

Fire protection for warehouses & logistics centres

# Fire prevention with oxygen reduction

BETTER SOLUTIONS IN FIRE PROTECTION

**WAGNER®** 

# The risk

Nowadays, in many warehouses there is an increased risk of fire. This is due to the rising level of automation, the resultant increase in packing density and the endlessly high shelves. In this environment, conventional solutions using sprinkler systems as extinguishers no longer offer the desired level of protection against fires. New and intelligent alternatives are required: **innovative fire protection solutions work preventively**. They stop fires from spreading from the outset by reducing the oxygen content in the ambient air to a level that still enables humans to breathe but not fires. In combination with a highly sensitive early fire detection system, companies are therefore able to achieve comprehensive safety for their goods and processes.

## The main causes of fire in automated high-bay warehouses



### Technical defects with electrical equipment



### Short circuits in

- control units
- electrical cables
- control cabinets
- electric motors

## Corporate insurance claims in Germany\*



**Top 1:** Fires and explosions

**25%**

## The most important business risks in Germany\*



**Top 1:** Business interruptions

**55%**



**Top 5:** Fires and explosions

**22%**

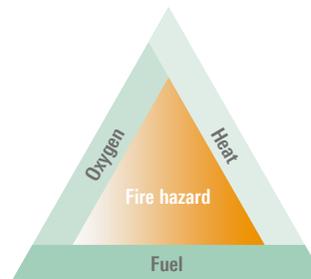
\* (Source: Allianz Risk Barometer, corporate insurance claims 2013–2018)

# What is fire prevention with oxygen reduction?

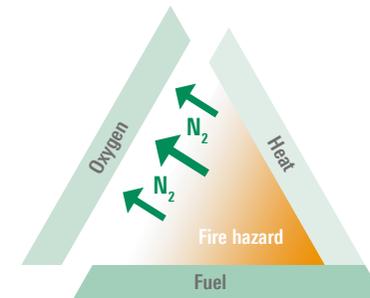
Three components are necessary for fires to develop: oxygen, heat energy and fuel. If one of these three components is taken away, there is no way a fire can break out. OxyReduct® is based on this principle. **By reducing the oxygen content of the air, it literally 'takes the fire's breath away'.** Releasing nitrogen into the protected area lowers the oxygen concentration to a level below the specified ignition threshold for the main materials present. OxyReduct® therefore creates a protective atmosphere in which the development of a fire can be actively and reliably prevented. The remaining oxygen is no longer sufficient to sustain a fire or permit it to spread.

The required nitrogen is generated directly on site from the ambient air. Since nitrogen is a primary component of our natural atmosphere, this saves not only money, but especially space: whereas conventional fire extinguishing systems require huge amounts of space for extinguishing medium supplies, such as sprinkler systems' large water tanks, the OxyReduct® system takes up just a few square metres.

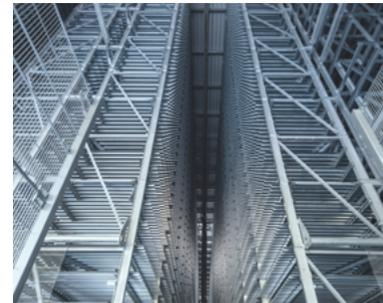
## Lower oxygen, raise safety



When oxygen, heat and a fuel source come together, a risk of fire ensues.



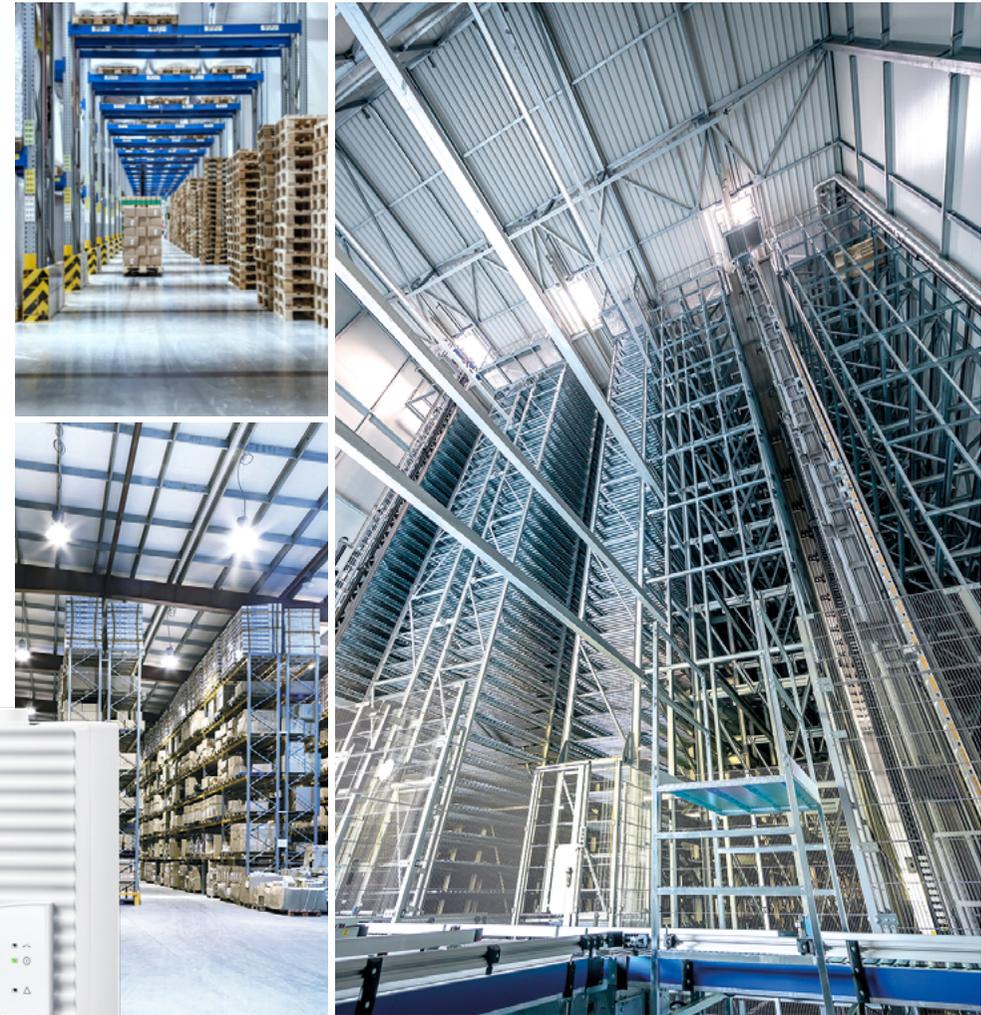
With oxygen-reduced atmospheres through the use of OxyReduct®, the risk of fire is dramatically inhibited.



## What is early fire detection?

To achieve reliable **fire detection** in automated high-bay warehouses, the fire detectors to be used have to meet two basic conditions: firstly, **highly sensitive smoke detection at as early a stage as possible** so that counteractive measures can be taken and secondly, maximum security against false alarms so as to prevent business interruptions.

**TITANUS® air sampling smoke detectors** use negative pressure to actively take air samples from the ambient air and test them for the smallest of smoke particles. They make it possible to detect fires when they are still in the early development stages. Thanks to this added time it is possible to minimise direct and consequential damage caused by the fire, prevent smoke contamination of the stored goods and offer the best possible protection to people and against business interruptions.



TITANUS® air sampling  
smoke detectors



BETTER SOLUTIONS IN FIRE PROTECTION

**WAGNER®** 

# Who plans and implements comprehensive fire prevention? Ideally a partner with over 40 years of experience!

WAGNER plans and installs technical fire prevention systems as customer-specific solutions – worldwide. Based on a tailored fire prevention concept, we work in close cooperation with customers to define the protection objectives as we protect high concentrations of customer values.

*“ We protect high concentrations of value ”*

Founded  
**1976** 

**> 550 employees**



**Everything from a single source**  
(research & development, design & project planning, system engineering, commissioning & maintenance)



**> 800**  
OxyReduct® systems installed worldwide

**9 sites worldwide**  
3 more in planning

**9 sites in Germany**  


**95 Mio.**  
euros consolidated total output

---

Want to find out more about the fire prevention systems that WAGNER has installed in high-bay warehouses operated by well-known customers? – *Then read our cases studies!*

[Read now!](#)

---

*Do you have a question?*

[Write to us!](#)