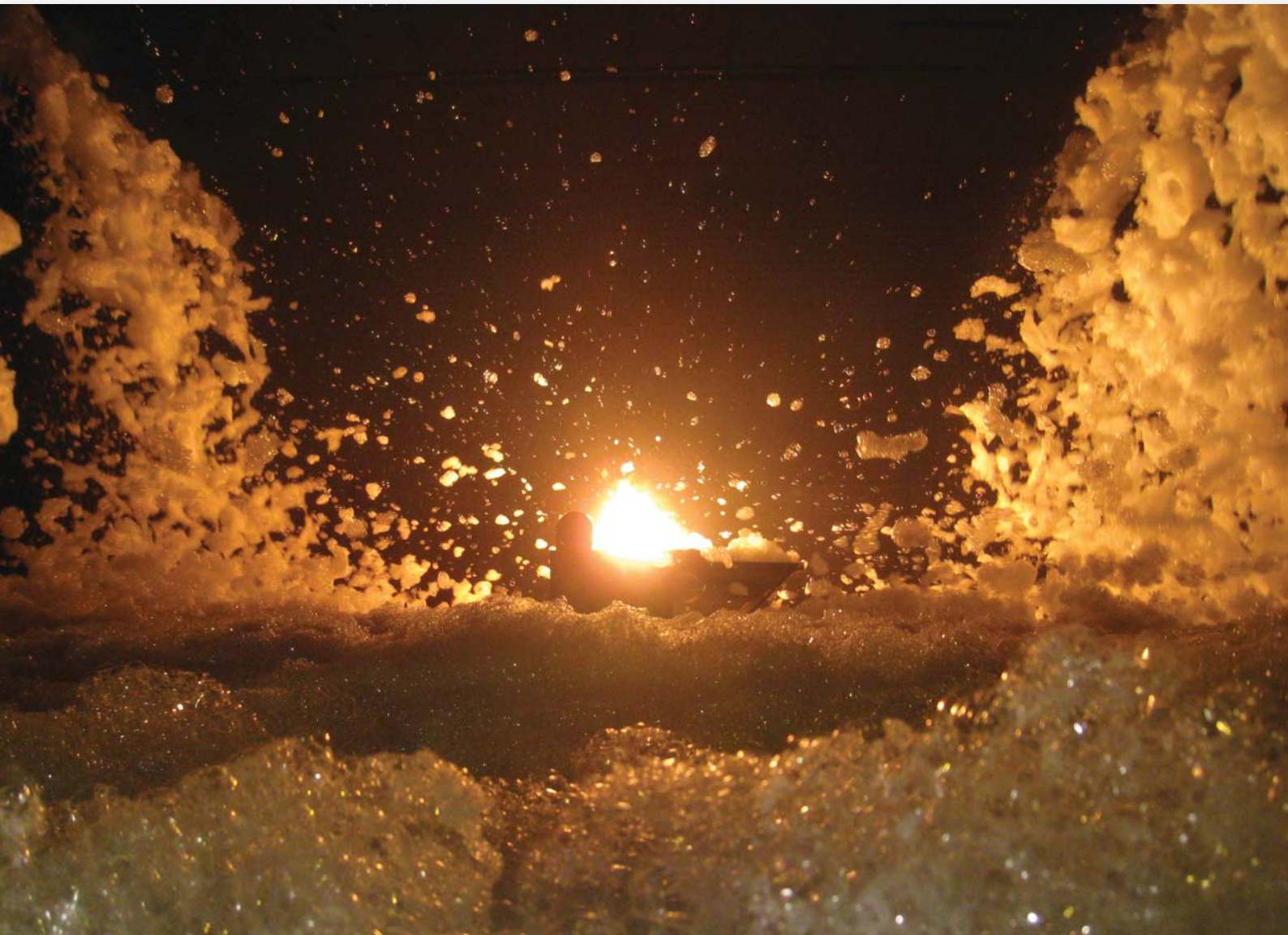


# HIGH EXPANSION FOAM

fire extinguishing system



# A SAFE AND COST EFFICIENT ALTERNATIVE



If a fire breaks out in an enclosed area on a vessel, we depend on an extinguishing system that deploys quickly, is effective and safe for personnel.

**THE UNITOR HIGH EXPANSION FOAM** Fire Extinguishing System (Unitor HiFoam System) is an extremely effective protection for machinery space applications. Further, the system is cost effective and safe for the crew and environment.

The system can be applied on merchant marine and offshore structures as the design is in accordance to SOLAS and in compliance with Class requirements.

## Protects valuables

The Unitor HiFoam System is designed as a total flooding system for machinery spaces of Category A. This includes enclosed areas such as cargo pump rooms onboard vessels and offshore installations. The system is used both as total flooding system for the entire machinery room or installed in individual compartments. The quick activation of the system minimises fire and heat damage to equipment and structures. The foam is not harmful and the cooling effect hinders the fire from reigniting after it is extinguished. No hazardous decomposition products that could cause damage are formed.

## Solution benefits

The Unitor HiFoam System is a first-class fire extinguishing system with easy installation and operation. The space saving installation provides a zoning option for selective and sequential release. The high expansion ratio and the stable condition of the foam results in a very rapid filling rate with low consumption of water and foam concentration. This optimises protection of equipment and reduces water capacity needs. In order to prove the stability of stacked foam, the system successfully passed a height test witnessed by a classification society, reaching 20 meters. Replacement of the foam concentrate is available worldwide.

## Cost effective

The Unitor HiFoam system is designed to keep both installation and operational costs low. The use of internal air eliminates the need for an external foam generating room as well as extensive air ducting and fans. Furthermore, the system requires minimal maintenance.

## System description

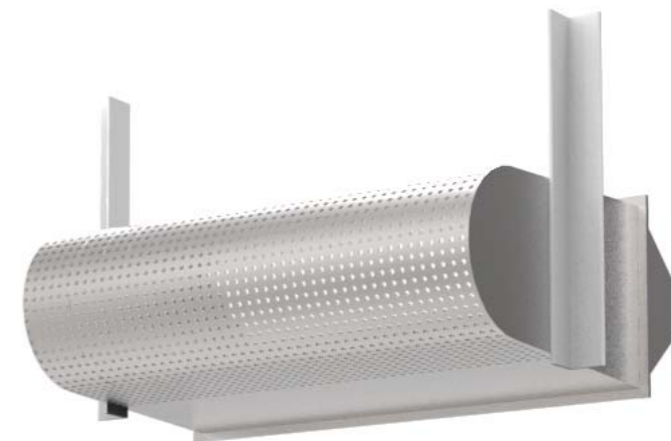
The Unitor HiFoam System uses a synthetic foam concentrate together with water and air to produce extinguishing foam. The system consists of a foam storage tank at atmospheric pressure, a pump and mixing equipment that is located in the central foam room. When the system is activated, the foam concentrate is mixed with water and released into foam generators. For optimal effectiveness it is critical that the foam concentrate is mixed with water in the correct proportions throughout the fire fighting operation. This is secured by the proportioner or inductor that gives the right mix in the full operating range. Foam generators then expand the foam mixture with air. Air used for producing foam is drawn from the protected space. The foam is discharged from generators at strategic locations. The system operates using either fresh water or sea water.

The foam generators produce foam that covers the entire protected space. The Unitor HiFoam system can be manually released from the foam room by directly operating the valves and pumps. It can also be remotely operated by a centrally located control cabinet for operational flexibility.

## Extinguishing fire using foam

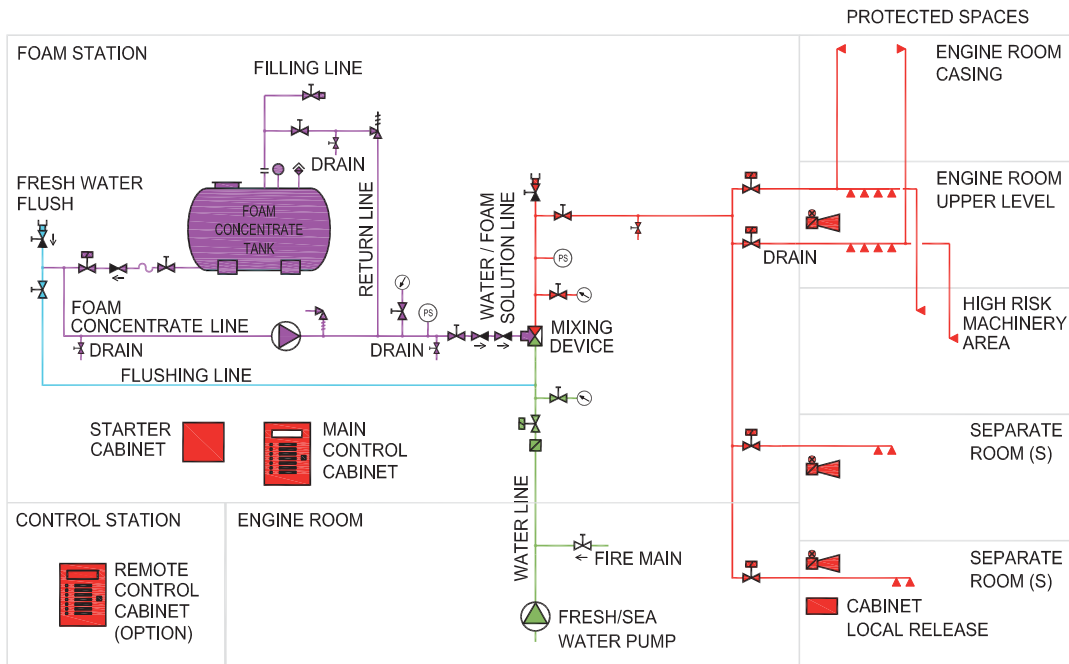
The high expansion foam suppresses fire first by separating the fuel from the air, suffocating the flames and immediately prevent further combustion. The foam then cools the area on fire and reduce evaporation of flammable vapors into the air. This is the most effective way of starving the fire of oxygen and cooling the objects on fire. The high expansion foam has high resistance to heat and smoke generated during the fire.

- Complies with SOLAS and approved by major classification societies (IACS)
- Extensive independent testing according to IMO MSC/Circ.1384
- Foam testing according to IMO MSC/Circ.670
- Foam concentrate complies with requirements of European Council Directive 96/98 on Marine Equipment Directive (MED)



Foam generator

## Standard configuration



## Technical data

### GENERATORS

<b>Foam capacity</b>	
UFG-90 [m <sup>3</sup> /min]	60
UFG-60 [m <sup>3</sup> /min]	40
UFG-30 [m <sup>3</sup> /min]	20
<b>Material</b>	stainless steel
<b>Nom. working pressure</b>	6 bar (@ generator)
<b>Expansion ratio</b>	1:666
<b>Connection flange</b>	DN 20
<b>Filling rate</b>	1.63 m/min

### FOAM CONCENTRATE

<b>Type</b>	synthetic
<b>Viscosity [cSt] @ -2°C</b>	<60
<b>Lowest working temperature</b>	-2°C
<b>Storage temperature</b>	-2°C to +45°C
<b>Approval</b>	MED certified

### MIXING EQUIPMENT

<b>Type</b>	balanced pressure proportioner or inductor
<b>Capacity [l/min]</b>	75 to 20,000
<b>Material</b>	stainless steel and bronze

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