



## **SAFETY FOR MACHINES & PLANTS**

THROUGH INNOVATIVE AND RELIABLE  
FIRE PREVENTION SOLUTIONS

# TAILORED FIRE PREVENTION SOLUTIONS FOR EVERY REQUIREMENT

02/03

## ENGINEERED FIRE PREVENTION FOR INDUSTRIAL PRODUCTION SYSTEMS

More than 30% of companies affected by fire damage go bankrupt! No insurance protects against the negative consequences of fire-related delivery problems or the associated damage to the company's image. Fire prevention is therefore an indispensable investment in safeguarding the future of your company. Benefit from GreCon's expertise! GreCon stands for competence in fire prevention: for over 45 years, our fire prevention solutions have been securing more than 250,000 industrial sites and a range of production processes across many different industries, from the automotive to the sugar industry. You too can benefit from our wide-ranging knowledge to engineer the right prevention solution for your production.

### AS FAST AS POSSIBLE

Our mission is to detect and extinguish ignition sources at an early stage and thus avoid personal injury and production downtime. To achieve this goal, we pursue two solution approaches:

### AS QUICKLY AS POSSIBLE

Our advanced detectors identify highly mobile sparks, smoldering nests, glowing embers,, and flammable particles, which are then reliably eliminated.

### AS GENTLY AS POSSIBLE

This innovative protection concept involves smothering the ignition source with a fine water mist. This avoids the need for evacuations, as is required with CO<sub>2</sub> extinguishers, and production downtime reduces to a minimum. Using this water-based method, it is also possible to quickly and efficiently extinguish fires in oil baths.

"WE NEVER HAVE FIRES IN OUR COMPANY"  
...AN OFTEN FATAL MISTAKE



UNINTERRUPTED PRODUCTION THROUGH TECHNICAL FIRE PREVENTION

"We never have fires in our company". "There's only a minor risk of fire - and if it happens, we're insured." Unfortunately all too often these assumptions have proven to be wrong. With disastrous consequences. Of course, the insurance might cover the cost of a burnt filter. But what about the loss of production? Delivery delays? Loss of image? Loss of customers? It can be challenging to get cover for these losses. Therefore, your company needs to deal with fire protection as an ongoing concern. There are many approaches to be considered here. The optimal solution consists of several interacting components:

- **Structural measures** such as fire doors to prevent the spread of fire
- **Organisational measures** such as cleaning to reduce the risk of fire and explosion
- **Technical measures** such as sprinkler systems to extinguish the fire

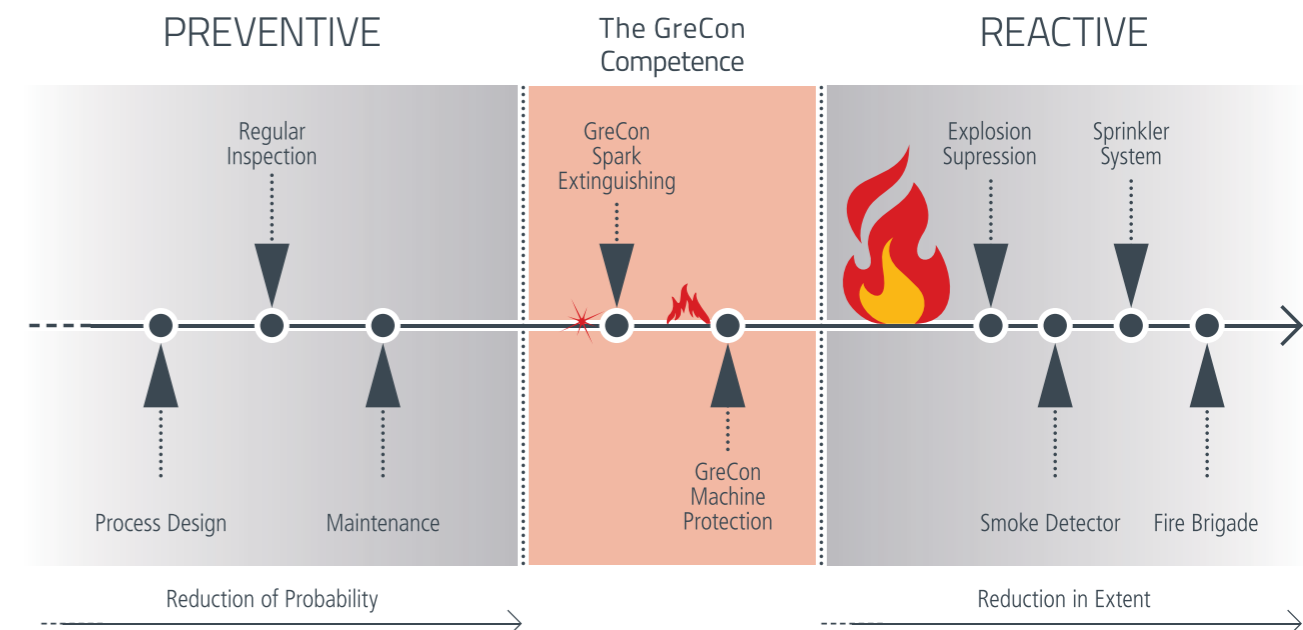
Each of these three groups of measures includes activities aimed at reducing the risk of fire or limiting the extent of a fire. GreCon's expertise lies in fire prevention.

Extinguishment before a fire breaks out. We focus on detecting hazardous ignitable energy such as sparks, and eliminating them within milliseconds - without interrupting your production.

FIRE PREVENTION - A COLLECTIVE RESPONSIBILITY

"The fact that no fire has broken out in many buildings for decades does not prove the absence of danger, but is a stroke of luck for those concerned that could end at any time."

Extract from the judgment of the OVG (Higher Regional Court) of Münster 10A 363/86 of 11/12/1987





## MACHINE FIRE PREVENTION FAST & EFFICIENT

06/07

### DIRECTLY MOUNTED AT THE OBJECT TO BE PROTECTED

Malfunctions, machine damages or foreign matters in the production process are a high fire risk, often with long production downtimes. For example, the water mist extinguishing system, which is VdS certified for press extinguishing, reduces these consequences thanks to an early reaction to ignition sources. In addition, the modular design of the system makes an individual adaptation to your production process possible.

### OPTIMUM EARLY FIRE DETECTION

Fast, fail-safe infrared detectors monitor the objects to be protected. Thanks to these detectors, it is also possible to monitor large areas. Spark detectors with fibre-optic technology and high-temperature adapters provide a solution in areas where detection is difficult or exceptionally demanding. If necessary, we combine these detectors with other detector technologies, e.g. to record the temperature, combustion gas or smoke. In this way, ignition sources are detected early and extinguished effectively.

### EXCELLENT EXTINGUISHMENT RESULTS

Special nozzles generate a fine mist of water which has a cooling effect whilst at the same time cutting the oxygen supply. This fine water mist evaporates during high temperature processes, thus suppressing the oxygen content. The fire is smothered. These special nozzles have been developed specifically for machinery protection applications and have proven high efficiency. Apart from water, extinguishing gases (such as CO<sub>2</sub>, argon, nitrogen) or foams can also be used.

### ROBUST AND POWERFUL

The water is supplied by particularly robust valve stations or extinguishing nozzles. As the extinguishing water reaches the source of fire much quicker, this system is more efficient than ordinary systems. The targeted intervention of this fire prevention concept for machinery minimises both water damage and the duration of production downtime. Specially developed maintenance accessories facilitate quick and straightforward servicing.

# IT'S THE PERFECT INTERPLAY THAT COUNTS



08/09

## SPECIAL DETECTORS FOR SPECIAL REQUIREMENTS

A powerful and reliable machinery fire prevention system requires the smooth interplay of a range of different detectors. The requirements will vary greatly, depending on where the detector is used and the ambient conditions: detecting various ignition sources, reliable operation in challenging environments or detecting unusual temperatures in the production process.

Benefit from our expertise to help you choose the right detector.

## IN ANY ENVIRONMENT

- Highly sensitive spark detector for detecting sparks, smouldering nests and hot particles
- Detects independently of the ignition source temperature
- Patented detector optics and intelligent IDT® detection technology provide reliable detection in any environment, with or without ambient light
- Detector optics offer long service life due to flush assembly in the wall
- VdS approved
- Optionally available with ATEX and IECEx certification

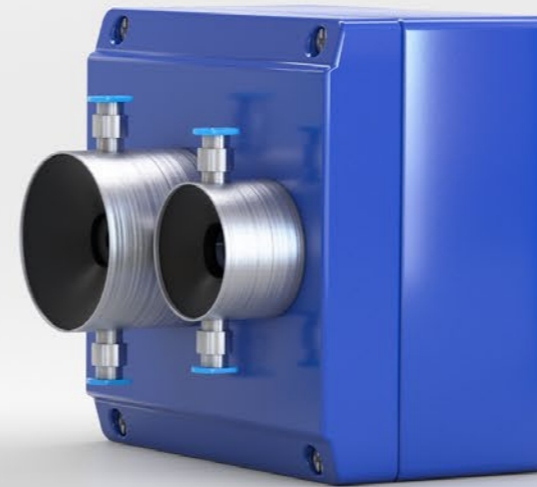
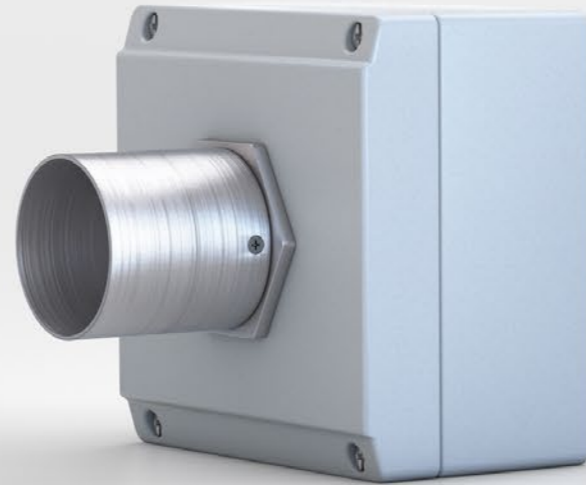
## DETECTING SUDDEN TEMPERATURE RISES EARLY

- Can be used for a wide range of applications with switching points available from 60°C to 135°C
- Rapid temperature rises detected early and generate alarm below the trigger threshold
- PT1000 sensor provides accurate temperature measurement
- In-place LED detector status display
- ATEX-approved for use in zone 20 and approved in accordance with VdS / EN 54-5 for temperature class B

## FOR HIGH PROCESS TEMPERATURES

- Highly sensitive, fibre-optic spark detector detects sparks and smouldering nests in applications with high process temperatures up to 500°C
- Detects independently of the ignition source temperature
- Detects ignition sources to a high degree of reliability even at high transport speeds and material loads
- Detector optics offer long service life due to flush assembly in the wall
- VdS and FM approved
- Also available with ATEX and IECEx certification options for safe use in potentially explosive atmospheres

# RELIABLE HAZARD DETECTION



## LOCALISES UNDESIRABLE BUILD-UP OF HEAT

- Detects temperature changes over long distances
- Detects convection, radiation and contact heat
- Targeted sensors for accurate localisation
- Allows different alarm thresholds to be set for monitoring areas
- Monitoring paths can be branched several times
- Suitable for hygienic areas

## DETECTS TYPICAL FIRE GASES

- Fire gas detectors with semiconductor gas sensors with intelligent evaluation electronics
- Monitors concentration of typical fire gases in the atmosphere
- Detects open and concealed fires as they occur
- Switchable, integrated detector heating to prevent condensation forming
- No restrictions from obstructed visibility

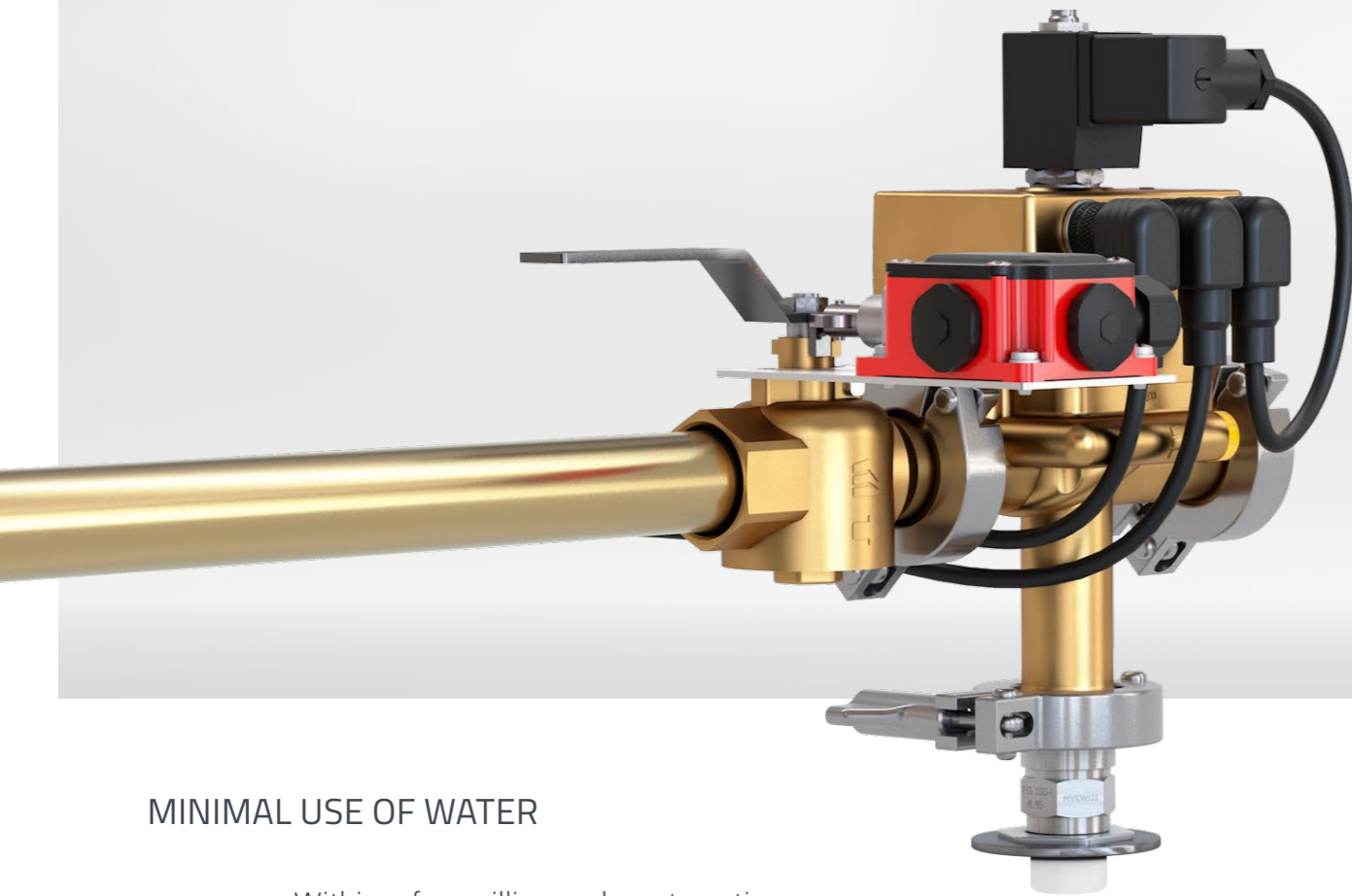
## DETECTS SURFACE TEMPERATURE CHANGES

- IR hotspot detector for contactless detection of hot surfaces
- Detects developing flame fires caused by spontaneous ignition
- Separate alarm settings for different image areas
- Independent of building thermal conditions
- Switchable, integrated detector heating to prevent condensation forming

## FLAME DETECTION

- Detects flames rapidly and reliably to protect machinery and areas
- Outstanding protection against hazardous sources
- Non-sensitive to light smoke, vapours, dust and mist
- Unaffected by convection currents, draughts or wind
- Multi-spectrum detection with IR3 technology
- VdS and FM approved

# FASTER THAN THE BLINK OF AN EYE



## MINIMAL USE OF WATER

Within a few milliseconds, automatic extinguishing systems generate a finely distributed water mist for extinguishing. Depending on the application, you can choose from a range of extinguishing nozzles to optimise the amount of extinguishing water required. The extinguishing nozzles are ideally configured for use in machine fire prevention in terms of spray pattern, droplet size and water flow rate. In this way, we achieve the desired effect with a minimum use of water.

## ROBUST, RELIABLE AND INTELLIGENT

The extinguishing nozzles are dirt-resistant and made of robust stainless steel. The intelligent extinguishing technology GreCon IET® integrated in the GreCon IEM intelligent automatic extinguishing system monitors the extinguishing process precisely, detecting the possibility of material wear at an early stage. Clogged nozzles or insufficient flow pressure are detected directly and can be rectified straight away. This proactive reporting of signs of wear on nozzles or valves means that maintenance can be planned in a targeted and efficient way. The advantage to you as a system operator: high system availability and the certainty that the automatic extinguishing system is ready for use whenever a spark occurs.



## MAIN WATER DISTRIBUTION FOR LARGE SYSTEMS AND EXTINGUISHING AREAS

Easy-to-maintain and robust valve station that enables the safe supply of water in large extinguishing areas at all times, even under severe conditions. If a detector detects a fire hazard, a signal is transmitted to the spark detection console. Working in close collaboration with our customer, we jointly develop and agree the most effective form of extinguishing as well as the alarm settings to activate the process. For example, it is possible to transmit pre-alarms to the responsible offices before extinguishing the fire, allowing them to react to the pre-alarm.

If extinguishing is triggered via the spark detection console, the ventilation system receives a signal to release the extinguishing water. The extinguishing water then flows into the extinguishing area via the extinguishing water pipe network. In this way, the ventilation system ensures a fast water supply where it counts.

# FIRE PREVENTION CENTRAL CONTROL UNIT

## INDIVIDUALLY CONFIGURABLE

The GreCon CC 7000 TOUCH spark detection consoles can be configured individually and are suitable for fire prevention solutions of any size. These consoles are used in smaller specialist businesses as well as in large industrial companies. They naturally connect to existing control systems via PROFINET or Ethernet IP.

## RELIABLE EARLY WARNING SYSTEM

System malfunctions can be detected at an early stage before major damage occurs, for example due to flying sparks, reducing or even preventing downtimes. This preventive function is based on the 4-fold graded GreCon alarm concept, which also allows changes to be detected over a long period of time.

## KEY INFORMATION INSTANTLY AVAILABLE

Major events can be clearly localised immediately via a flowsheet visualising the fire prevention area in question. The concise GreCon TOUCH Client application software enables fast, spatially separated access, if required.



## CLEAR SYMBOLS

Important data can be displayed ad hoc by directly selecting information through self-explanatory icons. Files, such as operating or instruction manuals, can be stored in the display memory and called up quickly and easily via the display as required.





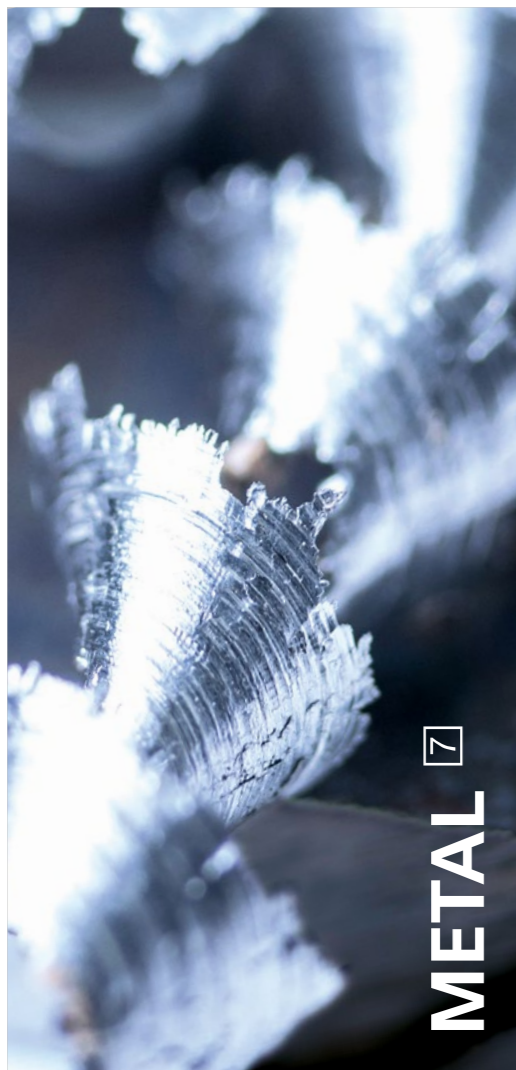
## INDUSTRY EXPERTISE

### DIFFERENT PROCESSES - SIMILAR RISKS

Since almost all materials are combustible when crushed, many production processes are subject to a high risk of fire and explosion. The risks are similar, but each industry requires specifically adapted protection concepts. Tailored GreCon fire prevention solutions ensure the highest production availability for all requirements and industries.

- 1 There are a whole host of fire risks in production processes, such as the shredding of wood into chips, fibres or veneers, as well as the drying and pressing of combustible materials into wood-based materials. Sparks, smouldering nests or glowing particles generated in the plant areas can lead to fires and explosions with serious consequences.
- 2 In the food industry, combustible substances such as coffee, cocoa, tea, flour, cereals, dried vegetables, dried fruit and sugar are processed in large quantities. The dusts produced in processing pose high fire risks.

- 3 Pet food produced in the animal feed industry comes mainly in the form of pellets that are easy to process. Manufacturing processes such as drying and grinding the mostly combustible materials and pressing them into pellets pose numerous fire risks.
- 4 The manufacturing process of nonwovens (flow materials) requires extensive preparation of the combustible raw material, which often creates dangerous ignition sources. Additional fire risks are posed by the various flow consolidation processes.
- 5 The thermal energy released by the combustion of biomass, coal or other fuels drives generators mechanically, resulting in an conversion to electrical energy. However, this type of energy conversion chain poses a high risk of fire.
- 6 In glass production, all the raw materials, such as sand, lime and soda, are liquefied by supplying a large amount of energy. The glass melting tank and the distribution of the portioned glass to the tools represent a constant, high risk of fire.



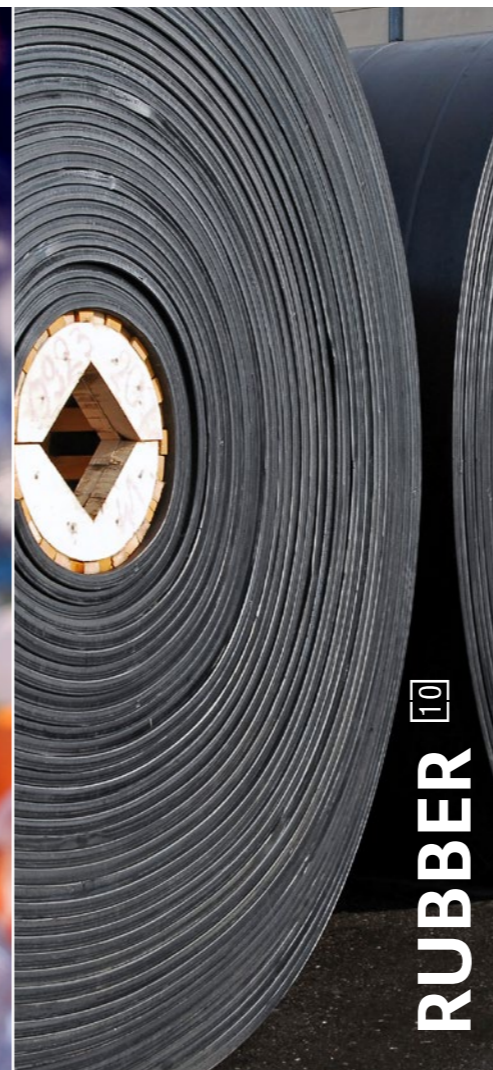
METAL <sup>[7]</sup>



PAPER <sup>[8]</sup>



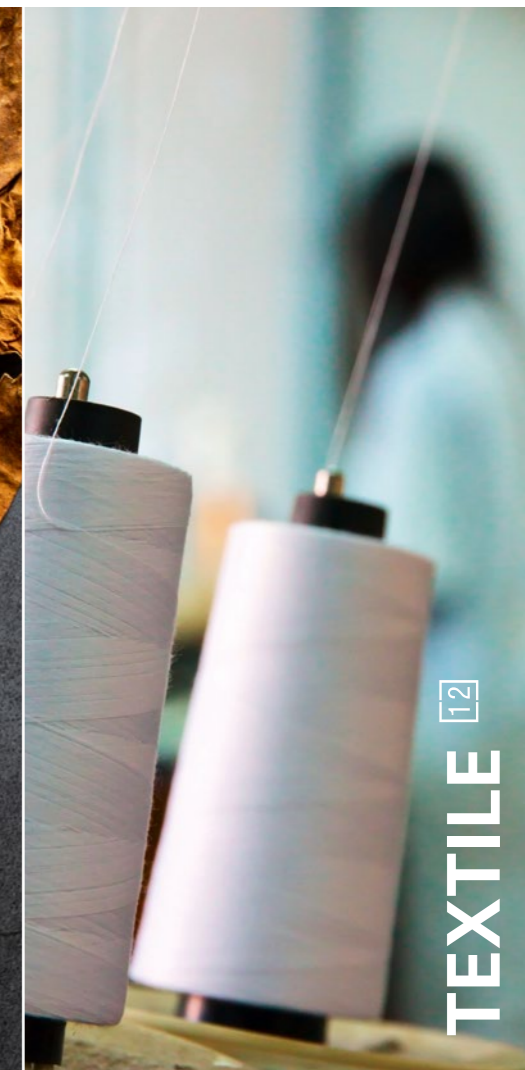
RECYCLING <sup>[9]</sup>



RUBBER <sup>[10]</sup>



TOBACCO <sup>[11]</sup>



TEXTILE <sup>[12]</sup>

## INDUSTRY EXPERTISE

### DIFFERENT PROCESSES - SIMILAR RISKS

- <sup>[7]</sup> It's impossible to avoid high temperatures and flying sparks during metal processing. However, manufacturing and processing can also lead to overheated parts and smouldering fires. Processing operations such as grinding, casting or hardening, and even deposits in the pipelines themselves, can lead to devastating fires.
- <sup>[8]</sup> In particular, there are numerous fire risks involved in post-processing paper after removal from the paper machine. Sparks and smouldering nests generated by mechanical processing can easily ignite the dry and hence highly combustible paper.
- <sup>[9]</sup> In mechanical processing, sparks and smouldering nests can be created by overheating and foreign matter. Due to the proportion of undesirable components such as gas cartridges, lighters or batteries, there is a high risk of fire in every process step.

- <sup>[10]</sup> Dust produced during the mechanical processing of rubber materials, for example shredding used tyres, is easily combustible. The high level of vibrations in the process poses an additional challenge to the detection systems.
- <sup>[11]</sup> Tobacco processing produces highly flammable dusts. Combined with high temperatures, this creates a permanent fire hazard. GreCon fire prevention solutions secure the dryers, extraction systems and transport systems.
- <sup>[12]</sup> Producing textiles from natural or artificial materials involves numerous risks. For example, sparks, smouldering nests and overheated parts can occur throughout the production chain. GreCon fire prevention solutions secure your mixing plants, separators or filter plants.

GreCon fire prevention systems can be used flexibly. If your application is not listed here, simply get in touch. We will find a solution.



SOLUTIONS  
 RISKIOANALYSE  
 HILFE  
 CUSTOMER  
 HOTLINE  
 ZUFRIEDENHEIT  
 DGV3 MEASUREMENT  
 FERNWARTUNG  
 PIPELINE INSPECTION  
 APP  
 EXPERIENCE  
 INSPECTION  
 24/7  
 COMPETENCE  
 SATISFACTION  
 TURNKEY SOLUTIONS  
 PREDICTIVE MAINTENANCE

## SERVICE QUALITY

KOMPLETTMONTAGE  
 DGV3 PRÜFUNG  
 UPGRADES  
 KOMPETENZ  
 SERVICEBERATUNG  
 SPARE PARTS  
 SATELLITE  
 ERSATZTEILE  
 ERFAHRUNG  
 DRUCKBEHÄLTTERPRÜFUNG  
 REMOTE SUPPORT  
 KUNDE  
 RISK ANALYSIS  
 VORBEUGENDE INSTANDHALTUNG  
 INSPEKTION  
 HELP

20/21

# THERE WHENEVER YOU NEED US

## WORLDWIDE

A worldwide network of qualified service partners ensures fast response times. Through regular training, we keep both product and regulatory knowledge up to date.

## FROM A SINGLE SOURCE

On request, we can provide you with a turnkey solution. In addition to installation, our team also takes care of electrical and water installations and commissioning. We can coordinate the acceptance and certification of your new spark extinguishing system for you.

## TIME & COST SAVINGS

If you have any queries or minor problems, the GreCon SATELLITE digital service platform ensures that they are solved quickly, where possible without on-site intervention. Following your request, our service technician will dial into your radio

alarm console and help you find a solution. Service interventions on site can be better prepared and planned with the data from GreCon SATELLITE. GreCon SATELLITE is one of the most secure systems currently available and is TÜV-certified.

## ACADEMY

We train your team to handle the GreCon system safely in the Fagus GreCon Academy. Either on site in your production facility or in the academy rooms or on our test site. Many training courses can also be carried out online on request.

## QUALITY

We ensure a long service life and reduced follow-up costs for your protection system by consistently using high-quality installation materials, such as stainless steel or UV-resistant aluminium.



## WHAT OUR CUSTOMERS SAY...

22/23

### RIVERRIDGE

Cecil McBurney  
Group Operations Manager

"Fagus-GreCon's technology and service have impressed us once again. We have a robust solution that protects our operations. The ability to visualise the system remotely means we can stay connected from our control room and monitor events in real time."

RiverRidge operates Northern Ireland's largest integrated waste management business. As part of its move towards becoming a fully integrated waste recycler, RiverRidge invested in a fluidised bed dryer and associated filter plant to process refuse-derived fuels. True to the motto "don't wait until there's a fire", the company was looking for a reliable fire prevention solution due to the high fire risks, and turned to GreCon. The two companies already knew each other from previous projects. Together, they first defined the requirements for the protection concept. Within just 3 weeks, a preventive fire system for 16 zones was installed and put into operation. Depending on the temperature and ambient light conditions, different GreCon detectors were used to detect ignition sources such as sparks, hot and glowing particles.

### HANNO WERK GMBH & CO KG

Reinhard Vogelei  
Head of Major Technical Projects

"We are very satisfied with the fire prevention solution and we are going to protect our third dryer with GreCon machine fire prevention."

### SÜDZUCKER AG

Manfred Mayr  
Foreman, Measurement and Control Technology

"The finely atomised water mist effectively prevents ignition sources from entering the filter system. We have the annual check carried out by GreCon's customer service team to ensure that everything is working smoothly "

### LEIPFINGER-BADER

Thomas Brunner  
Deputy technical plant manager

"When three sparks occur, the GreCon system triggers an alarm. When six sparks occur, the extinguishing system is activated."

### MARTIN BAUER GROUP

Konrad Ohlmann  
Production Manager

"We are one of the largest tea manufacturers in the world. Mechanical processing can create smouldering nests that trigger fires or dust explosions. We can't afford downtimes, which is why we work with Fagus-GreCon."

## PIONEERING SPIRIT, PASSION AND INNOVATION

We are more than just a company, we are a community where pioneering spirit and passion for excellence are our driving forces. Our employees are the key to our success, and our customers are our partners on the path to outstanding solutions.



In 1911, Carl Benscheidt founded Fagus GmbH for the production of shoe lasts and punching tools. His great-grandsons Ernst and Gerd Greten integrated the companies GreCon-Anlagenbau and GreCon-Elektronik. Numerous inventions originate from this merger, including shoe lasts for the right and left foot; measuring technology to record thickness, surface characteristics or the weight by X-ray; the industrial spark extinguishing system.

Today's Fagus-GreCon Greten GmbH & Co. KG is a family business in its fifth generation. Fagus has stood for precision and fit for over 100 years and is an established partner for the international shoe industry. GreCon has been supplying sophisticated solutions for a wide range of applications in various industries in the "fire protection" and "measurement technology" sectors for 50 years. Thanks to numerous innovations and the commitment of our more than 700 employees worldwide, we have been able to establish ourselves as a leading international partner for our customers in each of these areas.

The UNESCO World Heritage Fagus Factory is a special fourth business unit as a cultural enterprise within an industrial setting. In 2011, the building complex at the Alfeld site was listed as the "UNESCO World Heritage Fagus Factory". The Fagus factory built in 1911 as the first building of the architect and founder of the Bauhaus, Walter Gropius, is considered the origin of the modern era of architecture.

### **Fagus-GreCon Greten GmbH & Co. KG**

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