

WAGNERIMPULSE

THE WAGNER GROUP CUSTOMER MAGAZINE 1/2019



Telehouse plays it safe Data centre operators use intelligent fire prevention solution

NEWS

Trends at LogiMAT &
FeuerTrutz 2019

PRACTICE WORLDWIDE

A cool project in the US
with oxygen reduction

TECHNOLOGY

The right fire prevention
for machine tools



Dear business partners,
Dear readers,

Four billion people around the world use the Internet – well over half of the Earth's population. Most modern business industries, particularly those involved in retail and financial services, rely on digital processes. And digital interconnectivity plays a key role in industrial manufacturing, transportation, and the medical world as well. Our computing power and data volume needs are growing rapidly, and data centres need to rise to that challenge. This means that safety precautions like fire prevention need to be adapted as well, in order to protect these critical processes reliably. Downtime (caused by fires, for example) can cause long-term damage to the company – often far beyond its actual material losses.

The Frankfurt am Main-based company Telehouse Deutschland GmbH operates one of the city's biggest data centres, one that is directly connected to the German Commercial Internet Exchange (DE-CIX), which is among the world's largest Internet exchange points. So when it comes to fire prevention, the colocation providers are playing it safe with the help of an innovative WAGNER Group solution. The intelligent system combines gas extinguishing technology, oxygen reduction, and highly sensitive fire detection. Turn to page 6 to find out more about how the concept was applied at Telehouse.

Museums serve as humanity's collective cultural memory. When a fire consumes millions of historical objects, like the one at the Brazilian National Museum in Rio de Janeiro this past September, it means part of the world's irreplaceable cultural heritage is lost forever. Our article on page 9 explains how comprehensive, reliable museum fire prevention works.

Machine tools are the heart and soul of many industrial manufacturing environments. What happens when one of them catches fire and the value creation chain breaks down abruptly? The article starting on page 12 takes a closer look at fire prevention solutions for these systems.

The new issue of WAGNER Impulse has all of this and much, much more. We hope you find this month's articles inspiring, and we wish you a great start to 2019.

Torsten Wagner

Werner Wagner

Managing Directors of the WAGNER Group GmbH

4 NEWS
News from the world of WAGNER

Trends at LogiMAT and FeuerTrutz 2019



6 COVER STORY
Safety first: Frankfurt-based data centre operator Telehouse turns to a new concept for fire prevention



9 NEWS
History in flames: protecting historical buildings and cultural treasures



10 NEWS
All about risks: The significance of fire protection in storage and logistics



12 TECHNOLOGY
Perfect fit: fire prevention for machine tools



14 PRACTICE WORLDWIDE
We're staying in Great Britain

A cool project in the US

IMPRINT

Published by:
WAGNER Group GmbH
Schleswigstr. 1–5
30853 Langenhagen
Phone: +49 511 97383 0
info@wagnergroup.com
www.wagnergroup.com

Responsibility in terms of media law:
Dipl.-Ing. Werner Wagner

Project management:
Katharina Bühmann

Editorial staff:
MT Medien
Katharina Bühmann
Katrin Strübe
Torsten Szypulski
Stefan Jakubik

Layout and image editing:
Andreas Luczyk
Annika Sunder

Editorial staff contact:
redaktion-impulse@wagner.de

Image sources:
Stefan Effner (Telehouse photos)
Felipe Milanez, Wikimedia Commons (Brazilian National Museum photos)
Förderverein Berliner Schloss/eldaco, Berlin
© stock.adobe.com/de

Item no. 68-30-3428
Issue 01/2019

All rights reserved. Complete or partial duplication of this publication is only permitted with written consent and specification of the source.

Brand names or product names are registered trademarks of their respective manufacturers and organisations.

© WAGNER Group GmbH

!

Would you like to stop receiving the WAGNER Impulse customer magazine? Has your contact information changed?

Send us a message at redaktion-impulse@wagner.de or visit us at www.wagnergroup.com/impulse-daten.

News from the world of WAGNER

Right on track

WAGNER fire prevention solutions really get around – especially when they're on board a train! All around the world, we're keeping passenger areas, train stations, and signal boxes safe.



A real eye-catcher: Another win for TITANUS®: Berlin City Palace to install additional air sampling smoke detectors

It's nearly three metres long and packed full of innovative features, so it's no wonder that the model train WAGNER Rail brought to **InnoTrans 2018** piqued a lot of visitors' curiosity. The train features an LED-illuminated control panel displaying a wide variety of WAGNER fire prevention technologies, including TITANUS® fire detection in the passenger area, a fire alarm system control unit, a smoke monitoring unit, water-fog fire extinguishers, and nitrogen and aerosol fire suppression systems for subfloor areas and technical equipment. The model was highly effective in demonstrating the different technologies, and is guaranteed to make future appearances.

Back in 2017, WAGNER's Berlin subsidiary received an order for around 300 TITANUS® air sampling smoke detectors SILENT-version; the systems were destined for the Berlin City Palace, which is currently being restored. The customers were so impressed with the technology that they've now commissioned **WAGNER Berlin** to put in even more TITANUS® systems. These air sampling smoke detectors have a unique feature, too: they're all being fitted onto prefabricated aluminium base plates. The plates make the detectors easier to integrate uniformly into the narrow recesses in the palace's lime-sand brick walls. Originally inhabited in 1451, the palace has been under reconstruction since 2013. The Humboldt Forum – a city district with various museums, scientific and cultural institutions – is scheduled to open there at the end of 2019.



WAGNER gives wings

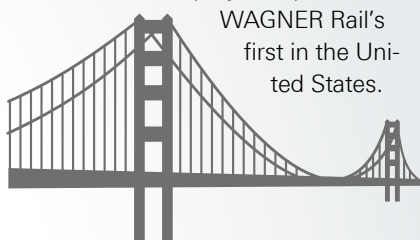
Boeing, Rolls-Royce, Airbus: They all receive components from the Spanish aircraft parts manufacturer Aciturri. Two of the company's production sites modernised their fire alarm systems in 2018. More than 20 TITANUS PRO-SENS® devices are now part of this system – **distributed by WAGNER's Spanish partner company Grupo Aguilera**. The air sampling smoke detectors are particularly suitable for monitoring large areas of up to 5,760m² – which is very much in line with local conditions, as the carbon fibre blades need space when produced!



WAGNER Rail arrives in the USA

The train manufacturing company STADLER is scheduled to begin delivering double-decker rail coaches to the US in 2019. Also on board: WAGNER Rail GmbH's Rail 138 fire alarm system control units, as well as point- and linear-type heat detectors. The electric trains will be used on the **Caltrain line running from San Francisco to San José in the Silicon Valley**, where it will accommodate the areas rapidly increasing numbers of passengers. The

project represents WAGNER Rail's first in the United States.



WAGNER Hamburg protects signal boxes

If there's one thing **Hamburger Hochbahn AG** wants to be sure of, it's that its trains always travel into the right direction. How do they do it? With signal boxes, which use powerful computer systems to control railway switches on its track lines – some of which are more than a hundred years old. Of course, a fire in one of these boxes would quickly stop a large part of the city's public transportation system, so as part of its current project to modernize its signal-box network, the company has asked WAGNER Hamburg to equip two of the signal boxes with extinguishing systems. WAGNER's gas-extinguishing technology offers one major advantage for complex computer systems and data centres: the gas is not electroconductive and quenches flames without leaving residue, so it causes no damage to the expensive technology.

See you there? – join WAGNER at LogiMAT and FeuerTrutz

The fire prevention industry is starting the new year off right, with two trade fairs showcasing new trends in fire protection. WAGNER's fire prevention experts will be attending both LogiMAT, which will be held February 19–21 in Stuttgart, and FeuerTrutz, which takes place in Nuremberg on February 20–21. Christian Jargstorff and Karl-Heinz Schapfl will be part of the trade show team.



Mr. Jargstorff, which solutions will WAGNER's trade fair booth be presenting?

Our focus will be on fire prevention and earliest-possible fire detection. We'll be setting up our OxyReduct® cabin to allow visitors to experience oxygen-reduced atmospheres. The cabin is our way of demonstrating that there are time-tested solutions to ensure active fire prevention.

What trends do you expect to see in intralogistics in 2019?

Mainly, new solutions related to automation and robotics. Customers within the supply chain are having to rely more and more on highly automated processes, which makes it all the more important to prevent operational interruptions like fires.

Anything you'd like trade fair visitors to know?

People often ask me whether oxygen reduction using OxyReduct® is safe for human beings. In our cabin on our booth, we lower the oxygen content of the air to the same level as we would in our customers' warehouses. The reduced oxygen levels are comparable to hiking in the mountains – enough oxygen for human beings, but not enough for fires.

Contact:

Christian Jargstorff,
International Key Account Manager
Phone: +49 172 619 4828
Mail: christian.jargstorff@wagner.de

FeuerTrutz 2019

Mr. Schapfl, what products will you be presenting?

Nowadays, comprehensive fire prevention concepts involve more and more components. So we'll be showing a variety of solutions: our OxyReduct® active fire prevention cabin, the VisuLAN® risk management system, the BC 600 fire alarm system control unit, TITANUS® air sampling smoke detectors – which we've also installed at the Elbphilharmonie – and the FirExting® gas extinguishing system.

What trends are you expecting to see?

The industry is starting to work with more digital tools to assist with planning, designing, and controlling security technology, so VisuLAN®, a risk-management system for centralized management of all of a company's safety-related systems, will be playing an important role on our booth.

How important is this trade show for you?

It's becoming more important every year. These days, practically every well-known company and supplier in the fire prevention industry uses FeuerTrutz as a platform for showcasing their products.

Contact:

Karl-Heinz Schapfl, Managing Director
WAGNER Bayern GmbH
Phone: +49 89 45055143
Mail: karl-heinz.schapfl@wagner.de



Safety first:

Frankfurt-based data centre operator Telehouse is using an innovative fire prevention concept



Frankfurt am Main is home to one of the largest data hubs in the world: the Deutsche Commercial Internet Exchange (DE-CIX) with peak data volumes of 6.7 terabyte per second. Telehouse Deutschland GmbH operates one of the largest data centres in Frankfurt, which has a direct connection with

DE-CIX. The site is subject to the highest security requirements, as countless transactions of Cloud providers, online providers, travel agencies, insurance companies etc. must still run smoothly even in the event of a fire.

Telehouse requires that the highest security requirements are met. This applies for all aspects of security technology, right through to fire prevention. An interruption in data availability due to loss of power caused by fire

would have severe consequences – for Telehouse customers, their customers and for the data centre operator itself.

Colocation service is used by sector giants

As a colocation provider, Telehouse Deutschland GmbH provides its customers with a data centre space with the corresponding physical infrastructure. This includes all electrical and air conditioning components, property management, security and fire

prevention. The customers, who are mainly international Cloud providers, sector giants in the field of E-Commerce and entertainment, as well as other large service and industrial companies, use their own IT racks in the data centre. And these aren't just a significant addition in terms of weight – a server rack can weigh up to two tonnes: "A rack can easily cost one million Euro; that's by no means rare. But the data stored on it is several times more valuable", explains Asko Hamberger, Safety and Security Management at Telehouse GmbH. "It is therefore extremely important that we keep our customer servers in operation 24/7". And individual fire prevention is a major part of this. "In environments with a high level of technology, something can always go wrong."

Fire prevention for technology buildings was not included in the requirements

When planning new data centre areas in an existing Telehouse building three years ago, Telehouse had its own technology building built for the required technical infrastructure. The technology building is connected to the existing building via two central supply corridors. The supply lines for air conditioning and power supply, which are essential for operation,

are located in two mezzanines of the building with room volumes of 730 and 1,700 m³. The Telehouse data centre uses as much electricity per year as a small town with 30,000 inhabitants. Yet, despite the high volumes of electricity flowing from one building into the other, the fire prevention concept for the technology building did not include fire prevention – neither detection, nor extinguishing measures. Not even for the two highly sensitive mezzanines. "But that is an extremely important part of our site. If a fire breaks out there, the consequences for us and our customers are enormous", says Hamberger.

Innovative idea becomes reality – solution with a two-stage concept

Telehouse therefore searched for a suitable fire prevention solution for the two essential mezzanines on its own. The first idea was active fire prevention through oxygen reduction. However: "A fire prevention solution with a permanently reduced oxygen level didn't seem like the optimal solution for us, as this would mean that the area can only be accessed by health-medically examined personnel", explains Hamberger. We had to find an alternative, which also had to cover the following security goals: Constant accessibility (for planned



maintenance work, repairs, searching for causes), no switching off the power in the event of a fire, fire prevention in place at all times (systems not switched off for maintenance work, for example) and a high level of security against false alarms. Eventually, Telehouse drew the planner's attention to the WAGNER Group, which offered an impressive solution: the two-stage concept. "That was exactly what we were looking for", said Hamberger, who was won over

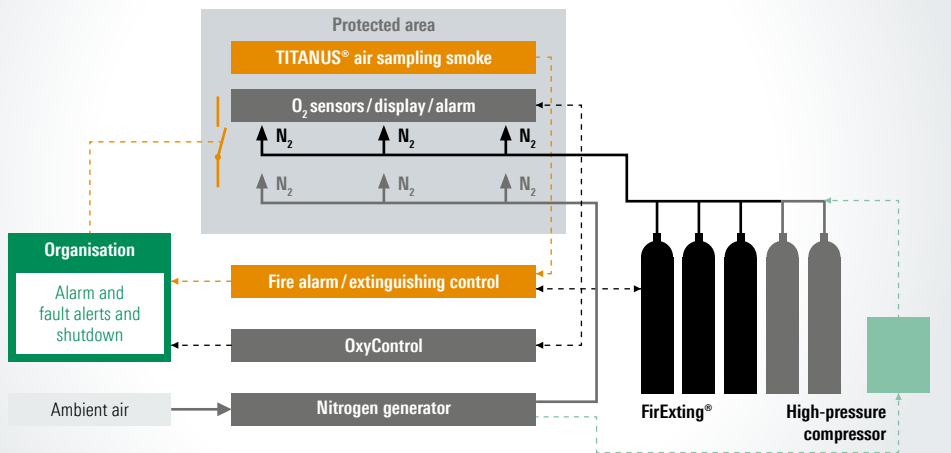
▼ Worth protecting: the two supply corridors primarily house AC and power supply lines to the data centre.



▼ The new two-stage concept combines gas extinguishing (small pipe) and oxygen reduction (large pipe).



Schematic diagram of two-stage concept with refilling



▲ The two-stage concept cleverly combines fire alarm technology, fire extinguishing, and oxygen reduction technology. This concept reduces operating costs compared to alternative options.

by the solution in the fire laboratory, among other things, during a visit to WAGNER in Langenhagen with his colleague.

Strong connection: Traditional gas extinguishing technology with oxygen reduction

The two-stage concept combines traditional gas extinguishing technology with oxygen reduction and earliest possible fire detection to create an intelligent fire prevention solution with maximum safety. If the highly sensitive TITANUS® air sampling smoke detectors detect a fire in the earliest stages, the oxygen level is reduced first of all from 20.9 vol% to 17 vol% by gently introducing nitrogen from stored pressurised cylinders. Reducing the oxygen concentration significantly reduces the fire behaviour, meaning that the fire should ideally go out at this stage. An OxyReduct® P-Line then maintains the lowered oxygen level of 17 vol% for as long as necessary by generating nitrogen on site. This means that Telehouse employees can look for the cause of the fire and remove it thanks to the freely accessible protected area. If the TITANUS® devices still detect a fire, the oxygen concentration is lowered

again; this time to 13.8 vol%. At this oxygen level too, Telehouse employees can still access the protected area to remove the cause of the fire. The OxyReduct® P-Line maintains this level for as long as necessary. The function of the two-stage lowering to the minimum oxygen level of 13.8 vol% was verified with test floodings, reports WAGNER Project Manager Marco Bachmann. And the function can be tested again at any time using the installed solution.

On-site refills: Minimum expense, maximum security

The gas extinguishing cylinders emptied during the test floodings can also be refilled on site in the future. The nitrogen generator (P-Line) is used for this, which generates the required inert gas with maximum purity and fills it into the emptied gas extinguishing cylinders via a high-pressure compressor. "With the number of cylinders we have, having them filled externally would have cost around 75,000 Euro. We wouldn't be carrying out a test flooding at that cost, explains Hamberger. With WAGNER's N2Fill solution, the test flooding incur no extra cost and the fire prevention system also doesn't need to be switched off.

This guarantees maximum protection for the assets of both Telehouse and its customers at all times. "It's an all-round great solution that fulfils our requirements completely", stresses Hamberger, who, by the way, is also privately involved with the subject of fire: He takes a leading position in the volunteer fire brigade of his hometown. ■

i



Telehouse Deutschland GmbH

Telehouse operates 46 of its own data centres throughout Asia, Europe, Africa, and the United States. As a subsidiary of the KDDI Corporation, Japan's second-largest telecommunications company, it offers ITK services on a global scale (in more than 170 countries). A true pioneer in the field of data-centre IT services (in 1989 they opened the world's first location exclusively dedicated to that purpose), Telehouse is a well-established partner with vast market and technology experience at all levels of data centre computing-power scale, capable of handling any challenge related to cloud computing, colocation, system integration, or connectivity.

Protecting historical buildings and cultural treasures

History in flames

On the evening of September 2, 2018, a fire broke out at the Brazilian National Museum in Rio de Janeiro. Within just a few hours, around 20 million objects had been destroyed – artefacts spanning over 11,000 years of world cultural history – along with the building itself, which dated back to the early 19th century. The world reacted with horror and outrage; calls for better protection of historical and cultural treasures are growing louder every day.

Images like those from Brazil call more and more fire scenarios back to mind, such as the one at the Herzogin Anna Amalia Library in Weimar, which occurred on the very same night 14 years prior. Brazil is a newly industrialising economy. Newspapers report that the National Museum was decrepit and urgently in need of repairs, that it didn't even have a fire protection system in place. The building had no risers, and two of the hydrants outside were non-functional. According to media reports, on the night of the fire, responders were forced to bring in water from a nearby lake. But the situation at the National Museum in Rio was just the tip of the iceberg – museums and historical collections all over the world are in severely lacking condition. Parts of Berlin's Natural History Museum, which was destroyed in World War II, were reconstructed and renovated from 2006 to 2010. Even so, as Museum Director Prof. Johannes Vogel explained in a newspaper interview, nearly 70% of the building and its collections – more than 30 million objects – are not currently open to the public.

Why? They are neither appropriately stored nor protected. The walls and windows lack proper insulation against heat, cold, and moisture, and the building itself still requires a modern fire prevention system.

“Natural-science collections have two enemies: fire and water. Anything that isn't burned up in the fire will be destroyed by the fire fighting operations.”

Prof. Johannes Vogel, Director of the Berlin Natural History Museum

Safety in doubt

Like many other countries, Germany has numerous legal and actuarial fire protection requirements in place. If all of those requirements are met, surely nothing can happen, right? Maybe. But just how safe is safe? Generally speaking, fire protection requirements can be broken down into two types: legal requirements (laws to protect people and the environment) and actuarial requirements (which sometimes go above and beyond the legal requirements). But what about an institution's own individual interest in protection its collection? What about all the damage that smoke, flames, or even the extinguishing agent itself can do to valuables? Museums, especially, need to find comprehensive fire protection solutions that put the focus back where it belongs: on preserving millennia-old artefacts and irreplaceable, priceless exhibit pieces.

Protecting the world's cultural heritage

For decades now, WAGNER has been developing fire protection solutions tailored to individual protection needs. These may include TITANUS® air sampling smoke detectors for earliest possible fire detection, FirExting® nitrogen-based gas extinguishing systems and the OxyReduct® fire prevention system – either as individual solutions or in combination. WAGNER's references include renowned institutions such as the British Library, the Bolshoi Theater, and the Berlin Natural History Museum. OxyReduct®, in particular, is quickly establishing itself as the standard solution for protected areas with more challenging requirements. It not only protects exhibition show cases, repositories, and archives effectively against smoke and flames, but also eliminates the danger of damage caused by other extinguishing agents, such as water. Active fire prevention provides continuous protection against the effects of fire without the risks associated with reactive protection systems, which have the potential for failure or faulty activation. Most importantly, it poses no limitations on people, nature, the environment ... or, of course, the cultural treasures themselves. ■

The importance of fire protection for warehouses and logistics

Risk analysis using a deep-freeze high-bay warehouse as an example

Increasing globalisation and ever-greater digital networking of production and logistics processes (IT systems, Industry 4.0) mean that maintaining business operations has become an extraordinarily important priority. Disruptions to critical business processes at certain points along the value creation chain can even put the entire business's future in jeopardy.

Rapid technological developments in the storage and logistics fields have yielded new solutions using automation and robotics. Storage facilities are being packed ever more densely, and many facilities are being designed for flexible use, making conventional fire prevention solutions insufficient for today's challenges. Customers within the supply chain are having to rely more and more on highly automated processes, which makes it all the more important to prevent operational interruptions like fires.

Besides the immediate financial losses, interruptions of the logistics chain can have a wide variety of negative consequences, including damage to the company's reputation or losing customers by failing to meet delivery obligations.

Is loss-of-revenue insurance the answer?

Companies can transfer their fire-related risk to a suitable insurance policy. Loss-of-revenue insurance, for example, can minimise the financial effects of disasters such as large-scale fires. However, they do nothing to compensate or prevent immaterial damage such as loss of reputation, missed market opportunities, or loss of customers or knowledge. As such, part of the risk remains with the company, non-transferable.

Fire prevention concepts/certificates

Pursuant to Section 2, Paragraph 4, Item 18 of the Model Building Regulation, high-bay warehouses whose top storage level is higher than 7.5 metres are considered special constructions. This means that deep-freeze high-bay warehouse builders must always present a fire prevention concept/certificate. These fire prevention concepts/certificates must be inspected and approved by the building authority or by authorised fire prevention auditors, depending on the individual state.

Fire prevention concepts/certificates primarily assess the measures put in place to protect persons and the environment. In deep-freeze high-bay warehouses, however, protecting goods and preventing operational interruptions are major considerations as well, so protective measures will also need to be defined and planned with those factors in mind.

Requirements on deep-freeze high-bay warehouses

Deep-freeze high-bay warehouses need to fulfil special requirements, including an uninterruptible cold chain, high storage density and energy efficiency, low throughput times, and minimal error rates in commissioning and delivery. They also need to ensure that, if a fire occurs, the stored goods will not be contaminated with toxic smoke gases and thus require disposal.

Protection objectives

The effects of fires can sometimes put the future of the company in jeopardy; those who want to minimise their exposure to such risks will need to define protection objectives.

The requirements listed above, for example, would yield the following protection objectives:

- Preserving delivery capabilities
- Securing operational readiness
- Protecting stored goods
- Protecting customer relationships
- Avoiding loss of business image

From there, a risk analysis can derive the systematic fire protection measures that will provide optimum protection for deep-freeze high-bay warehouses.

Risk assessments on fire outbreak potential in deep-freeze high-bay warehouses

There are a wide range of usage-specific fire hazards to take into account when conducting technical risk analyses and evaluating fire dangers in deep-freeze high bay warehouses:

- Usage of flammable construction and insulation materials
- Additional fire hazards related to technical operating equipment (refrigeration units, defrosting and heating equipment, heat exchangers, packaging equipment, etc.)
- Stored goods that are highly sensitive to heat and/or smoke
- Extremely dry atmosphere

There are other fire outbreak hazards to consider in deep-freeze high bay warehouses as well, such as lighting systems, battery chargers (industrial trucks, pickers, etc.), and the like. Electrical systems, in particular, are an area of special focus when it comes to fire outbreak (ignition sources). Fire statistics show that 44% of fires are caused by electrical systems (*Source: VdS 2032*). And the usual sources of elevated operational risk commonly found in warehouses apply to deep-freeze high-bay facilities as well:

- Tall, narrow rack construction (rapid fire expansion due to chimney effect)
- Tightly packed pallets and goods with little space between them (limits fire detection options for plants and facilities; greatly impedes effectiveness of defensive fire suppression efforts)
- Additional fire load created by flammable products, packaging, transportation means, or storage aids)
- Arson risks
- Spark-forming activities (use of welding equipment, abrasive cutting, etc.)

Moreover, deep-frozen products are often more sensitive to smoke contamination, which creates additional requirements as regards fire prevention. Even the small amount of smoke that develops from a small incipient fire can render the stored goods unusable, or even completely unfit for sale in the case of frozen foods.

Technical fire protection

WAGNER offers individual, plant-specific fire prevention solutions tailored to deep-freeze high-bay warehouses' specific risk analyses.

Fire prevention solutions using active oxygen reduction have proven highly effective in automated deep-freeze high-bay warehouses. The OxyReduct® system creates a protective, permanently oxygen-reduced atmosphere in order to minimise fire risk. The VdS GmbH-certified system does this by enriching the protected area's atmosphere with nitrogen, lowering oxygen concentrations to a precise level just below the ignition thresholds of the materials under protection and then maintaining that environment continuously. Such an atmosphere eliminates the possibility of an open fire developing: the remaining oxygen is no longer sufficient to sustain a fire or permit it to spread. In the optimum protection for persons and valuables while effectively preventing operational down-

time, TITANUS® family of air sampling smoke detectors is another pillar of WAGNER's protection scheme. It detects fires with great sensitivity, as early as possible, allowing users to initiate counteractive measures quickly and avoid contamination from smoke and soot. WAGNER has air sampling smoke detectors in its portfolio that are specially designed for use in deep-freeze applications. They work reliably at temperatures as low as -40°C, and feature special mechanisms for blowing ice crystals away from the air sampling points to prevent blockage.

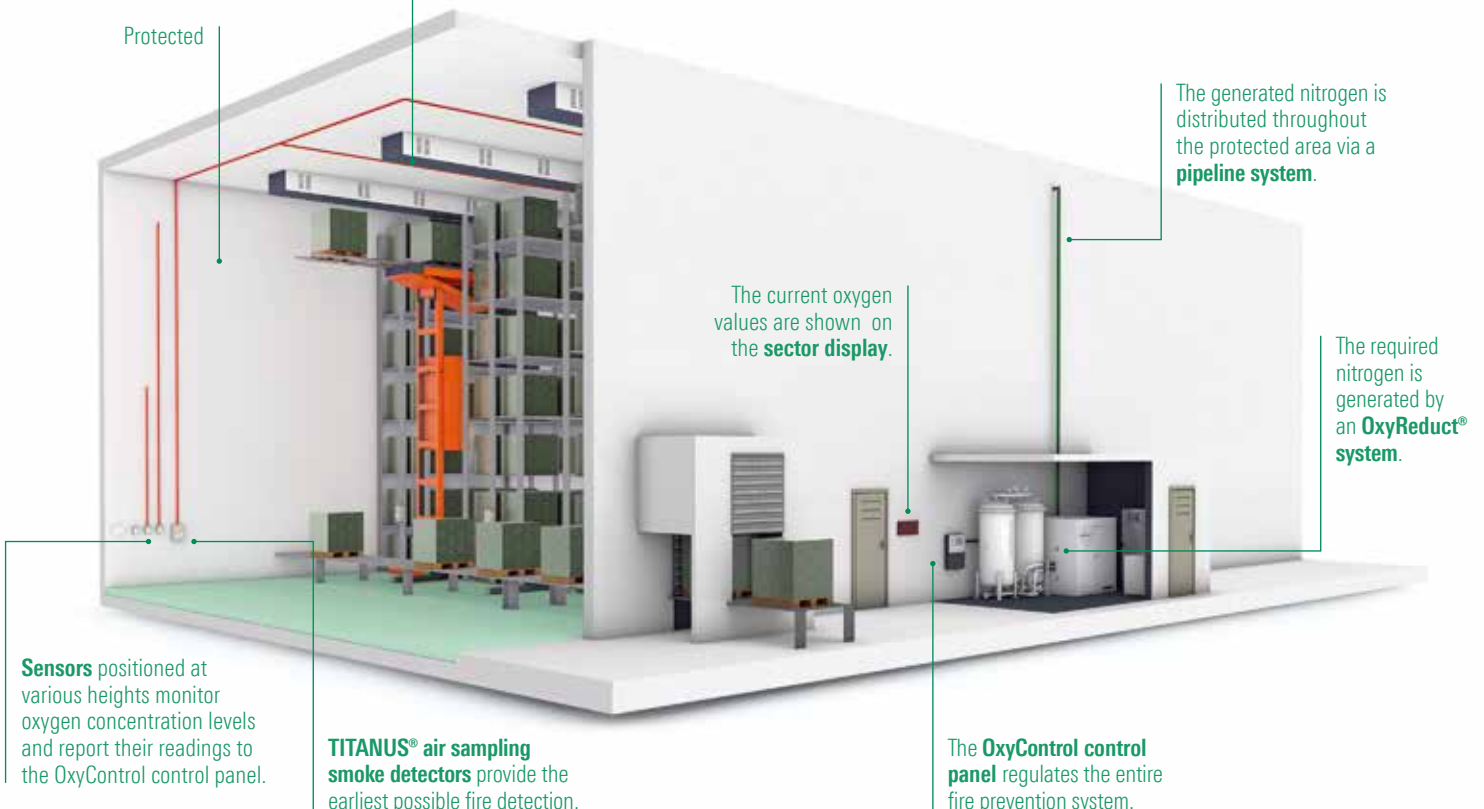
Hundreds of customers around the world are already successfully relying on WAGNER's plant-specific fire prevention solutions. WAGNER has already installed more than 800 systems. Thus far, the largest storage facility WAGNER has worked on was a Preferred Freezer deep-freeze high-bay warehouse with a protection volume of over a million cubic metres. ■

Sample system

The nitrogen can be distributed through a **pipeline system** or via the **warehouse ventilation system**.



Want to find out more about fire prevention in deep-freeze high bay warehouses? Right this way!



A perfect fit: fire prevention for machine tools

Gas extinguishing systems protect systems and manufacturing processes

Machine tools are the heart and soul of many industrial manufacturing environments. Without these partially or fully automated machines, entire branches of industry would grind to a halt: engine parts, gearboxes, steering mechanisms, axles, and brakes couldn't be produced; advertising posters wouldn't be in colour; and aeroplanes would be stuck on the ground. The sheer range of machine tools out there seems infinite: lathes, millers, honing machines, eroding machines, generation and profile grinders ... the list goes on and on. Machine downtime – due to fires, for example – not only hobbles the production process itself, it also disrupts complex value-creation chains and often results in major consequences. From mid-sized industrial firms to major auto manufacturers, a wide range of businesses are turning to tailor-made fire-protection solutions using extinguishing gas.

Proper machine handling does not equal total fire protection

In its Guidelines for Workplace Fire Prevention (VdS 2000), the Organisation of Property Insurers notes that the specific properties of mechanical equipment (such as curing and drying ovens, propulsion engines, conveyor belts, compressors, hardening baths, machine tools, hydraulic systems, and many other types of equipment) often pose particular fire risks, such as extremely high surface temperatures, flammable gases and vapours, flammable substances such as oil or fuel, and overheating due to friction. As a result, even properly handled machine tools represent an elevated risk of fire – one that companies should never underestimate. And in these environments, fires can develop with astonishing speed, with

disastrous consequences ... a lesson one German automotive supplier was forced to learn the hard way. When a technical defect sparked a large-scale fire at a production hall in Witten which manufactured injection-moulded parts for well-known vehicle brands. According to the press, the valuable machines had been installed only a few years before. Injection moulding production was stopped for several months at the facility, causing delivery bottlenecks on multiple models for two auto manufacturers. A catastrophe, in other words. But what do reliable fire prevention concepts for these types of equipment look like? How can a company comprehensively protect machine tools with elevated risk of fire, along with their associated production and delivery processes?

The first step: analysing risks and defining protection objectives

An ideal fire prevention concept is tailored to the facility as a whole – an optimum combination of individual solutions. Such a concept allows machine tool operators to achieve the following protective objectives if worse comes to worst:

- Production and delivery capabilities are maintained
- Manufacturing processes are not interrupted
- Damage to expensive machines, many of which have extremely long delivery times, is minimised (or, ideally, prevented)
- The fire is brought under control quickly, without damaging other parts of the production line, goods, or the building itself

- No damage is done to the environment
- No damage is done to the company's image
- The company's creditworthiness and insurability remain intact.

In order to attain these protection objectives, the machine tool operator will need to carry out a risk analysis on the subject. According to Volker Flügel, WAGNER Group fire prevention expert, the risk factors associated with machine tools include "the lack of trained operators on so-called 'ghost' shifts; the flammable liquids (oils) used as cooling lubricants, which are applied to both tools and work-





pieces at high pressures; the sparks that develop when tools break down; and tools overheating due to dull cutting edges." Another fundamental fire risk-related problem is that, even when machines are handled properly, they themselves are continually radiating energy into the protected area, for example in the form of the heat generated when processing workpieces. "As such," Flügel says, "the company's fire prevention solution must always be tailored to the specific circumstances at that facility." German Social Accident Insurance agrees. According to Regulation BGI/GUV-I 719, "Extinguishing agents and integrated fire detection and suppression systems on machine tools are to be selected based on the degree of potential danger to persons, valuables, and the environment."

Fire prevention solutions must not disrupt normal operations

Here at WAGNER, years of experience have shown us that many companies have the same needs when it comes to operating machine tools. They want to be sure that the fire prevention system itself will not disrupt machine operation or the subsequent production processes, and they need maximum flexibility in production planning, for example in terms of moving machines. Also, the extinguishing agent used must not cause any additional damage. As the Organisation of Property Insurers says in its Guidelines for Workplace Fire Prevention (VdS 2000), "In areas of operation that are exposed to high fire loads and contain high concentrations of value – areas where the outbreak of fire might result in rapidly spreading fire and smoke, resulting in major losses – automatic fixed-location extinguishing systems are advisable." Among others, these

include automatic inert-gas extinguishers, which the organisation says are often used in areas with flammable liquids, such as machine tools, lacquering machines, and electrical or electronic equipment – "wherever water is unsuitable as an extinguishing agent". Finally, operators want the product components of the fire prevention system to be installed in the most space-saving way possible.

The solution: gas extinguishing with FirExting®

What companies need are solutions that can be tailored to their individual production conditions. One such solution is the FirExting® Compact extinguishing system, which is designed with small to mid-sized room volumes in mind. Thanks to its modular design, the system covers all the bases – from a small-scale fire extinguishing system pursuant to DIN 14497 to a VdS-certified inert-gas extinguishing system, including the personal protection and alarm systems required by the Employers' Liability Insurance Association. The solution's primary components are a fire alarm and

extinguishing control panel, a fast and reliable fire detection mechanism, and a variable selection of gaseous extinguishing agents. FirExting® Compact systems save a great deal of space – they are built into a steel cabinet with an integrated support frame, which can hold up to two containers of extinguishing gas, the pilot cylinder, a pneumatic time delay device, a blocking mechanism, and the control panel. After the gas extinguishing system is triggered, a local service team can ensure that machine tools are up and running within a very short amount of time. "These types of tailored fire prevention concepts have proven safe and effective in many different industrial companies, as well as among our partners in the automotive industry," Volker Flügel remarks.

At present, WAGNER is realising several systems of this type for a large automotive firm in Southern Germany, to protect lathes used in manufacturing crank shafts. "This way," Flügel concludes, "our customers can be sure that what happened in Witten won't happen to them." ■



We're staying in Great Britain

The WAGNER Group stands behind its activities in the United Kingdom despite Brexit

Germany and Great Britain have enjoyed a close business relationship for decades. In fact, the UK is among Germany's top five trading partners, while Germany at the top of the British imports list. Great Britain is currently preparing to leave the EU, though the exact circumstances surrounding the exit are still unclear, nor can anyone say with certainty how it will affect trade relations. Many companies are growing increasingly uncertain, but when it came to our own subsidiary in Great Britain, WAGNER's position has been clear since day one. We sat down with Andreas Schober, the European Division Head of Operations, to discuss the situation.

Mr. Schober, the subsidiary in the UK is going to remain open. Was that a difficult decision?

No, we've been putting a lot of time and energy into our team there since 1999. Regardless of what happens with Brexit, we're going to keep working in the UK, because we're very happy with what we've achieved through our subsidiary there. Generally speaking, there's a huge need for fire prevention solutions in Great Britain. And even under new trade agreements, we'll still have a good chance of continuing our successful development in terms of both our extinguishing systems business and our retail business.

What's the mood like in Great Britain?

Brexit is creating a lot of uncertainty

for everyone involved. The country is divided. Some people seem really astonished at just how extensive the consequences are going to be. So it baffles me a little that there are only a handful of initiatives in the country working to either stop a hard Brexit from happening or to prepare for it thoroughly.

How's business?

Good! In the last fiscal year, we managed total turnover of three million British pounds – which is more than 3.4 million euro. We only started sensing changes over the past few weeks. Companies are becoming increasingly hesitant about large investments.

How is Wagner preparing for Brexit?

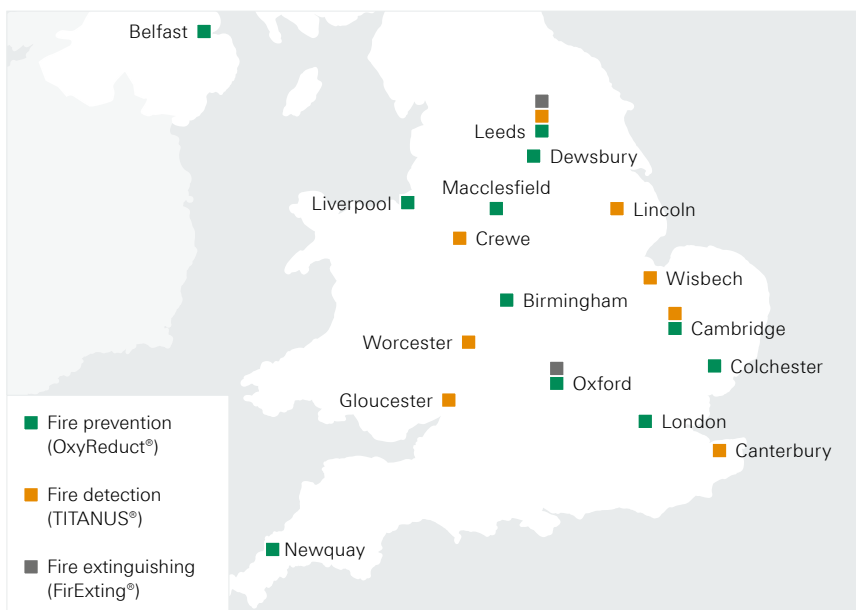
We're doing our best to follow the situation as it develops, so that we can prepare for new challenges in good time. We're doing pre-production and building up stocks right now, just to make doubly sure that we'll be able to meet delivery requirements no matter what.

What do you hope the future brings?

I hope they find a way to sign a deal before the deadline, in order to prevent a hard Brexit. I'd also like the transition period to be extended, so that everyone has enough time to put new regulations in place. But WAGNER's already experienced in trading with non-EU countries, and has been very successful outside of Europe. So we're confident that our products will continue to sell well in the UK even without the domestic market advantages. ▀

Our UK projects

A selection of WAGNER's previous projects



Want to find out more about the WAGNER team in Great Britain? Click here.



Cool Project in the USA

From Smoked Sockeye Salmon to Alaskan Fish & Chips, the New-Cold storage facility in Tacoma, stores Trident Seafoods products in 610,000 cubic meters fireproofed by active oxygen reduction.

NewCold, a company based in the Netherlands, specializes in operating automated, deep freeze storage facilities and handles distribution for leading food companies around the world. Its most recent, and one of the largest deep freeze warehouses in the US, was built in Tacoma, Washington (US), and began operations in May 2018. NewCold chose OxyReduct® technology to protect their latest enterprise from the threat of fire. “Our first project for NewCold in the US presented us with major challenges,” says Frank Siedler, VP Business Solutions, Americas, at WAGNER. “Not only did we have to meet the national and regional compliance requirements within the American market, we had to coordinate project partners from seven countries. Add to that the time difference between the US and Germany and you’ll get an understanding of the organizational hurdles we had to overcome.”

Solution reduces fire risk and energy costs

For a fire protection solution that addresses the challenges presented by deep-freeze environments, NewCold deployed an oxygen reduction system in its Tacoma facility. “OxyReduct® adds just enough additional nitrogen into the protected area to reduce the concentration of oxygen to the required safety level,” explains Florian Buchner, Sales Manager West Coast US at WAGNER. This minimizes the possibility of a fire while also offering several other advantages: “Sprinklers commonly used in the US become ineffective depending on ceiling height. Additionally, their use comes at an additional cost to the facility as it loses storage capability near the ceiling,” says Buchner. By contrast, OxyReduct® allows pallet racks to extend to heights of over 40 meters, increasing the storage volume for goods.

Jonas Swarttouw, US Country Manager of NewCold, states “For us, oxygen reduction technology is the optimal way to protect our facilities from the risks of fire and the frozen goods entrusted to us by our customer. It is a



NewCold Tacoma by the numbers

around 700,000 m³ total volume, of which

- approximately 610,000 m³ protected with OxyReduct®
- 14,558 m² high rack storage area (41.8 meters)
- 100,000 pallet storage spaces
- 8 automatic pickers
- -20°C temperature in storage area

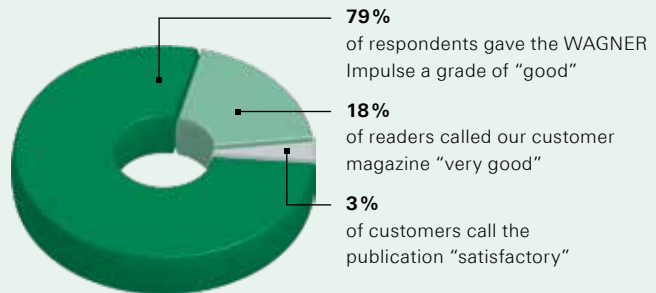
preventive measure versus firefighting offered by sprinkler systems.”

Award and follow-up project

In November of 2018, NewCold’s Tacoma facility was awarded the “Built by the Best” Award by the International Association for Cold Storage Construction (IACSC). By Spring 2019, NewCold’s second, fully automated facility is slated to open in Burley, Idaho. With the construction design success of its first project in the US, NewCold’s second project will once again feature WAGNER’s OxyReduct® technology, this time protecting 17,000 square meters of McCain frozen French fries. “I don’t see anything standing in the way of future collaborations with NewCold,” said Siedler, “and we’re looking forward to it.” ■

Thanks for your feedback!

Positive response: Impulse readers responded to our survey and gave our magazine an overall grade of “Good”. In particular, they gave high marks to the general information we provide on fire prevention, and to our project reports. Readers also felt that the magazine covered news sufficiently well. They saw room for improvement with regard to international perspectives, changes in laws, and information about trade fairs and events. We’re working on those. As requested, the WAGNER Impulse will also be available as a print magazine in the future. You can also subscribe to our newsletter, or just check out our LinkedIn page, which is where we post the newest of the new. Thanks very much to all the readers who took the time to participate in our survey, and congratulations to the winners of the BestChoice gift certificates.



Experience WAGNER Group fire protection solutions live!

Visit www.wagnergroup.com for additional upcoming events and to contact your partners at WAGNER directly

19/02/2019 – 21/02/2019

LogiMAT, Stuttgart



20/02/2019 – 21/02/2019

FeuerTrutz, Nuremberg

FeuerTrutz 2019

20/03/2019 – 22/03/2019

Global Cold Chain Alliance, Brussels



?

GUESS AND WIN!



THE BIG WAGNER
IMPULSE
SWEEPSTAKES

The sweepstakes in WAGNER Impulse issue 3/2018 was extremely popular. Our winners are Ralf Düllberg (Meerbusch) and Karl-Heinz Mast (Munich) – congratulations to you both!

If you'd like to win an Amazon voucher valued at €50, €100, or €150, just answer our quiz question:

What's the name of WAGNER's solution for refilling extinguishing gas containers?

Submit your response to www.wagnergroup.com/en/impulse-competition by **March 15, 2019**.

You can also scan the QR code for easy access via smart phone.

The correct answer and the winners' names will be revealed in the next issue of WAGNER Impulse. The names of the winners will be drawn after the closing date. The winner of the draw will be informed by e-mail shortly after. Persons over the age of 18 are eligible to enter. WAGNER Group employees and their families are excluded from participation, as are all those involved in the design and implementation of the sweepstakes. No cash awards will be made. The competition is not subject to legal recourse.