

Water mist under high pressure. How does it operate?

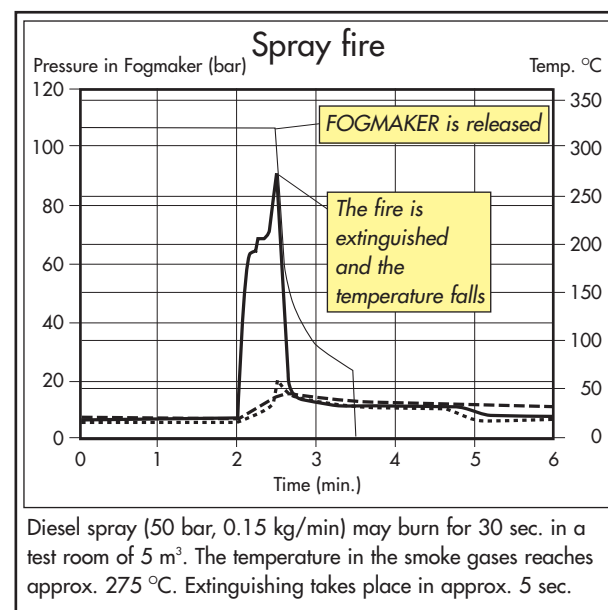
Fogmaker high-pressure water mist extinguishes fires with the help of three basic mechanisms. All three operating modes depend on the size of the drops.

The high pressure, 100 bar, and special nozzles break the water down into very small drops. The average size of the drops is 50 µm. As a simple comparison, 8,000 of these small drops are the size of one drop with a 1 mm diameter!

One litre of water requires 335 kJ in order to be heated up from +20 to +100°C and a further 2,257 kJ in order to turn from water into steam. As far as heat absorption ability is concerned, water is the best extinguishing agent that can be used in a sprinkler system.

Upon vaporisation, 1 litre of water expands to 1,700 litres of steam. The oxygen content is reduced very effectively and smothers the fire from its centre, where the oxygen content is at its lowest and prevents new oxygen from being added.

Besides water, the extinguishing agent also contains antifreeze and AFFF, a foam maker which is a very effective extinguishing agent for fire in petrol, diesel or oils.



Test fire in a 2.5 m³ "engine room". The source of the fire consists of four troughs, 20x40 cm, filled with diesel as well as a diesel spray, 1 lit/min 5 bar, which sprays the engine. The heat effect is approx. 600 kWh.



Pictures are taken at approx. 4-second intervals. The temperature drops during this time from slightly more than +400° C till +40° C. During these 12 seconds, approx. 7.5 dl extinguishing fluid is used.

Fogmaker International AB

Box 8005, S-350 08 Växjö, Schweden

Tel. +46 (0)470 74 88 80
www.fogmaker.com

Fax +46 (0)470 74 88 89
info@fogmaker.com

www.johansson-infoteknik.se 2005

FOGMAKER

Fire extinction with water mist for all engine rooms and enclosed spaces

Fire extinguisher
with patented
high-pressure technology



Patented high-pressure technology

- *Approved by the Swedish Fire Defence Association and the International Motor Sport Association*
- *Cooling and smothering water fogmaker*
- *Environmentally friendly and quick fire-extinction*
- *Patented construction*
- *Antifreeze extinguishing liquid, (-35° C)*
- *Minimum requirements for cleaning-up after fire*
- *Harmless to people, engines and equipment*
- *Mechanical, manual and automatic release*
- *Anodised, high-pressure containers, corrosion protected for tough environments*

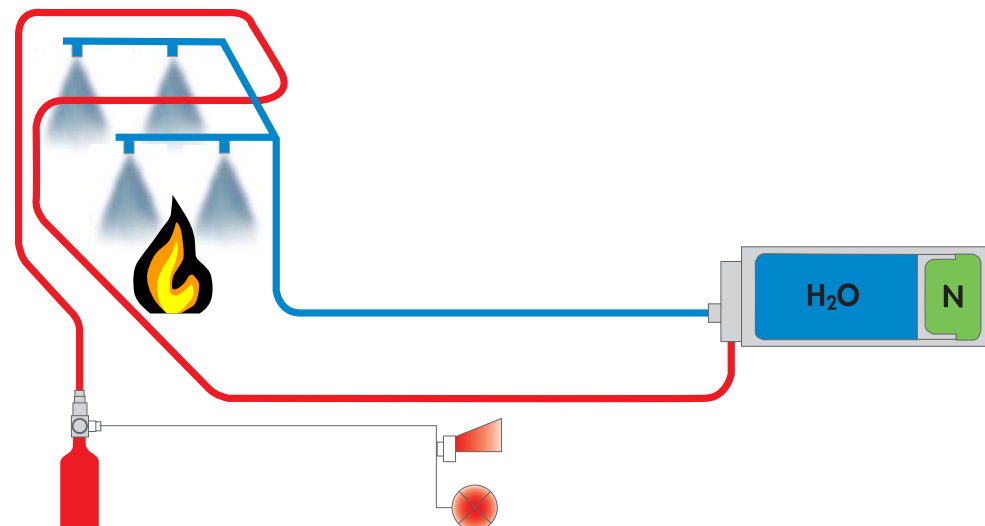


The patented construction permits the extinguisher to always be fully emptied, regardless of the assembly angle or the position upon release. This is a great advantage since the extinguisher can be placed horizontally or vertically in narrow rooms in order to save space. This is also a crucial security factor when the extinguisher is installed in vehicles which are exposed to the risk of overturning. The emptying time for a 4.0 litre Universal with five nozzles is 59 seconds. Fogmaker Universal exists in several sizes, from 3.3 litres to 13.0 litres.

Due to the high pressure of the fogmaker, thick sprinkler pipes are not required, making installation easier.

Detection and activation of the system takes place pneumatically. A pressurised detector pipe bursts if there is a fire. The drop in pressure activates the valve on the extinguishing agent container.

A pressure indicator that gives a sound and light alarm to the operator is installed on the detector glass bottle. The high pressure extinguisher operates independently of power supply.



Buses and lorries

New noise and environmental requirements have contributed to more insulation in the engine room and to higher fuel pressure. This has increased the risk of fire in buses.

The extinguishing system protects against fire in the engine and the engine heater. Detection and release is carried out automatically with the Firetrace detector pipe.

The extinguishing agent container is conveniently placed in the luggage compartment. In low-floor buses it can be placed horizontally under the inner roof. Our customers include Volvo, Scania, EvoBus, Van Hool, Neoman and Vest.



Underground machines

A machine fire underground can be devastating as there are often large amounts hazardous chemicals and fuels in the immediate vicinity. The fire spreads very rapidly. Underground fires are extremely dangerous and need to be extinguished immediately.

Often machines operate in shifts and are furthermore difficult to replace in the event of an interruption.

The fogmaker protects the engine and the hydraulic room and built-in brakes. The fogmaker can be activated mechanically, manually or completely automatically. Our customers include Eurotunnel, Schöma, GIA, Cat, Atlas Copco, Liebherr and Boliden.



Contract machines

Large amounts of fuel and hydraulic oil constitute great risks in machines. If in addition, they operate in inflammable environments such as the timber industry, recycling and the petrochemical industry, inflammable material is often accumulated on the engine which can easily ignite. The fires often spread very rapidly.

In Sweden the requirements of the insurance companies are regulated in SBF 127. Fogmaker meets these requirements.

The fogmaker protects against fire in the engine room, hydraulics and built-in brakes. The system is completely or semi-automatic with pneumatic detection. The advantage of this is that it can cope with strong voltage changes that may occur during soldering work and with start aid and that it works independently of the power supply.

Our customers include Cat, Ljungby Maskin, Svetruck, Rottne, Kalmar and Sennerbogen.



Boats

Fogmaker is installed in many pleasure-boats but has also been installed in smaller commercially operated boats. Fogmaker meets the requirements of EU Directive 94/25/EU with regard to fire protection standard ISO/DIS 9094-1 as well as 9094-2.

Our customers include Vägverkets färjerederi, Najadvarvet, Malö Yachts, Anytec and King Carl XVI Gustaf.

