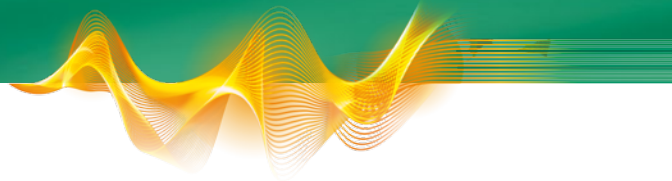


Certified fire protection for  
vertical lift modules and carousels



## THE FIRE PROTECTION SOLUTION FOR SECURE LOGISTICS PROCESSES



Very early fire detection and  
residue-free extinguishing with inert  
gas reliably protect vertical lift and  
rotary rack storage systems

**WAGNER®** 



## WE PROTECT WHAT'S IMPORTANT: YOUR MATERIAL SUPPLY.

Even small fires can cause a great deal of damage. logistics processes can be interrupted, assets and goods can be destroyed.

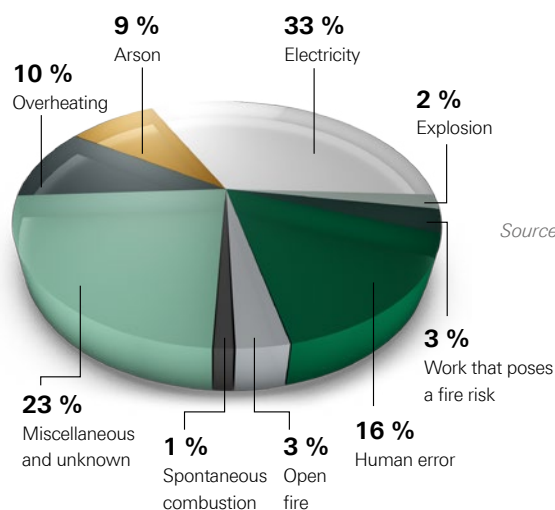
According to the Allianz Risk Barometer, 45.7 % of companies worldwide rate an operational or supply chain interruption as the number 1 risk a company can face, followed by natural disasters in second place and fires/explosions in third place. However, one must keep in mind that the second and third-place risks will also lead to a disruption of logistics processes. The high concentration of valuables in storage areas and the high-investment storage technology cannot be protected from every risk of failure.

But customized fire protection solutions will drastically minimise the risk of fire and the extent of damages. Together with Kardex Remstar, a world leader in highly dense storage systems, WAGNER has developed a fire protection for vertical shuttle and paternoster systems.

### Applications:

- Automated small-parts warehouse
- Vertical storage lift systems
- Vertical rotary rack systems (paternoster)
- Dynamical automated storage systems

### Most common cause of fire



Source: IFS Damage Database

### About us

WAGNER Group GmbH has been developing and producing fire protection systems since 1976 and has established itself internationally as an innovative provider of fire prevention solutions. Its high quality standards and constant efforts for improvement and perfection are the successful drivers of internal research and development work, resulting in over 700 patents to date.

WAGNER is a global technology leader in the field of early fire detection and active fire prevention and covers the complete service portfolio for its customers from planning and design to system construction and servicing. Its product range focuses on four key system functions: fire detection, fire prevention, fire extinguishing and fire risk management.



## FIRE PROTECTION IN STORAGE LIFT SYSTEMS

Customized fire protection solution reduces the risk of fires through earliest possible smoke detection and fire extinguishing with nitrogen

The combination of high-density storage with flexible warehousing strategies makes shuttle systems a highly efficient solution and guarantees that delivery capacity, cost-effectiveness and operational safety will be maintained. As the central hub of the system, a failure here directly affects the timely material supply and thus the total performance capacity of a company.

### **Approved solution offers effective protection from fire risks**

The high-density storage in an enclosed shuttle system requires active, earliest possible fire detection. This is the only way to detect a fire as it is just beginning to form and then extinguish it immediately. Fires can spread quickly depending on what material is being stored, causing severe losses. Even in the early phases of fire development, the smoke particles given off can cause extensive damage. A highly sensi-

tive air sampling smoke detection system uses continuous, false alarm-proof air sampling to detect the tiniest smoke particles in the shuttle at the earliest possible point in time. If a fire is detected, a nitrogen extinguishing system will be triggered which will suffocate the fire effectively and above all not leave any residue behind. The extinguishing cylinders are equipped with flow regulators for soft flooding.

### **VdS-tested effectiveness for efficient extinguishing**

The narrow spaces between the trays present a particular challenge when it comes to uniformly distributing the extinguishing agent (nitrogen). A special diffuser pipe is used to evenly feed the extinguishing gas into the storage lift system through many small apertures at varying heights in the storage system (which can be up to 30 metres high). Follow-up flooding is commenced shortly

after the initial extinguishing in order to compensate for leaks in the shuttle system which are required for structural reasons and ensure dependable fire protection exceeding the 10-minute hold time required by VdS. Extinguishing agent cylinders are triggered at intervals in order to do so.



# FUNCTIONAL PRINCIPLE OF FIRE PROTECTION SOLUTION

Extinguishing  
zone (inside)

**Diffusor pipe** (Patent pending)  
Nitrogen, the extinguishing gas, is fed through the diffusor pipe and distributed uniformly throughout the shelving system through many small apertures.

## Fire extinguishing system with nitrogen

The extinguishing cylinders hold 80 or 140 litres of non-liquefied extinguishing gas under 300 bar pressure and are stored in separate, space-saving cylinder banks. The natural inert gas nitrogen will be introduced gently, i. e. at minimal pressure.

Extinguishing  
system



## Manual release

Enables you to manually release the extinguishing system if a fire is detected.



The specially developed diffusor pipe with proven effectiveness has the VdS approval G316002.

The project planning is in accordance with the VdS 2380 guideline.

WAGNER is a certified constructor with the VdS approval E1397001 for nitrogen fire extinguishing systems (VdS system approvals are S303006 and S315002).



### Shuttle system

Shuttle systems are used in buffer stocks for small components, tools and spare parts as well as medication storage in order to optimise the flow of goods, room capacities and manpower requirements. The shuttle systems from Kardex Remstar are up to 30 m high.

### Alarm indicator

The electrical alarm is carried out by a combination of flashing lights and signal horns.

Optional: In the event of personal injury, the additional acoustic alarm uses a pneumatic signal horn to notify the personnel that a fire has been detected and that extinguishing is about to commence.

### Air sampling smoke detector system

The TITANUS® air sampling smoke detector system continuously analyses the room air actively by taking samples of the air, detecting even the tiniest traces of smoke as early as possible (up to 2,000 times more sensitive than conventional point-type detectors). The air sampling smoke detection system detects in dual detector dependency on both front sides within the shuttle via a vertical pipe route.

ually activate the extinguishing  
ected.

## WELL-PROVEN FIRE PROTECTION SOLUTION



4 extinguishing zones of 50 to 240 m<sup>3</sup> for liquid and solid intermediate products for the pharmaceutical industry.  
Went into operation: 2012, Biberach (Germany)



4 shuttles for electronic and mechanical components for ICE train maintenance  
Went into operation: 2011, Frankfurt (Germany)



3 shuttles for electronic components with a volume of approx. 115 m<sup>3</sup> each.  
Went into operation: 2013, Espelkamp (Germany)



4 shuttle blocks with 3-5 shuttles between 170 and 430 m<sup>3</sup> each for storing small parts such as screws, fastening material and electronic components.  
Went into operation: 2013, Schrobenhausen (Germany)



3 shuttles of 35 m<sup>3</sup> each for SMD components.  
Went into operation: 2015, Allendorf (Germany)



1 shuttle for storing of components and parts for engine production.  
Went into operation: 2015, Walluf (Germany)



WAGNER sets standards for innovative and comprehensive solutions in fire protection: with very early fire detection systems, TITANUS® for aspirating smoke detection, FirExting® for fire-extinguishing, OxyReduct® to actively prevent fires from breaking out and VisuLAN® for hazard management. [www.wagner.eu](http://www.wagner.eu)

**Headquarters  
Sales International**

**WAGNER Group GmbH**  
Schleswigstraße 1–5  
D-30853 Langenhagen  
Germany  
Phone +49 511 97383 0  
info@wagner.eu

**Subsidiaries Worldwide**

**Austria**  
**WAGNER Austria GmbH**  
Am Hafen 6/1/12  
A-2100 Korneuburg  
Phone +43 2262 64262 0  
office@wagner-austria.com

**Benelux**  
**WAGNER Nederland B.V.**  
Computerweg 10  
NL-3542 DR Utrecht  
Phone +31 346 5580 10  
info@wagner-nl.com

**Great Britain**  
**WAGNER UK Limited**  
Unit H  
Suites 3&4 Peek Business Centre  
Woodside, Dunmow Road  
Bishop's Stortford  
Hertfordshire CM23 5RG  
Phone +44 870 333 6116  
info@wagner-uk.com

**Poland**  
**WAGNER Poland Sp. z o.o.**  
ul. Puławska 38  
PL 05-500 Piaseczno  
Phone +48 22 185530 0  
info@wagnerpoland.pl

**Russia**  
**WAGNER RU GmbH**  
Businesscentre SMART PARK  
117246, Moscow  
Nauchnij Projezd  
14 A, Building 1, Office 4.12.  
Phone +7 495 96767 69  
info@wagner-russia.com

**Singapore**  
**WAGNER Asia**  
No. 61 Tai Seng Avenue  
#B1-01 Crescendas Print Media Hub  
Singapore 534167  
Phone +65 6296 7828  
info@wagner-asia.com

**Switzerland**  
**WAGNER SCHWEIZ AG**  
Industriestrasse 44  
CH-8304 Wallisellen  
Phone +41 44 832540 0  
info@wagner-schweiz.ch

**USA**  
**WAGNER Fire Safety, Inc.**  
135 Beaver Street #402  
Waltham, MA 02452  
Phone +1 781 899 9100  
info@wagner-us.com

In cooperation with  
**kardexremstar**  
[www.kardex-remstar.com](http://www.kardex-remstar.com)

© WAGNER Group GmbH. Subject to technical changes without notice. Art. no. 68-30-0842. Last revised 10/16.