EXPLOSION PROTECTION

products portfolio

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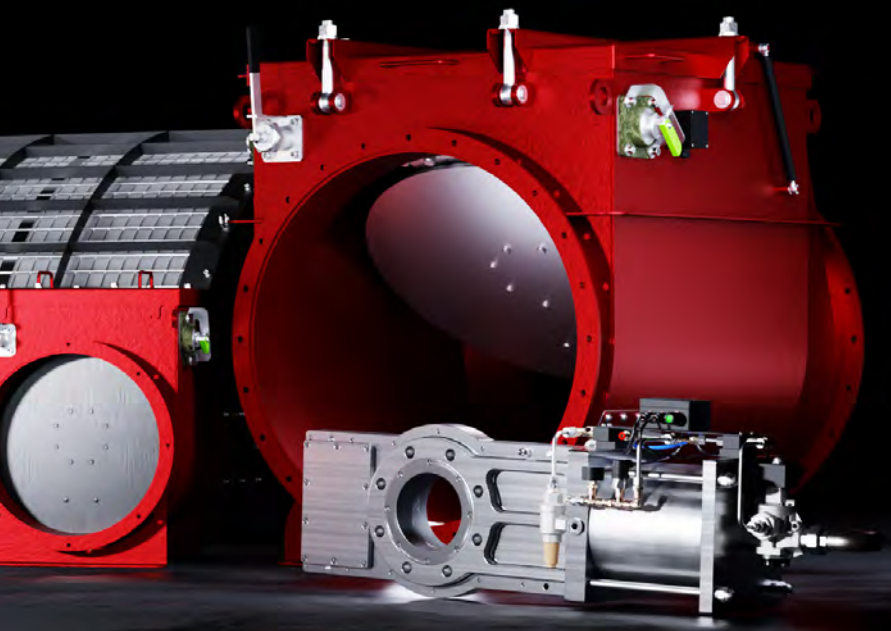
PRODUCTS



FIRE AND EXPLOSION PROTECTION

Rational Industrial Safety Systems – that's RSBP. It's also the main idea that gave birth to this company in 1992. The vision has become a reality and we are proud to say that today RSBP is the market leader in explosion and fire protection of industrial plants. Our belief is that employees are the core of any company, anywhere in the world. Therefore, it is necessary to protect them and create safety conditions for them so that they can do their job fully and without fear.

We also have industrial facilities themselves in mind - our expert assessment of technological processes, our design of fire and explosion protection, expert installation and professional service all ensure that no irreversible damage occurs to property or assets. All our products and equipment are tested and comply with the applicable legislation in the Czech Republic and abroad – ATEX directive, VDI and NFPA regulations.

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VENT PRO

explosion venting devices

The explosion venting devices are pressure sensitive and are one of the most basic types of explosion protection. When the static opening pressure is exceeded, the explosion venting device opens and the resulting explosion and pressure are released into the surrounding area in a controlled way without serious damage to the structure of the protected technology.

VENT PRO is an effective and economical solution providing protection against damage caused by combustible dust explosions.

Benefits & applications

- **+ dust class St1 / St2 / St3, hybrid mixtures, metallic / non-metallic dust**
- **+ static opening pressure variability**
- **+ operating temperature up to 240 °C**

- wide range of dimensions, specific dimensions on request
- abrasion resistance, weathering resistance
- easy installation, minimal maintenance
- accessories:
  opening indicators, thermal insulation, installation frames, flame deflector (DivEx)

✓ **EN 14797** ✓ **NFPA 68**

FLEX

flameless explosion venting devices

The FLEX II & FLEX PRO (S) flameless explosion venting devices are effectively and safely vent the explosion without the flames or pressure freely spreading to the surrounding area. Protecting production equipment with the FLEX II & FLEX PRO (S) devices is advised when venting explosions to a safe zone the conventional way is impossible, or there is not enough space for safely venting the explosion to the surrounding environment.

Benefits & applications

- **+ dust class St1 / St2 / St3**
- **+ recommended for facilities with metallic and non-metallic dust, including melting, fibrous and coarse-grained dust**
- **+ extremely low MIE, MIT**
- **+ effective flame and temperature capture**

- suitable for technologies with higher hygiene requirements
- use in outdoor and outside zone
- possibility of curved design
- minimum safety zone requirements to better facilitate the movement of personnel
- suitable for vertical conveyors
- standardly equipped with an explosion venting device with an opening indicator

✓ **EN 16009** ✓ **NFPA 68**

B-FLAP I PRO

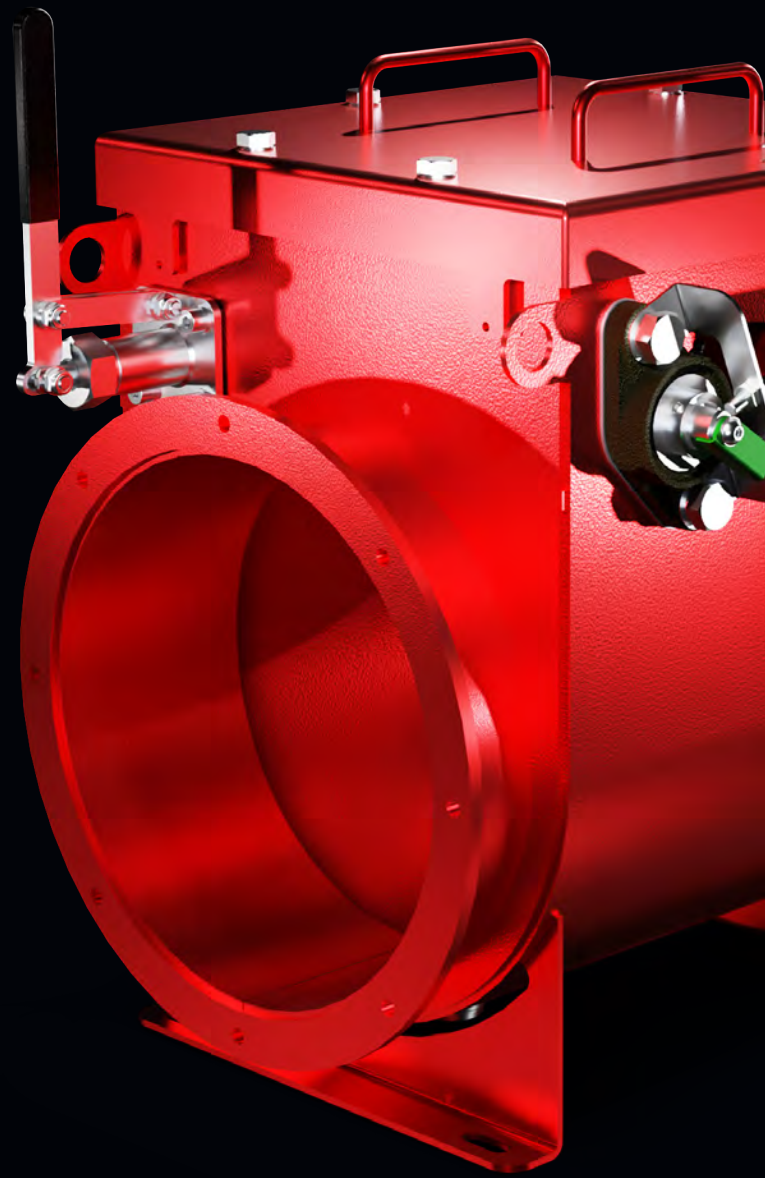
explosion isolation flap

The B-FLAP I PRO is a mechanical device designed to prevent flame and pressure transfer between technologies during an explosion. The B-FLAP I PRO is supplied with an RPD mechanism which reduces pressure losses in the piping system by securing the sealing part in an open-locked position. The flap isolates the explosion along the entire piping route, so it is suitable for inlet and outlet piping to and from the filter, cyclone, mill, dryer and others.

Benefits & applications

- **dust class St1 / St2 / St3 (metallic, non-metallic dust)**
- **horizontal / vertical installation**
- **suitable for push and pull system**
- **low MESG value**
- **possibility of application on pipes with elbows**

- certified for extremely low MIE and MIT values
- high-pressure resistance
- optional stainless steel and anti-abrasive treatment
- 16 dimensional designs
- with optional accessories:
  J-Box, dust sensor, position indicator, intrinsically safe relay, counter-flanges



✓ **EN 15089** ✓ **EN 16447** ✓ **NFPA 69**

GATEX PRO

quick-acting slide valve

The GatEx PRO quick-acting slide valve is an explosion isolation device used to completely close off the pipeline in the event of an explosion. The GatEx PRO is suitable for applications in pneumatic conveying, extraction systems, as well as for explosion isolation between technologies or for process units designed for maximum explosion pressure.

Benefits & applications

- **+ dust class St1 / St2 / St3 (metallic, non-metallic dust)**
- **+ extremely fast response time**
- **+ pressure resistance up to 21 bar**
- **+ installation distance up to 40 meters**

- fail-safe design
- GatEx PRO activation:
  pressure detector, optical detector or explosion venting device
- 7 dimensional designs

✓ **EN 15089** ✓ **NFPA 69**

HRD SYSTEM

explosion suppression system

The HRD (high rate discharge) system is used for explosion suppression and is also ideal for use in technologies with increased hygiene requirements. Its function allows it to effectively suppress the explosion, thus limiting the explosion pressure inside the technology below its pressure resistance and preventing its destruction. The HRD system is ideal for use in combination with an explosion isolation device or a chemical explosion isolation system – HRD barrier.

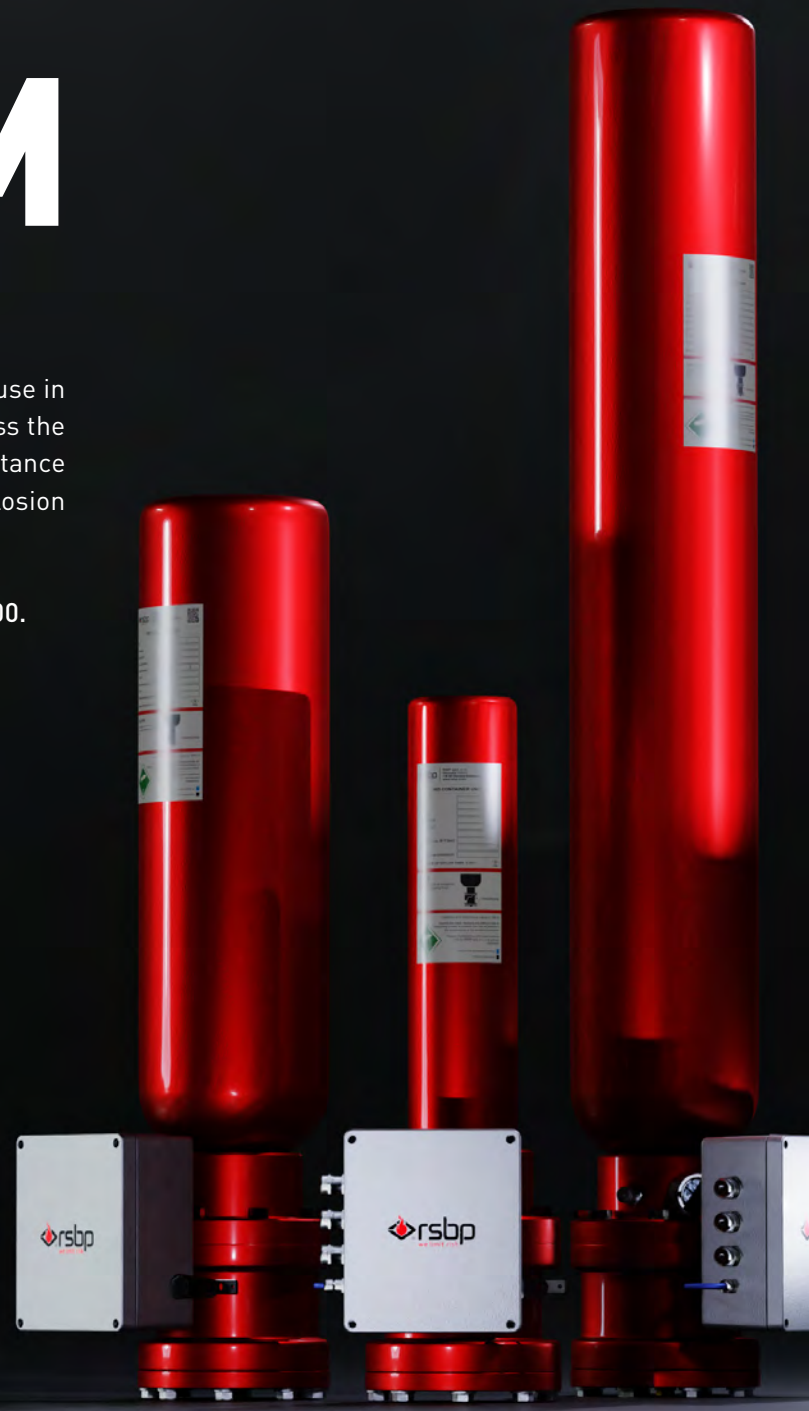
The HRD explosion suppression system is FM approved according to Approval Standards 5700.

Benefits & applications

- **dust class St1 / St2 / St3 (metallic, non-metallic dust, hybrid mixtures)**
- **extremely fast response time**
- **explosion suppression for toxic and hazardous materials**
- **installation onto vibrating technology**
- **installation without the need for a safety zone around the protected technology**
- **CAN-BUS communication**

- hygienic design of components
- independent archiving of detection data from detectors
- variability of components

✓ **EN 14373** ✓ **NFPA 69** FM APPROVED



HRD BARRIER

chemical explosion isolation

The HRD barrier is an active system for preventing the transmission of an explosion. HRD barrier is characterized by the extremely rapid introduction of an extinguishing agent into the pipeline connecting to the protected technology, which stops the spread of the incipient explosion in the pipeline.

The HRD barrier is also ideal for use in equipment with increased operational hygiene requirements, such as those in pharmaceutical or the food industry. The HRD barrier can be used alone or in combination with an explosion suppression system or explosion venting devices.

Benefits & applications

- **+ dust class St1 / St2 / St3 (metallic, non-metallic dust, hybrid mixtures)**
- **+ very fast system response**
- **+ solution for isolating an explosion of toxic and otherwise hazardous materials**
- **+ zero pressure loss in the pipeline**
- **+ usage for large dimensions and complicated pipe geometries**

- variability of components
- suitable for indoor and outdoor applications
- independent archiving of detection data from detectors

✓ **EN 15089** ✓ **NFPA 69**

ELEVEX

system for the protection of conveyors and bucket elevators

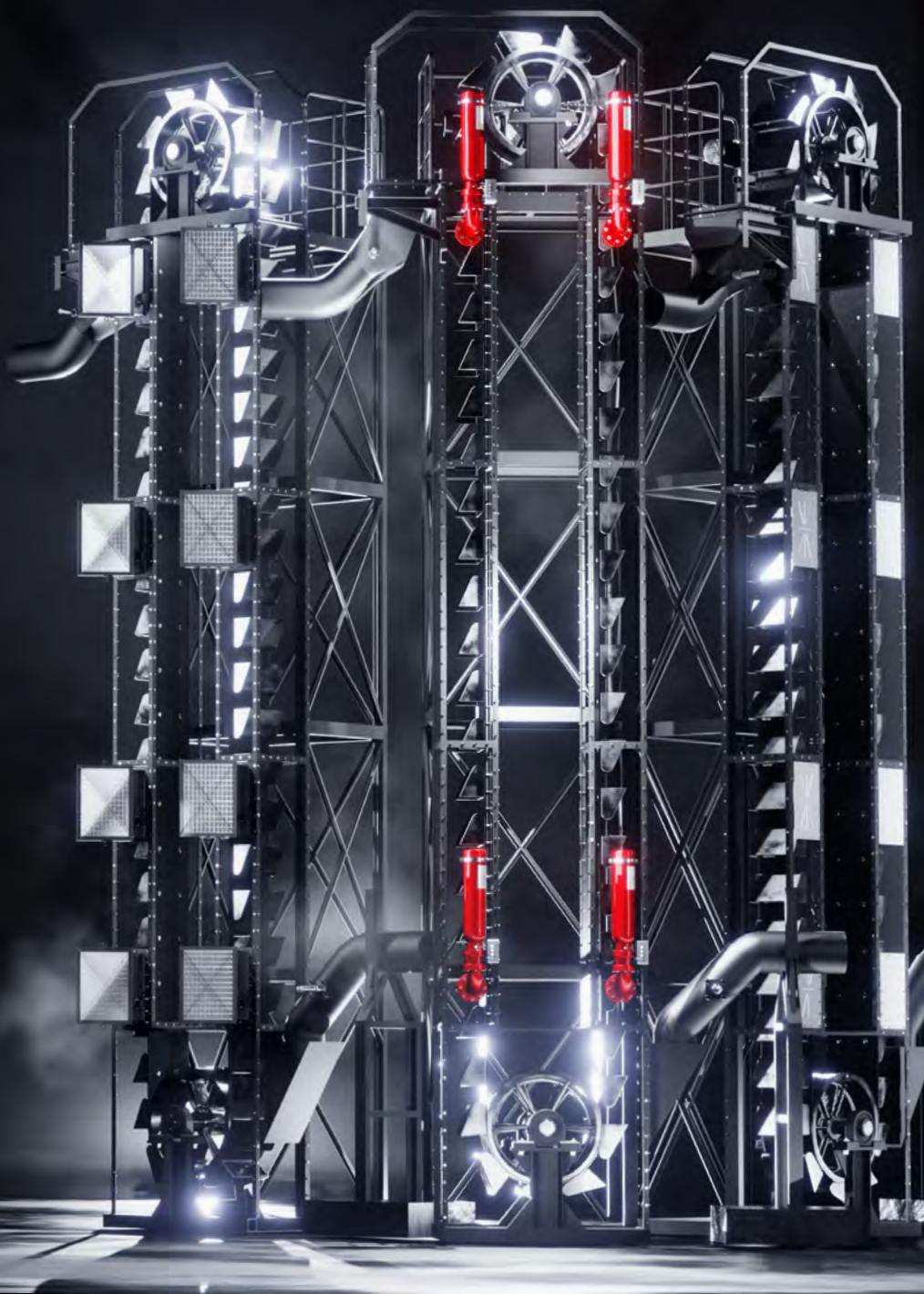
The ELEVEX system is a unique solution in the form of a comprehensive certified explosion protection system designed specifically for a given type of conveyor or elevator. This makes it suitable for both indoor and outdoor applications. The variability of the system lies in the possibility of using a wide range of components for explosion protection. ELEVEX provides maximum protection at minimum cost without the need for any structural modifications.

Benefits & applications

- **+ explosion protection tailored to the protected technology**
- **+ unique certified protection system**
- **+ ideal for bucket elevators, horizontal and inclined conveyors, redlers, and circular shaft profile elevators**
- **+ tested for intended use**
- **+ suitable for high elevators**

- independent archiving of detection data from detectors
- combination of explosion venting, suppression and isolation
- minimum requirements for pressure resistance of technology

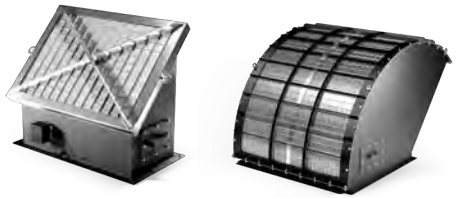
✓ **VDI 2263 part 8** ✓ **NFPA 61** ✓ **CEN/TR 16829**



Conventional explosion venting

During explosion venting, the pressure wave and flame front are expected to be released through the vent area into the safe area. Such protection is used where explosion venting is possible – for example, outdoors and in areas with limited movement of personnel.
Explosion isolation is used on the inlet and outlet pipes of the elevator to prevent the flame front and pressure wave from spreading to downstream equipment.

Flameless explosion venting



FLEX F PRO or FLEX R PRO are used to prevent the spread of flames, pressure and heat fronts. At the same time, the protective device reduces the explosion pressure to the lowest possible level. It is used where conventional explosion venting cannot be used because the conveyor is inside a building or in areas with higher movement of personnel. Explosion isolation is used on the inlet and outlet pipes of the elevator to prevent the flame front and pressure wave from spreading to downstream equipment.

Explosion suppression

Explosion suppression is the most common method of protection against the devastating effects of an explosion in bucket elevators. Explosion suppression effectively eliminates the explosion at an early stage and at the same time reduces the explosion pressure inside the conveyor below the pressure resistance limit of the conveyor, thus preventing it from being destroyed.
Explosion isolation is used on the inlet and outlet pipes of the elevator to prevent the flame front and pressure wave from spreading to downstream equipment.

more information

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Pikartská 1337/7
716 00 Ostrava
Czech Republic

rsbp@rsbp.cz
+420 596 252 170

www.rsbp.cz/en

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FIRE PROTECTION

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AUTOMATIC FIRE EXTINGUISHING SYSTEM FIREPRO

modular variable system for fire protection

All critical points in the protected equipment are constantly monitored using highly sensitive detectors. If flames or sparks appear, the detector picks up their radiation in milliseconds. Extinguishing is activated based on the evaluation of the CONEX control unit. At the same time, the control unit is connected to the master control system of the protected equipment, which immediately stops the operation of the technology to prevent the further release of flammable substances. The FIREPRO protection system effectively suppresses the emerging fire, thus enabling the restoration of operation in a short period of time.

Benefits & applications

- **+ tailor-made solutions thanks to the modular system**
- **+ detectors with explosive environment certification eliminating false activations**
- **+ extremely fast response of optical detectors**
- **+ extinguishing agent leaves no residue, does not cause corrosion, and is gentle to the equipment**

- high efficiency and reliability
- optical detectors with total control function including contamination control
- economical solution

CONTROL PART

CONEX

The CONEX control unit manages the entire automatic fire extinguishing system, evaluates the information from the detectors and then gives the impulse to the master control system to shut down the technology and to the fire extinguishers to put out the fire.

Fire alarm system

A siren with a flashing beacon used for audible and visual fire signalling.

Manual call point

If necessary, the fire extinguishing system can be activated manually by means of a trigger button.

DETECTION PART

Optical detector LumEx 1, LumEx 4

Optical detector (IR) for use in an explosive environment that continuously monitors the occurrence of sparks or flames in the protected equipment and transmits this information to the CONEX control unit.

Optical detector LumEx 2

Combined (IR, UV) optical detector for use in explosive environments, which continuously monitors the occurrence of fire in the protected equipment and transmits this information to the CONEX control unit.

Temperature detector

Temperature detector for use in explosive environments. In the event of a fire, the temperature in the protected equipment rises. If it exceeds the response limit, the evaluation mechanism of the temperature detector transmits this information to the CONEX control unit, which gives an impulse to the action elements to put out the fire.

EXTINGUISHING PART

Extinguishing equipment

A container of extinguishing agent suspended from a scale is located near the protected equipment and may be placed in a protective cabinet. The type of extinguishing agent depends on the material processed in the protected technology.

Local extinguishing equipment

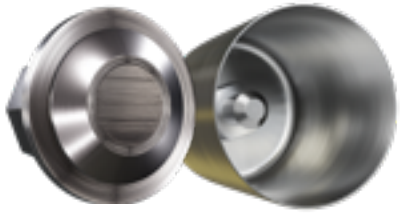
A local fire extinguishing system is integrated directly into the spraying equipment or in the working area of the machining equipment.

Volumetric / complete flooding of the compartment provided by a battery of extinguishing agent bottles

Pressure vessel system with extinguishing agent designed for volumetric extinguishing.

Prevents the spread of flames / fire extinguishing barrier

The fire barrier prevents the flame from spreading from the paint booth to a separating device such as a filter or cyclone.



PAINT BOOTHS

fire protection with the FIREPRO automatic fire extinguishing system

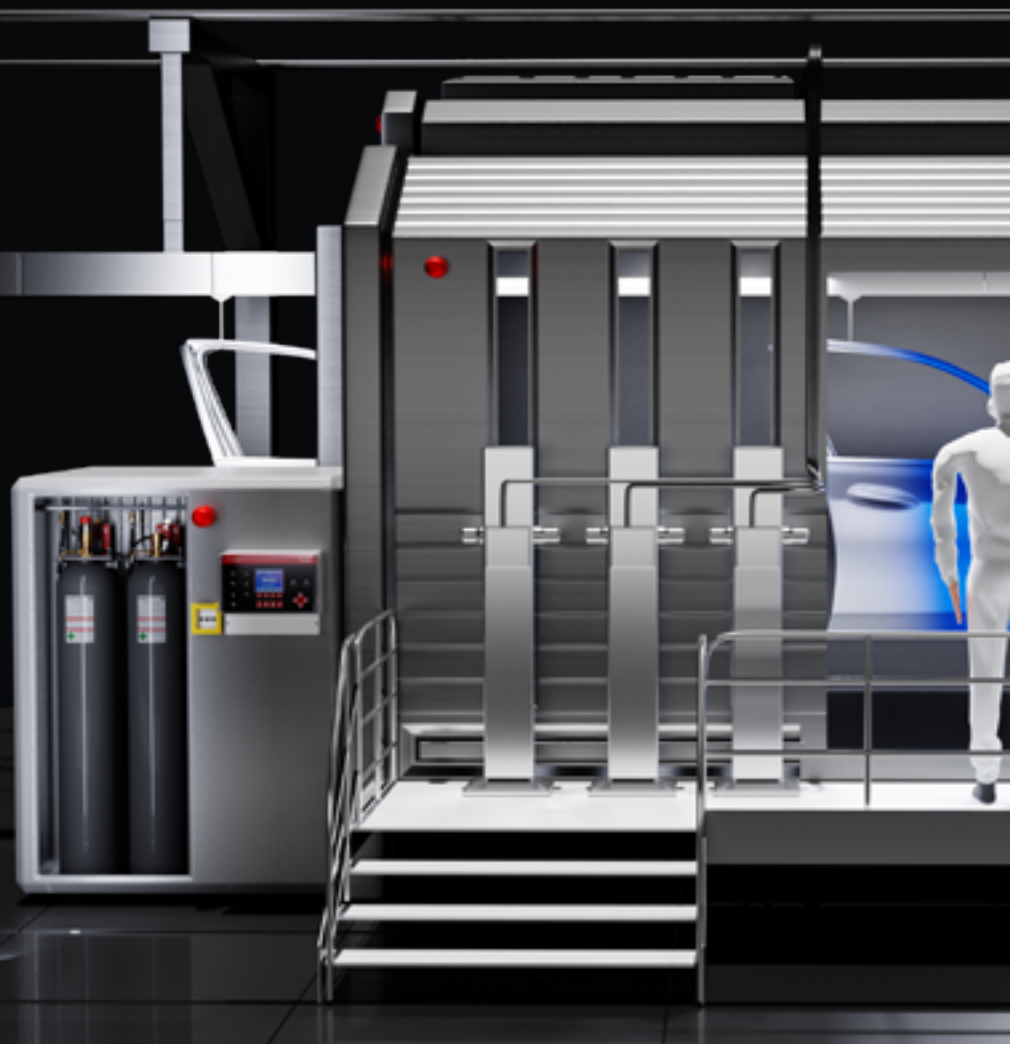
When coating products in a wide variety of industries, it is very common to encounter coating systems where there is a high probability of fire or explosion.

The FIREPRO system is an automatic fire extinguishing system that, thanks to its variability, can be used in paint booths working with both liquid and powder paint - i.e. in environments with a very high probability of an initiating source going off.

What are the critical points and risks?

- flammable painting materials
- electrostatic voltage on spray guns
- formation of an explosive atmosphere due to accumulation of painting material
- insufficient grounding of painted products
- deposits of painting materials in the booth, filters or cyclones

✓ **EN ISO 19353** ✓ **EN 16985** ✓ **NFPA 33**



FIRE PROTECTION FOR PAINT BOOTHS

System functions

Highly sensitive detectors constantly check all critical points in the paint booth. The detector picks up the flame, sends a signal to the CONEX control unit. It evaluates it and activates the extinguishing system. The entire detection process takes place in milliseconds. The CONEX control unit is also connected to the master control system of the painting lines, which immediately shuts down the spraying equipment to prevent the further introduction of flammable substances into the protected areas. Thanks to the FIREPRO protection system, a fire in the paint booth is quickly and effectively extinguished, allowing the line operation to be restored immediately, or in a short period of time. This type of protection ensures minimal costs and reduces the risk of outages caused by fire.

Benefits & applications

- **+ effective extinguishing directly on the spraying equipment**
- **+ variable volumetric fire extinguishing options**
- **+ tailor-made solutions thanks to the modular system**
- **+ detectors with explosive environment certification eliminating false activations**

- the extinguishing agent leaves no residue and does not cause corrosion
- extremely fast response of optical detectors
- optical detectors with total control function including contamination control

FILTRATION UNITS

fire protection with the FIREPRO automatic fire extinguishing system

The fire protection of filtration units is an essential safety measure in industrial plants, where these units are used to capture dirt and other particles. Fire protection is important to minimize the possibility of a fire starting and spreading, which can cause serious hazards to workers, property and the environment.

A polluted environment, where fine dust settles on the filter elements under strong airflow, creates ideal conditions for fire. All it takes is a small ignition source like a spark. Subsequently, a fire can cause major damage not only to the filter cartridges but also to other technological parts of the filter.

What are the critical points and risks?

- high airflow
- deposits of fine dust on the filter cartridges
- heavy contamination of the detection elements with settled dust

✓ **EN ISO 19353** ✓ **EN 16985** ✓ **NFPA 33**

FIRE PROTECTION OF FILTRATION UNITS

System functions

Due to the risks involved, it is important to have a reliable and effective protection system in operation, such as the FIREPRO automatic fire extinguishing system, which monitors all critical points, responds quickly and effectively to the occurrence of phenomena accompanying a fire and thus minimizes the damage that could result from the fire. By responding immediately and extinguishing fires quickly, FIREPRO contributes to safe operation in harsh industrial environments where fire prevention is critical to protect assets and maintain continuous production.

Benefits & applications

- **+ effective extinguishing directly in the filter unit**
- **+ variable volumetric fire extinguishing options**
- **+ tailor-made solutions thanks to the modular system**
- **+ certified detectors eliminating false activations**

- the extinguishing agent leaves no residue and does not cause corrosion
- specially developed nozzles for different extinguishing agents
- extremely fast response of optical detectors
- optical detectors with total control function including contamination control

MACHINE TOOLS

fire protection with the FIREPRO automatic fire extinguishing system

In order to prevent specific problems that can arise in the machining process, which can be caused by cooling oil mist, flammable liquid fumes or combustible waste from the machining process itself, it is crucial to safeguard the machine tools with effective fire protection.

The FIREPRO automatic fire extinguishing system is the ideal solution for CNC machines such as jig grinders, milling machines, electro-spark machine tools and more. Thanks to its fast and effective response to fire, it can protect valuable equipment and minimize the risk of harmful fire effects during machining operations.

What are the critical points and risks?

- fault in the wiring
- friction and heat caused by machining
- damage to the machine tools

✓ **EN ISO 19353**

FIRE PROTECTION OF MACHINE TOOLS

System functions

The working area of the machine tool is constantly monitored by optical and temperature detectors. In the event of a fire, the CONEX control unit triggers an alarm, automatically switches off the affected technologies and opens the valve of the extinguishing agent bottle. The FIREPRO system activates the firefighting action in a few milliseconds; fire extinguishing takes place directly in the machine tool working area.

Benefits & applications

- **+ high extinguishing and cooling effect of the extinguishing agent**
- **+ connection to the machine tool control system**
- **+ tailor-made solutions thanks to the modular system**

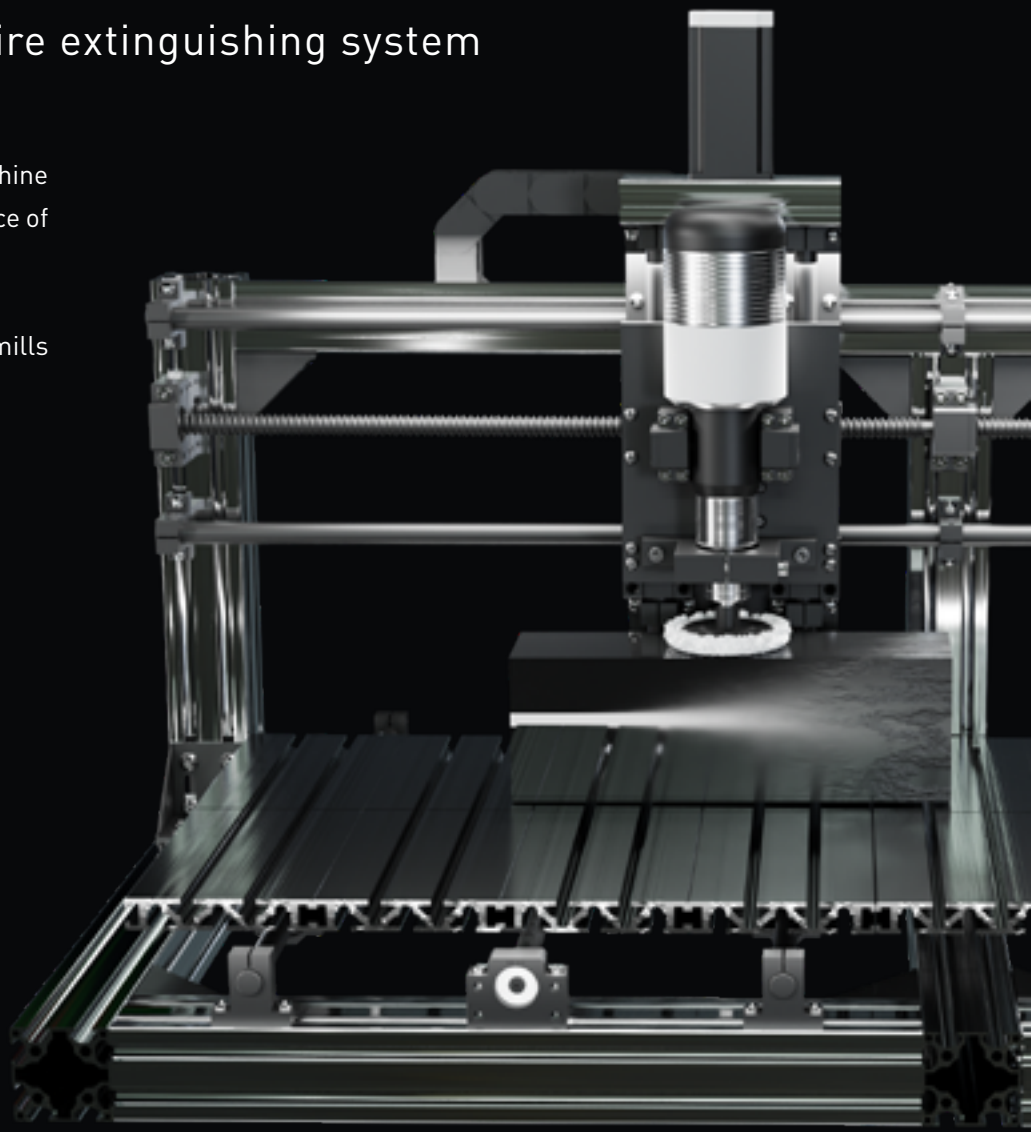
- the extinguishing agent leaves no residue, causes no corrosion, and is gentle to the machine tool
- extremely fast response of optical detectors
- optical detectors with total control function including contamination control

MACHINERY

fire protection with the FIREPRO automatic fire extinguishing system

In many industries, we often encounter a variety of machinery, other than machine tools, that work with flammable substances. As a rule, the possible occurrence of initiation cannot be excluded in these technologies.

FIREPRO is the protection of equipment such as mixing machines, dryers, mills or crushers.



What are the critical points and risks?

- friction and heat development, spontaneous combustion
- heat as a result of machine overload
- intrusion of the ignition source
- wiring fault

✓ **EN ISO 19353**

FIRE PROTECTION FOR MACHINERY

System functions

The FIREPRO system creates an effective tool for extinguishing machinery on fire, thus minimizing the possibility of injury or damage. In principle, the system works on the basis of the continuous monitoring of the protected area by very sensitive detectors that capture the specific parameters of the fire. In the event of a fire, the detector sends a signal to the CONEX control unit, which immediately starts the extinguishing action. The extinguishing agent is evenly dispersed in the protected area by means of special nozzles.

Benefits & applications

- **+ high extinguishing and cooling effect of the extinguishing agent**
- **+ tailor-made solutions thanks to the modular system**
- **+ detectors with explosive environment certification eliminating false activations**

- the extinguishing agent leaves no residue, causes no corrosion, and is gentle on instruments
- extremely fast response of optical detectors
- optical detectors with total control function including contamination control

SPARK EXTINGUISHING

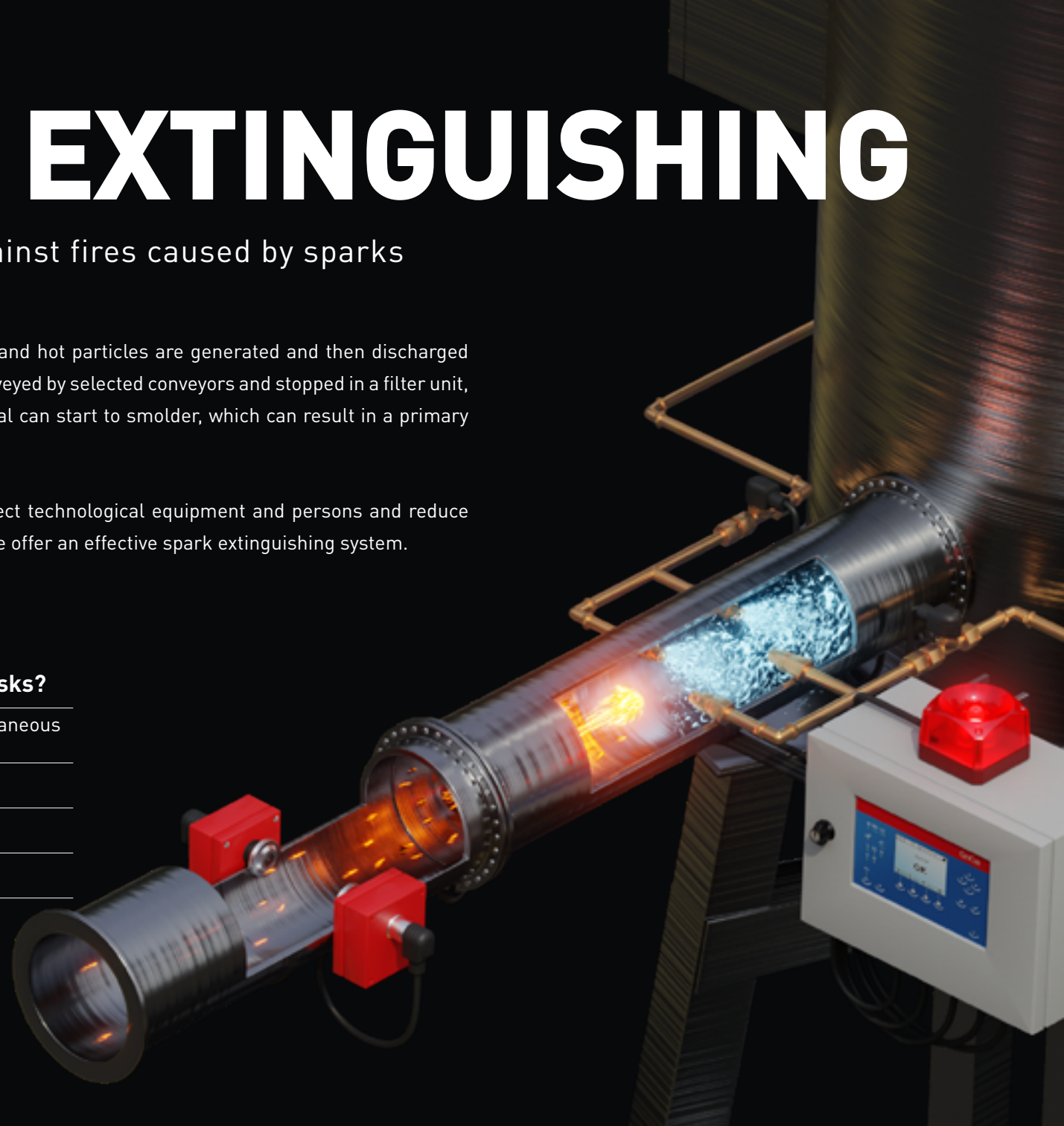
preventive protection against fires caused by sparks

In some technological processes, sparks and hot particles are generated and then discharged through the air stream via pipelines or conveyed by selected conveyors and stopped in a filter unit, hopper or silo where the conveyed material can start to smolder, which can result in a primary fire and a secondary destructive explosion.

In order to minimize the risk of fire, protect technological equipment and persons and reduce possible operational failures due to fire, we offer an effective spark extinguishing system.

What are the critical points and risks?

- friction and heat development, spontaneous combustion
- heat as a result of machine overload
- intrusion of the ignition source
- wiring fault



✓ **EN ISO 19353**

SPARK EXTINGUISHING SYSTEM

System functions

The spark extinguishing system is based on highly sensitive detectors that react within a few milliseconds to the presence of hot sparks. If any sparks or heat are detected, the CONEX control unit activates the pressurized water quick-acting valve based on a pulse from the detectors. The extinguishing nozzle in the conveying system creates a cone-shaped mist of the extinguishing agent, thereby extinguishing unwanted sparks and hot particles. Once the system has been activated and the hazard has been effectively removed, the system will automatically return to standby mode.

Benefits & applications

- **+ high efficiency and short system response time**
- **+ can be installed even on short pipes**
- **+ automatic restart**

- easy system installation
- nozzle design prevents any blockage
- automatic monitoring of detectors against clogging
- can be used outdoors

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Pikartská 1337/7
716 00 Ostrava
Czech Republic

rsbp@rsbp.cz
+420 596 252 170

www.rsbp.cz/en

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