

PRESSCON

Presscon. Partner for Progress.

# LOX

We don't extinguish fires, we prevent them.  
This proactive approach to fire prevention reduces  
your risks and strengthens your business continuity.

FX Prevent

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HORTI

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SOLUTIONS

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# Fire prevention

## Extinguishing equipment

Fire safety is an important aspect in the construction and furnishing of a commercial building. There are a number of measures to limit, or even to prevent any damage. When building a business premises, constructional requirements are set out to ensure fire-safety compliant building structures.

A fire can obviously have serious consequences. Not only can people be at risk, but the financial damage caused by a fire can also be enormous. We therefore do not have to underline how important it is to keep the occurrence of fire to a minimum and, if possible, remove it completely.

When it comes to choosing the right fire extinguishant, no single type is completely effective for all kinds of fires. The choice is very much dependent on the materials in question! You will therefore need to have several variants of fire extinguishers in your premises.

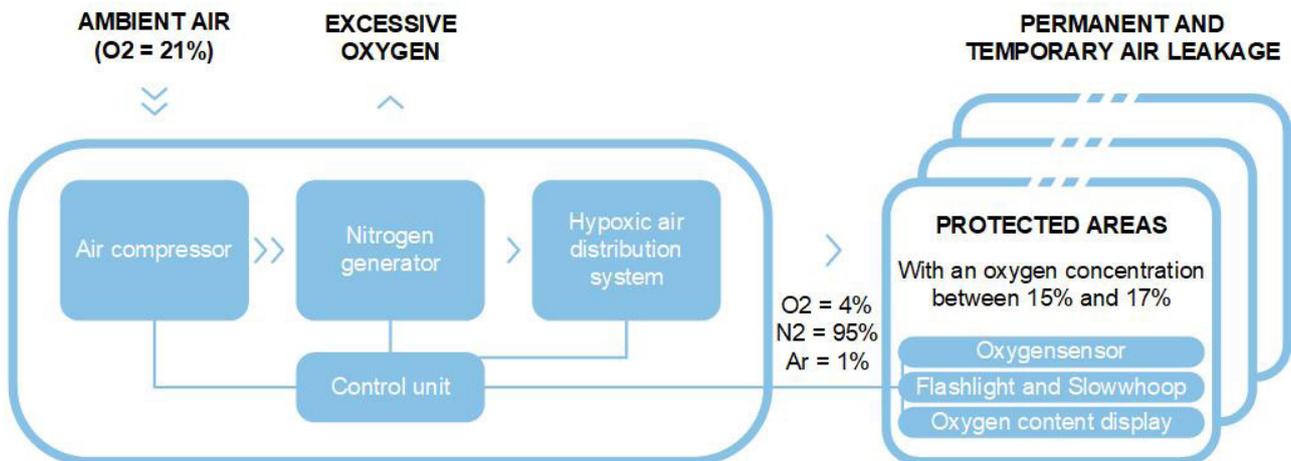
Besides the fact that preventing a fire is better than attempting to extinguish it, determining effective extinguishing equipment is no easy task. Usually, the type of product to be protected, or the construction of the building, means that no single suitable extinguish solution is viable, throughout. For example, because an extinguishing system can damage the product in the room, or the room configuration is very compactly arranged, this can mean that a sprinkler system has insufficient coverage.



## Hypoxic area

As mentioned, fire prevention is preferred over fire suppression. The advantage of fire suppression is that the hypoxic systems are very applicable when fire can cause irreplaceable damage and where traditional fire suppression systems are unacceptable or unsuitable. Hypoxic fire prevention technology, also known as an oxygen reduction

system, is a proactive fire protection technique based on a permanent reduction of the oxygen level in the protected areas. By reducing the oxygen content, one of the components that fire needs to develop is removed. The oxygen content is reduced by a controlled supply of additional nitrogen to a point where combustion of vapors and/or materials is impossible due to the lack of oxygen. This permanently prevents the development of fire and explosions. Factors such as leakage rate (n50), presence of personnel and operational management determine whether an oxygen-deficient environment can be realised. These environments are perfectly safe to work in and have levels that are set in EN 16750.



## Low Oxygen installations

Unlike traditional fire extinguishing systems, that only start functioning once the fire has broken out (initial damage), the low-oxygen environment created by the low oxygen installation ensures that no fire can originate. The nitrogen generator, which is the heart of this installation, produces nitrogen through PSA technology.

### PSA

Pressure Swing Adsorption (PSA) is a technique in which compressed air is passed through a vessel containing an oxygen-absorbing granulate. The oxygen molecules are absorbed so that only nitrogen is let through. Saturation quickly occurs. Therefore, a nitrogen generator consists of at least 2 vessels. When the first vessel is saturated, the generator will switch to the second vessel, which then continues to produce nitrogen. Also, some of the nitrogen produced by the second generator will push the remaining oxygen out of the first vessel, so that it is prepared again to subsequently follow up the second vessel.



# Presscon FX Prevent

## Presscon

The foundation of Presscon is based on the extensive knowledge we have about the development and application of nitrogen generators. Based in Honselersdijk, the Netherlands, our team is committed to delivering customer-focused, quality products to different industries around the world on a daily basis. A team that challenges itself to lead the way, by continuously innovating and improving our services and products.

## Presscon FX Prevent

FX Prevent is the unit within Presscon who is responsible for fire prevention solutions. Presscon FX Prevent has more than 16 years of experience with various methods for regulating oxygen levels in protected areas. We are responsible for the development and production of our LOX® systems. This gives us the opportunity to further optimize our products and services and to respond to the specific needs and requirements of our customers.



## LOX System

The modular design of the LOX® system enables us to provide our customers with systems that are specifically tailored to the needs of their project, regardless of the size of the system. So unlike with a part of the competition, you are not urged to buy a gradual larger system than you may need! Our LOX® Low Oxygen System is also the most energy-efficient oxygen reduction system on the market. With the use of Pressure Swing Adsorption technology, Presscon FX Prevent developed a completely

new HP-system (High Performance) that eliminates the drawbacks experienced with a traditional PSA system. The HP technology is distinguished by an optimized airflow in the system and an unique pressing system to protect the CMS (Carbon Molecular Sieves). These improvements provide a system that is environmentally friendly because of a significant longer service life and lower energy consumption. Our patented compression tubes require less than 2 m<sup>3</sup> of compressed air to produce 1 m<sup>3</sup> of 95% pure nitrogen produce. In addition to the lower energy consumption, this also means that when using a LOX system, a compressor with a lower capacity can be used to achieve the desired compressed air volume which saves space and costs. Compared to traditional PSA technology, the HP-PSA offers a significant energy saving. When compared to a membrane system, energy savings of up to 50% can be achieved! Presscon FX Prevent uses one of the most efficient compressors to achieve this. These compressors have a very long lifespan, which can be up to 3 times more than the average screw compressor.

In order to protect the secured area as well as possible, we have developed an oxygen sensor ourselves. The Presscon LOX Detect is a highly accurate sensor that achieves its accuracy by measuring pressure, temperature and humidity with a tolerance of 0.1%. Because we use a Zirconium dioxide element in the sensor, we can calibrate the sensor annually without having to replace it. This reduces lifetime costs of the systems in comparison with a number of other suppliers!



## Advantage of the LOX system



### Energy efficiency

Through optimum air flow and a low compressed air factor. Because of the modularity of the LOX® system we can switch on / off separate generators based on the desired capacity of the client.



### Modularity

Our LOX® system consists of several bespoke generators, so that we can easily adjust the capacity according to the client's needs.



### **Protect up to 10 separate rooms**

Thanks to our own developed measuring and control technology, we are able to protect up to 10 different areas with one installation.



### **High redundancy**

Within the LOX® system, every generator can be controlled separately. So maintenance, modification or failure will not cause loss of the total flow.



### **Durability**

Long life of the nitrogen generators and the oxygen sensors.



### **Remote & 24/7 monitoring**

Possibility to remotely monitor the status of the installation and to resolve error messages.

## **Applications in fire fighting**

Fire fighting is a major technical challenge in the following cases, making our LOX system a very suitable solution.

### **Refrigerated warehouse**

The risk associated with a low level of air humidity in any refrigerated area and where goods are stored in close proximity to each other, making it practically impossible to extinguish with a sprinkler system, is eliminated by reducing the oxygen level to a value at which combustion becomes impossible.

### **Server rooms**

Proactively preventing fire is far more feasible than extinguishing it, especially for the high-value equipment found in any server room; at the same time, it minimises potential server downtime caused by fire damage.

### **Lithium-ion Battery Storage**

Ensuring a risk-free environment is paramount when dealing with high-capacity battery warehousing. The LOX® Low Oxygen Systems represent the best fire prevention solutions available for Lithium-ion Battery Storage, because extinguishing a “thermal runaway” is very dangerous and there are currently no extinguishing equipments that can stop the decomposition reaction in a Lithium Ion cell.

### **Hazardous substances storage**

When dealing with hazardous substances or materials, there is a risk of explosion with far-reaching consequences for the environment and local residents. A modern and efficient fire prevention system is of utmost importance.

## Museums

Items stored in the protected areas in museums are possibly flammable and extremely valuable, proactive fire prevention is the only solution to ensure that unique pieces are not lost in a fire or damaged beyond repair.

## Cellulose storage

Cellulose storage facilities contain many fire-sensitive materials, which significantly increases the risks for personnel and the company. A reduced oxygen environment eliminates these risks.

## Archives storage

Due to the flammable nature of materials usually found in an archive room, proactively preventing fire is the most rational approach.

# Other applications

Thanks to our many years of experience, we have gained broad knowledge in many different branches. We use this knowledge, by making a positive contribution to as many companies as possible, to provide sectors with solutions. For example, we protect buffer tanks in the chemical sector by using nitrogen solutions against the risk of explosion, and in beer breweries nitrogen can be used in the brewing process as a replacement for CO<sub>2</sub>. There are many opportunities within different industries that can ensure that processes are improved, which can have a positive impact on the final result. We stand for results and we want to reflect that in many branches.

Our goal is, in collaboration with our customers and claimants such as the government and insurance companies, to create the safest possible working and storage environment, in which damage to both people and company property and the environment is minimized. We would be honoured to discuss with you whether fire prevention through nitrogen is a suitable solution for your organization.

Are you interested in our applications of fire prevention for your product or environment? We will be happy to advise you if required! You can always reach us for more information, a quote, or further advice.



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