



## New method of fighting bushfire and protecting objectives from open fire.

Holland, December 2009

**We believe it's every bodies responsibility to think about innovative solutions to protect people and property against bushfires.**

### **Introduction**

The western part of the USA, southern Europe and the eastern part of Australia has been plagued by forest or bushfires for decades. It appears to be that these fires occurs increasingly frequent in the last 10 years.

This paper is not about the causes of bushfires, it is about the typical properties of bushfires and based on these properties, this paper is about a new innovation to fight bushfires.

Usually, bushfires start as sparks on different places. A bushfire needs dry combustible materials like dry trees, branches, leaves, dry grass, etc. Another must have is wind, preferable strong winds.

It is the strong wind that usually hinders firefighters to fight these fires because of danger involved, caused by its power and velocity, spreading and traveling. Buildings, structures and social environments and civil properties are important to protect.

Usually most of the fights against fast raging fires are lost because of the impact of heavy winds.

### **Liberty Gasturbine International BV**

since 20 years, Liberty Gasturbine International BV from Holland is specialized in unconventional Gasturbine applications. Liberty Gasturbine Holland, one of its subsidiaries is inventor of the JetFogger, a disinfection machine for greenhouses and forests, and the SurfaceJet, a heater/dryer for road constructors.

Another subsidiary is Steamexfire BV, producer of the Steamexfire system.

The Steamexfire is a fire extinguishing apparatus driven by a jet engine. There are two principles of Steamexfire systems;

1. The Steamexfire as an inert gas generator, being used to fight fires in enclosed spaces like underground mines and tunnels.
2. The Steamexfire 1702, an apparatus producing an aerosol with an enormous throwing length and penetrating power.

The Steamexfire Group has successfully extinguished major underground coalmine fires in Europe and South Africa. Our equipment is in operation at major international companies like BASF, Bayer, Wacker Chemie, etc.

Jet engines were successfully applied as the only method to fight mega fires, like underground coalmine fires in Australia, USA, Ukraine, Russia, Poland, Norway and South Africa. Also the oil well fires in Kuwait were extinguished by using jet power. Jet engine driven fire extinguishing apparatuses are the most powerful fire extinguishers available.

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### **Steamexfire 1702 method.**

The Steamexfire 1702 principle is based on the same one that has been applied in 1993 in and after the Kuwait war to fight the oil well fires over there. The principle was simple and effective, two jet engines were mounted on a tank, it was simply the strong, high velocity airstream, produced by the two large jet engines and water that killed these fires. It appeared that this was the only principle that worked sufficient.

In cooperation with several scientifically fire and rescue institutes in Holland, Steamexfire BV, studied the impact of the Steamexfire 1702 method on bushfires and as a result, we concluded with the following potential method.

To fight windy fires, you need wind, as an opposition. Jet engines producing these large power full winds. By mixing its exhaust gas with water by using special designed nozzles, an cold aerosol is created with great penetrating force and enormous throw length. It's a proven fact that small droplets absorb more heat than large droplets. Another advantage, in special circumstances, is the fact that exhaust gasses of a jet engine only contains 17 % oxygen, which has a negative effect on fire in a short distance.

*In short, the Steamexfire 1702 produces a large quantity, of wet, low oxygen airflow (wind), with enormous velocity.*

We concluded, the Steamexfire 1702, mounted on the back of a large water truck could be a welcome addition for the firefighters involved in fighting bushfires.

We designed and patented a new Steamexfire 1702 BF (bush fire) as shown underneath.

Located on a rotating device on the back of a water tank, the jet engine (read throw direction) can be controlled from the truck's cabin with a simple joystick. The operator only needs 1 day of training to be able to operate the system, it takes 3 days of training to fully understand all its functions.

The fuel tank is incorporated in the water tank for safety purposes. On all sides of the truck a water spray system is applied to protect the truck. Refueling and filling the water tank is possible during operation.

The entire system is controlled by a simple switchboard with touch screen visualization, which makes operation quiet simple, as driving a car.





As seen on the visualization, the jet can be pointed in any direction. The water supply can be in- or decreased with a simple switch, at moments more or less water is needed.

Also the speed of the engine (thrust or if you wish, velocity) can be controlled with a simple switch.

A water pump is incorporated in the tank trailer and can be started remotely. The complete unit is in constant contact with the base, via GPRS.



The system can be installed on any heavy duty truck, 4X4, 4X6 or any layout/configuration.





*Test module Steamexfire 1702 BF*



We believe our system shines a new light onto innovative ways to protect your forests, wildlife, infrastructure, properties, but above all, your people.