



## Fire safety for windmills and wind turbines

**In the event of fire in windmills or wind turbines it is a hopeless task to try and fight it from the ground.**

Wind turbines are high tech power stations. A wind turbine generates electrical power from the wind's energy. It is in fact a huge dynamo. In the transformer, which is usually located in the wind turbine's nacelle as well, the electrical power is converted into high tension to ensure effective transfer.

The construction and maintenance of wind turbines require major investments. The price of one wind turbine may vary from €1,500,000 to €2,000,000, depending on its height and location. Its maintenance costs range from €70,000 to €120,000 per year. Assuming a wind turbine's life is about twenty years, that adds up to €1,400,000 to €2,400,000 for maintenance alone.

### High fire risk

In addition to a generator and often a transformer, the wind turbine's nacelle contains brakes, switch boxes, transmissions and converters. Due to the combination of these parts and lubricants, grease, plastic and electronic components, there is a high fire risk in the nacelle. Short circuit, overload, overheating and lightning stroke are the main causes of fire in a wind turbine.

### Inextinguishable

Its great height prevents the fire department from extinguishing a fire that arises in the nacelle. The fire department is powerless. Without an automatic fire extinguishing system, the only option available is to let the fire burn out.

### Fire protection at the source

In view of the substantial investment, high fire risk and total destruction in the event of fire, an automatic fire extinguishing system in the nacelle is of vital importance. The af-x fire solutions fire extinguishing systems operate with a solid extinguishing agent



(SBC). As a result, we can enlarge our fire extinguishing systems to the extent that they are suitable for any room, and vice versa. In other words, we can scale down our systems to the extent that they fit right into machines and equipment, at the potential seat of the fire.

### Extinguishing effect and fire classes

Extinguishing at a molecular level. Simply put, conventional systems are based on the removal of one of the elements from the fire triangle. The af-x systems are more intelligent. The underlying principle of the fire triangle is the fire pentagon, i.e. the air-fuel ratio and the catalyst are of importance too. At a molecular level fire is nothing but a chemical reaction. During that reaction instable molecules, or free radicals, are floating around. Upon activation of the af-x fire extinguishing systems, an aerosol mist immediately combines with these free radicals, resulting in stable molecular compounds. Thus, the fire is blocked in its very first phase, without cold shocks, without water and without oxygen removal.

### Minor investment to protect the wind turbine against fire

We would be happy to determine the potential sources of fire in your wind turbine in consultation with you, so that we can offer you a suitable and relatively cheap solution. In our view it is essential

that parties with expertise in windmills and those with expertise in fire protection confer and share their expertise to realize optimal solutions.

**We can help you. Call us at +31 (0)20 20 50 484 or complete the contact form below and we will get in touch with you.**



## **Prevent fire with AF-X Fireblocker.**

Fire causes enormous damage. Most fires develop from a short circuit in, or overtaxing of engines or equipment. Unseen. Unnoticed. Undiscovered until late, and more often than not even far too late. AF-X Fireblocker is one of the few systems that operate from within and blocks the fire directly at the spot that until now could not be protected: right at the seat of the fire.

### **Built-in fireman**

Originally developed for space travel, AF-X Fireblocker serves as a built-in fireman and swiftly blocks the fire with a dry aerosol compound. From the very first spark. Without using water. Completely harmless to man, beast and the environment and with no threat to business continuity. Low purchasing costs, low installation costs and low maintenance costs. No need for constructional provisions. Long life. No consequential loss. In other words: an annual cost saving of many, many euros.

**af-x** fireblocker | faster than fire.