



Fire fighting on ships

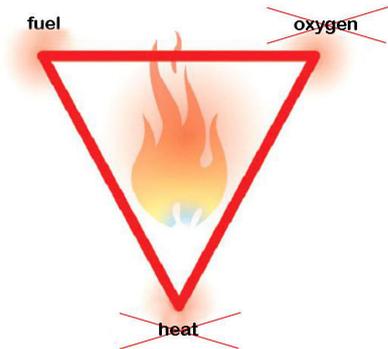
The Steamexfire is a product of Steamexfire BV (Ltd), a full daughter company of Liberty Gasturbine International BV. We are independent and we are able to cooperate with any salvage partner.

What is a Steamexfire system?

The Steamexfire is an inert gas generator that produces large quantities of inert gas mixed with steam and water vapour. The Steamexfire 1000 system produces averagely 10 m³ inert gas/water vapour/steam per second. The Steamexfire runs on water (10 m³/hour average) and kerosene, heating oil or possibly diesel (1 m³/hour average)

What's the principle of the Steamexfire system?

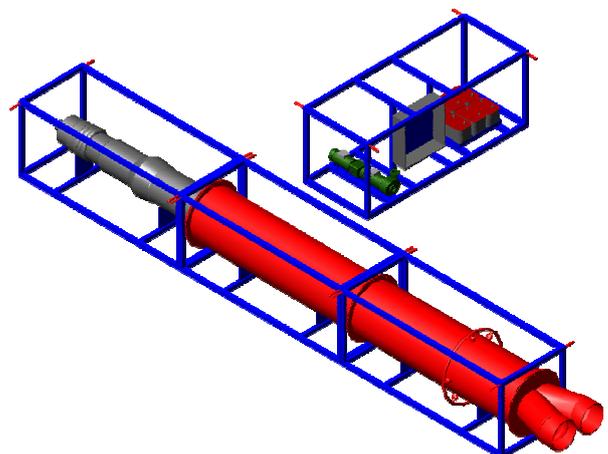
When introducing the mix of inert gas, water vapour and steam in an enclosed space where a fire is burning, the oxygen in this space will be greatly reduced such that oxygen will not support combustion, consequently the fire will starve. Also by intruding a large quantity of water vapour and steam, the watery product will take out the energy from the fire: the fire will cool down drastically and therefore being suppressed. In other words, the Steamexfire takes out two of the three elements of fire, oxygen and heat. Therefore, this system is one of the most secure and fastest ways to kill large fires in enclosed environments. The Steamexfire is able to inertise to 1% oxygen level and maintain this inert situation.



Practical deployment during a ship fire

The system will be sailed in or flown in. In case of sailing in, the pilot or tug must take a sufficient amount of fuel, and must be equipped with sufficient water (yes, the system can run on seawater) and fuel pumps to feed the Steamexfire system via hoses. The Steamexfire modules will be hoisted up, if needed with muscle power, to the affected ship. After assembling (15 minutes) the system must be connected to the affected area, by using a long flexible harmonica hose. (Hose length up to 100 metres). The system can be started and can be run as long as fuel and water are being supplied, up to 250 hours non stop. A short service check is necessary after 250 hours. By analysing the combustion gasses from the affected area with the aid of a portable gas chromatograph, the condition of the fire can be monitored. Also by using an infra red camera, the decreasing temperature can be monitored when successfully killing the fire. When flown in by a helicopter, all equipment must be boarded, including small generator, submersible water pumps and small fuel tanks, in case the affected ship can not deliver the required fuel.

Steamexfire BV is able to supply its own experienced operators, 24/7 global. Steamexfire prefer to cooperate with salvage experts, like Smit salvage, Svitzer Salvage and Mammoet Salvage, in combination with SFS, Falck Nutec and others.





Why using a Steamexfire system to fight ship fires?

Usually the fire (in enclosed spaces in a ship) burns in the bulk, machine room or in containers, container departments. These spaces are hard to reach and difficult to enter.

Problems:

- Limited amount of CO₂ in bottles
- It is hard to get close to the fire
- Fires are very stubborn
- Ship is only accessible with tug/pilot or helicopter
- Extensive smoke and heat development
- Lack of (fire fighting) equipment, lack of electric power, winches, hoists, etc.



Solutions:

- Deployment of Steamexfire 1000 system, modular design (200Kg each)
- Easy and fast assembly due click, plug and play principal on board of the vessel
- Connection to affected area by using a heat resistant flexible hose via ventilation ducts, manholes or manifolds

Advantages:

- Fast deployment
- Fire-fighters do not need to go inside the affected area
- Fire is under control the fastest way possible
- Unlimited production performance
- Proven concept, technique available today.

Conclusions:

- Replacing conventional fire fighting techniques or addition on existing techniques
- System suitable to inertising bulk and other spaces
- Less damage, less time consuming repairs, economic advantages

Steamexfire BV is open for subscription agreements, operational standby agreements.



Smoke fighting

The Steamexfire 1702 is a system which produces a powerful air stream with a 17 % oxygen content, mixed with water vapour and steam.

Its production is average 20 m³ per second. Throw length is depended on wind. A light wind can extend throw length up to 300 metres and stay effective. Without wind the effective throw length is approx. 100-150 meter. The produced water droplets have an average size of 50 to 70 Microns. In simple words, the Steamexfire 1702 system is a mega water mist canon.

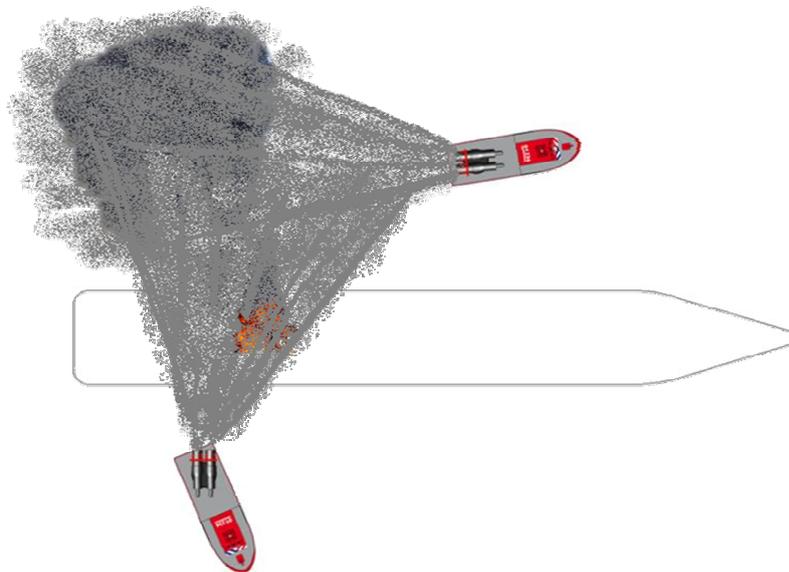
The system cools down air aside of a fire in such a way that it will form a barrier to avoid the fire to jump to a side object. Also the system will perform as a high pressure boost fire fighting system as being used in fire engines (trucks).

The main application of the system is to wash down extensive smoke and gasses in order to protect civilians, buildings, constructions etc.

To summarise the Steamexfire 1702 applications:

- Cooling of ships skins and decks
- Suppressing deck fires, open fires, liquid fires, similar as done with oil well fires in Kuwait in 1992
- Washing down extensive smoke
- Washing down toxic gasses
- Forming shields to protect close objects

The system can be put on a pilot or tug on a rotating wheel with hydraulic cylinders, such that the stream of mist can be directed with joystick operation.



Technical specifications:

Seizes lwxh:

3.5X1X1 metres

Fuel consumption:

max. 800 litre/hour

Weight:

650 Kg