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# AUTOMATIC FIRE SUPPRESSION SYSTEMS

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Effective automatic fire suppression systems are essential for the fire protection of mechanical equipment and special technologies.

*Fire and explosion protection*





 **rsbp**  
požární a výbuchová ochrana



# CONTENTS

RSBP	3
FIRE PROTECTION OF PAINT BOOTHS	4
FIRE PROTECTION OF MACHINE TOOLS	8
FIRE PROTECTION OF MECHANICAL EQUIPMENT	9
FIRE PROTECTION OF ELECTRICAL SWITCHBOARDS, DATA AND COMMUNICATION CENTRES	10
SPARK DETECTION SYSTEM	11



Our company RSBP spol. s r. o. has been involved in the fire protection of mechanical equipment since 1992. We are a leading supplier of solutions for the safety of sophisticated branches of industry. We investigate risks and provide solutions to prevent fires. We employ leading experts in the field of fire prevention and protection, risk analysis and engineering.

For more information contact us at [www.rsbp.cz](http://www.rsbp.cz) or contact our experts directly.

**We can find a solution for you.**

## **WE PROTECT YOUR INDUSTRIAL EQUIPMENT FROM FIRES**

Through ongoing Research and Development and thorough testing, our company RSBP has developed a special automatic fire suppression system - FIREPRO. We are able to provide a comprehensive solution to your fire protection needs. From concept, design, risk analysis, supply, installation, commissioning and operator training – we can facilitate all aspects of a professional solution. Naturally, all our equipment and services comply with legislation and standards of the EU. RSBP systems will protect your industrial equipment from fires now and into the future.

## **WE APPLY PRECISE KNOWLEDGE OF STANDARDS AND LEGISLATION**

We provide engineering expertise according to valid safety standards, regulations, ordinances and directives. We provide a professional evaluation of the application, considering the safety and technical aspects associated with the required fire protection. We take into account the current state of equipment, the proposed technical solution, and the ease of maintenance and operation.

## **WE EVALUATE RISK**

Industrial processes and equipment under go through examination and a professional evaluation by our experts. Thanks to detailed analysis, we propose suitable measures for the reduction of fire risk or its complete elimination. Entrust protection to the experts, RSBP is here for you.



## FIRE PROTECTION OF PAINT BOOTHS

In the surface finishing of products, in various industrial applications, we very often come across painting systems where there is a high probability of fire or explosion.

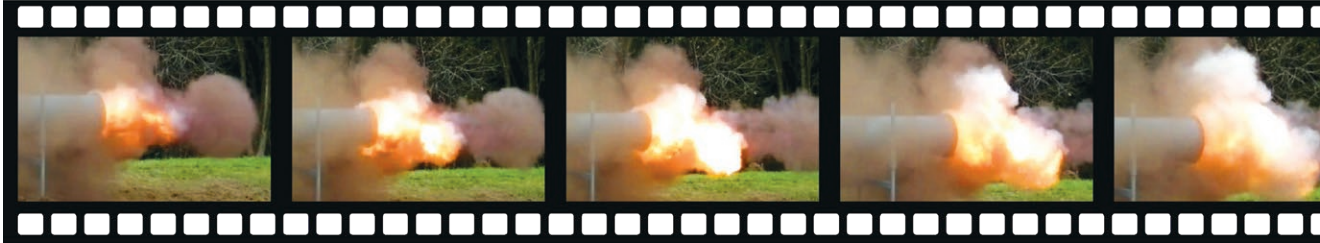
Our company, RSBP, has developed the dedicated FIREPRO system for protection of paint booths. It provides a full range of all services and products associated with the protection of paint booths, from production and delivery to complete installation and servicing, and in this way it minimises fire risk, which can cause extensive damage to equipment and fatalities.

### CAUSES OF FIRES IN PAINT SHOPS AND PAINT BOOTHS:

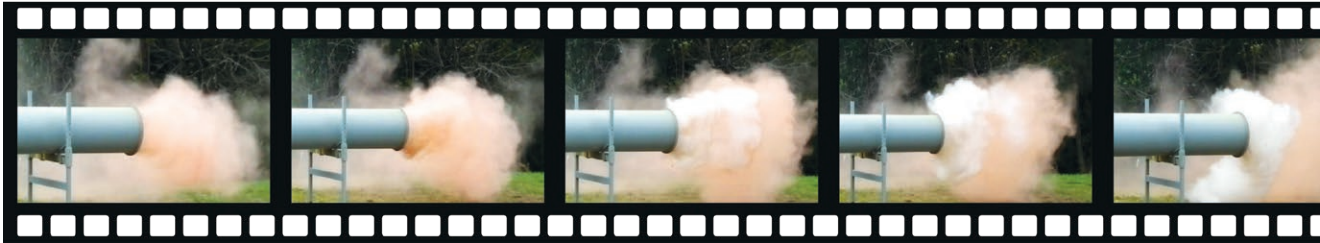
- Flammable paints and solvents
- Electrostatic discharge from paint application equipment
- Formation of explosive atmosphere due to accumulation of paint
- Ineffective earth bonding of paint equipment
- Build-up of paints in the booth, filters or cyclones



### TRANSMISSION OF FLAME THROUGH EXHAUST DUCTING TO SEPARATING SYSTEM WITHOUT FIRE BARRIER



### PREVENTION OF TRANSMISSION OF FLAME THROUGH EXHAUST DUCTING TO SEPARATING SYSTEM WITH FIRE BARRIER



Detection of fire in paint booth



Flame barrier for paint booth exhaust system



Lumex 1 optical detector on exhaust ducting

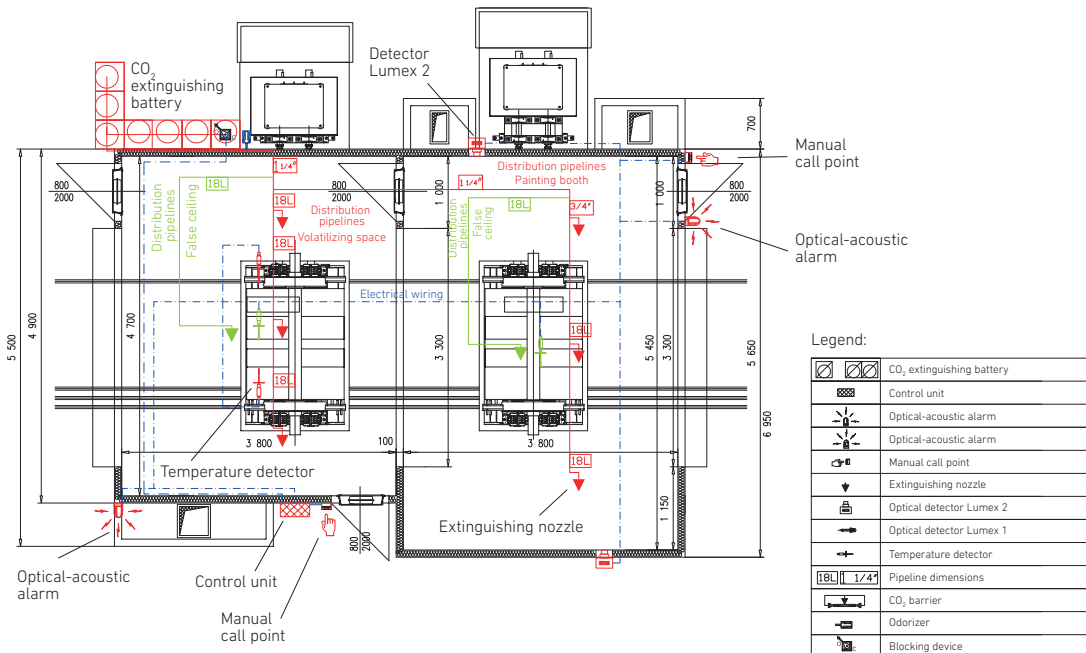
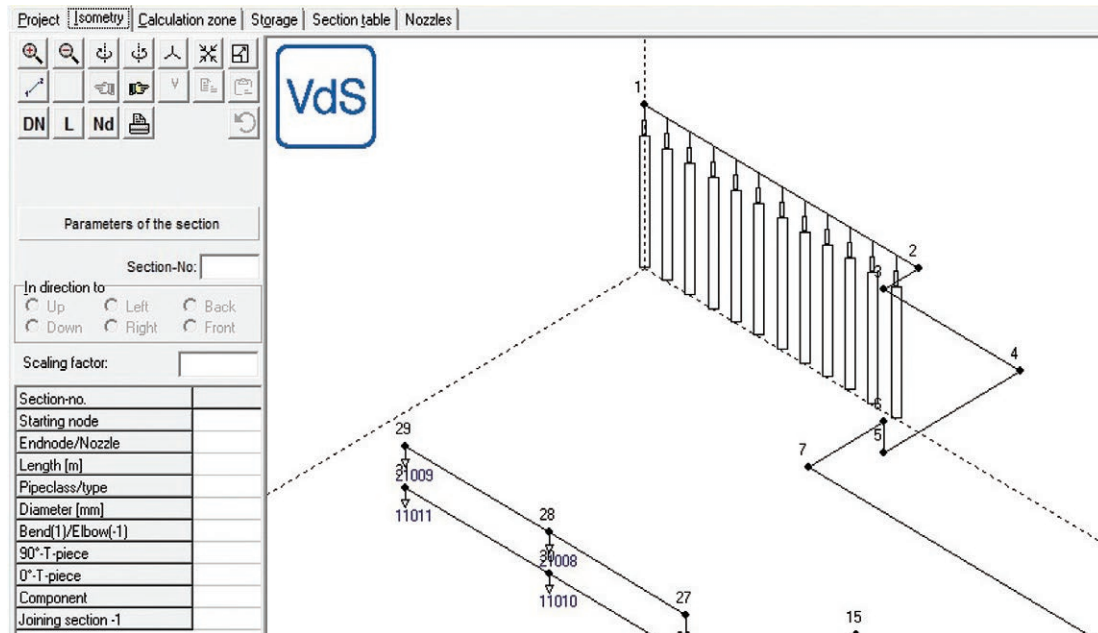


## FUNCTION OF THE SYSTEM

Highly sensitive detectors constantly monitor all the critical places in the paint booth. If a flame occurs, the detector will detect the radiation within milliseconds, and extinguishing will be activated by the control unit. The control unit is also connected to the control system of the paint lines and initiates an "Emergency Stop" of spray equipment so that no more flammable substances are released into the protected area. A fire occurring in a paint booth is extinguished very rapidly and effectively by the dedicated FIREPRO system designed by RSBP. Recovery time after such an incident is minimal. FIREPRO is the only system capable of minimising the costs and downtime caused by a fire.

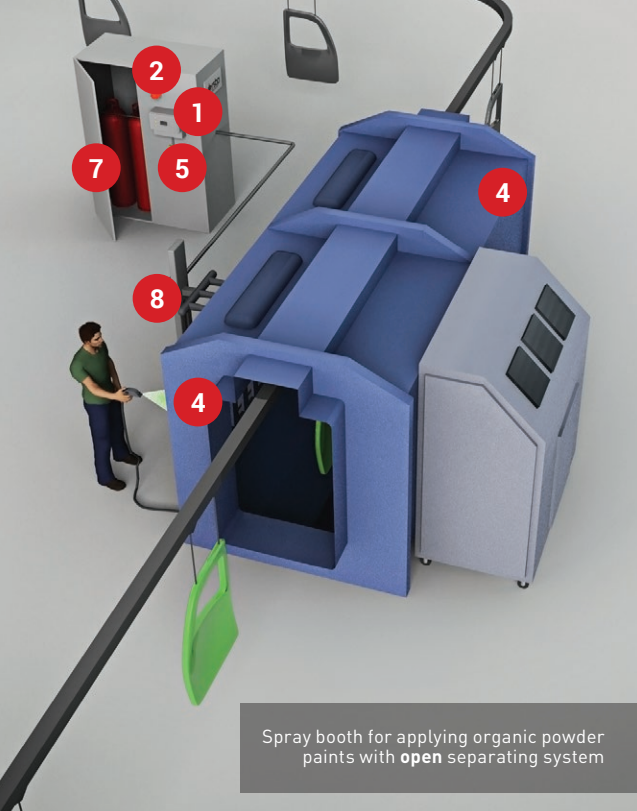
## ADVANTAGES

- High speed optical detectors
- Focused extinguishing, directly on spray equipment
- Flexible design, based on the volume
- Effective prevention of flame spread through ducting
- Specific solution, tailored to the customer
- Modular systems – configurable use of system components
- Economic advantages of FIREPRO
- Intelligent detectors eliminating false activation, suitable for hazardous zone installation
- Optical detectors with total control function, including optical integrity
- The extinguishing agent leaves no residue and does not cause corrosion, does not harm instruments

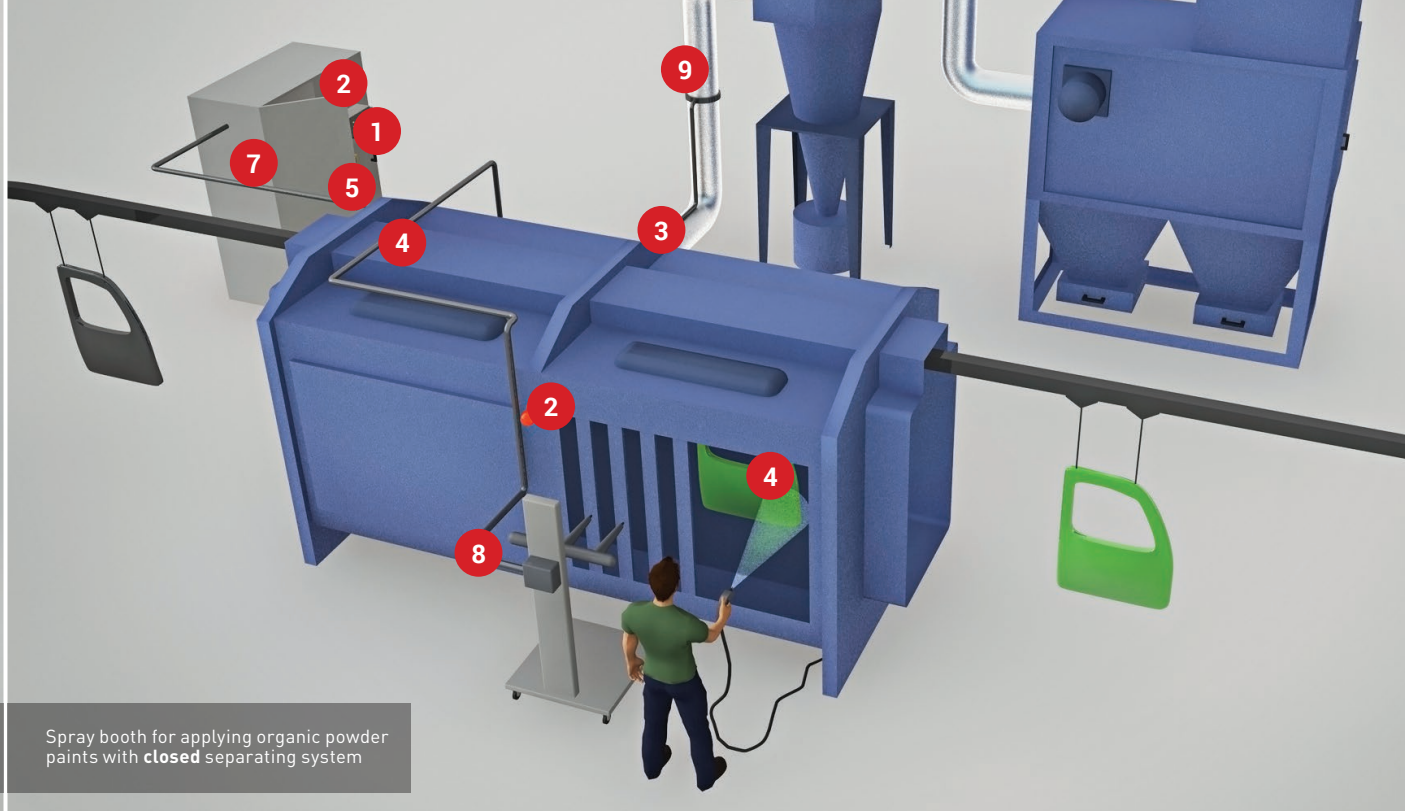


Equipment layout for paint booth protection ►

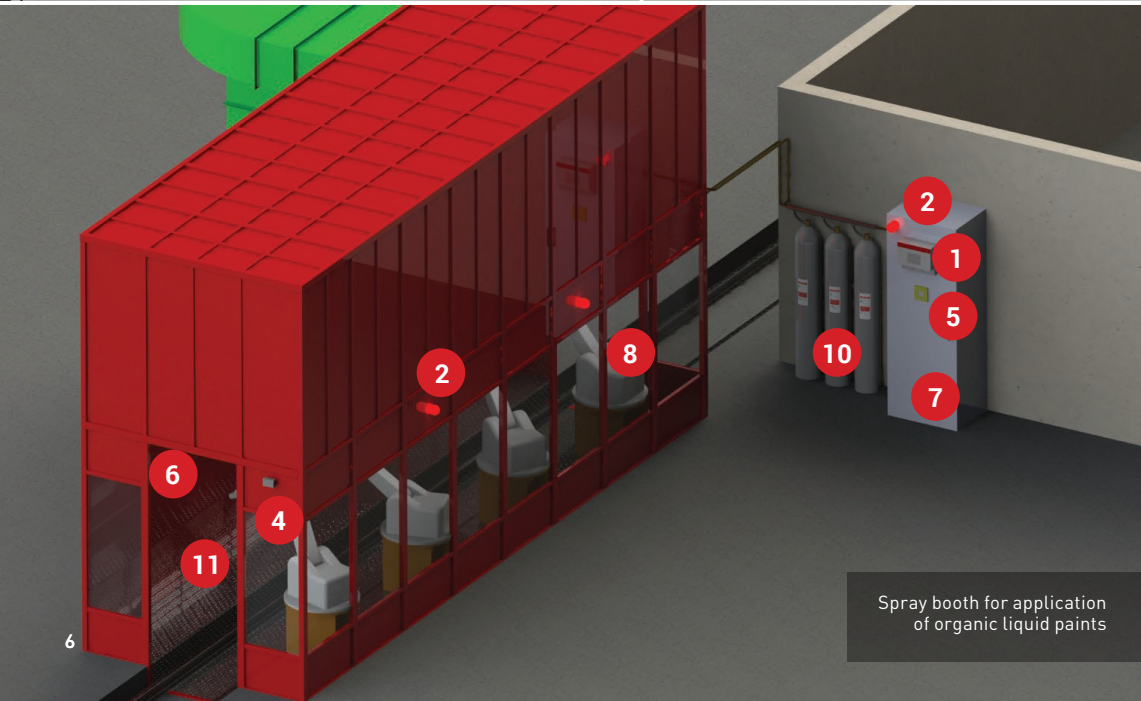




Spray booth for applying organic powder paints with **open** separating system



Spray booth for applying organic powder paints with **closed** separating system



Spray booth for application of organic liquid paints



CONEX control unit with manual call point on paint booth



Fire extinguishing battery, control unit and manual call point



CO<sub>2</sub> barrier on exhaust duct of paint booth



Installation of Lumex 2 optical detector

## MAIN COMPONENTS OF FIRE SUPPRESSION SYSTEM FIREPRO

### CONTROL PART

#### ① CONEX

The CONEX control unit, controls the automatic fire suppression system, it evaluates the information from detectors and then sends an impulse to the extinguishing equipment to halt the equipment and suppress the fire.

#### ② OPTICAL-ACOUSTIC ALARM

Siren with flashing light providing audio-visual warning of fire.

### DETECTION PART

#### ③ LUMEX 1

Optical detector for use in explosive environment which constantly monitor for the environment for flame in the duct between the paint booth and the separator system.

#### ④ LUMEX 2

Combined optical detector for use in explosive environment which constantly monitors for the presence of flame in the protected equipment and passes this information on to the control unit.

#### ⑤ MANUAL CALL POINT

In an emergency, the fire suppression system can be activated manually using the activation button.

#### ⑥ TEMPERATURE DETECTOR

Temperature detector for use in explosive environment. The temperature in the protected equipment increases when there is a fire. If the temperature exceeds the pre-set limit, the evaluation mechanism of the temperature detector passes this information on to the control unit, which sends an impulse to the actuators to suppress the fire.

### EXTINGUISHING PART

#### ⑦ EXTINGUISHING EQUIPMENT

The extinguishing agent cylinder is suspended on weighing equipment located in a protection case. The control unit, manual call point and optical-acoustic alarm can all be installed in this case.

#### ⑧ LOCAL FIRE EXTINGUISHING EQUIPMENT

This consists of local fire extinguishing equipment integrated directly into a sprayer where there is a risk of initiation.

#### ⑨ PREVENTION OF FLAME SPREAD

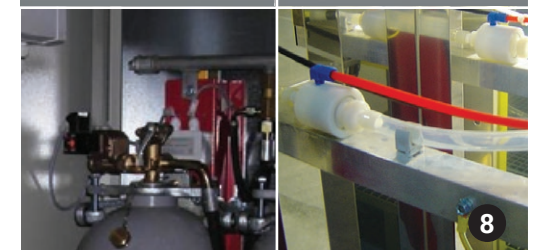
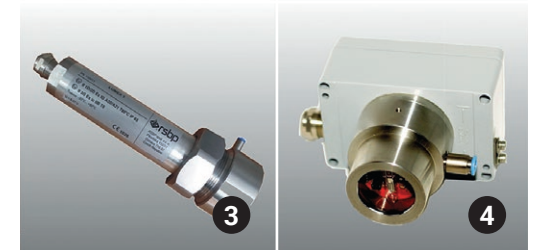
An extinguishing barrier prevents the spread of flame from a paint booth to a separator such as a filter or cyclone.

#### ⑩ FIRE EXTINGUISHING BATTERY

Set of pressure cylinders containing extinguishing agent intended for "Total Flood" extinguishing.

#### ⑪ TOTAL FLOOD EXTINGUISHING

If a fire is detected, the paint booth is flooded with gas extinguishing agent which suppresses the fire inside the booth.







## FIRE PROTECTION OF MACHINE TOOLS

Recognising the specific problems associated with machining cooling oil mist, the fumes of flammable liquids or flammable waste generated by machining itself may bring, RSBP offers high-quality, effective fire protection for machining technology.

The FIREPRO automatic fire suppression system by RSBP is intended for CNC machines such as coordinate grinding machines, mills, spark discharge machines etc.

### RISK:

When machining workpieces, modern machine tools are often cooled by flammable oils. These oils can generate an oil mist in the working environment. If an ignition source, is present an ignition and subsequent fire will occur. Ignition can arise from the actual machining of the workpieces, and will readily ignite, oil mist or flammable waste.

In the case of spark discharge machines there is also this risk presented by the fumes of flammable liquids.

### PLACES OF RISK:

- Area of machining
- Area for input and output of machined workpieces
- Area leading to exhaust system
- Area above the bath of a spark discharge machine

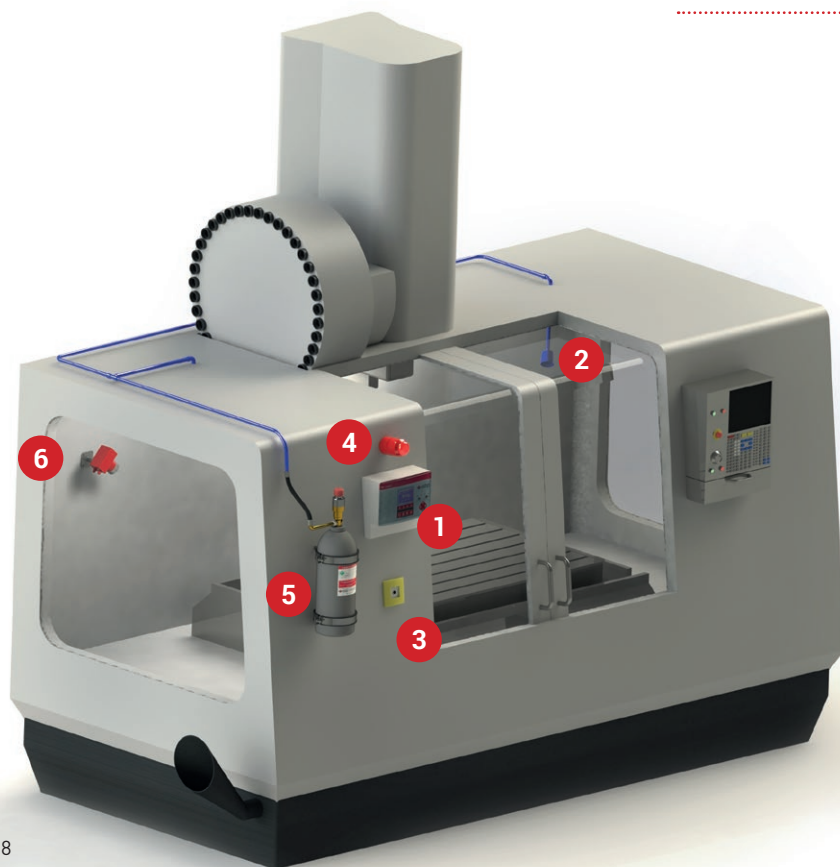
### FUNCTION OF THE SYSTEM:

The working area of the machine tool is constantly monitored by flame detectors.

If there is a fire, the control unit sets off an alarm, it automatically switches off the relevant machinery and opens a fire extinguishing battery. The system activates the fire suppression within a few milliseconds, the fire suppression occurs directly within the working area of the machine tool.

### ADVANTAGES:

- Flexibility of system components
- Interface with the control system of protected machinery
- Modular systems
- Operator warning via optical-acoustic alarm at control console

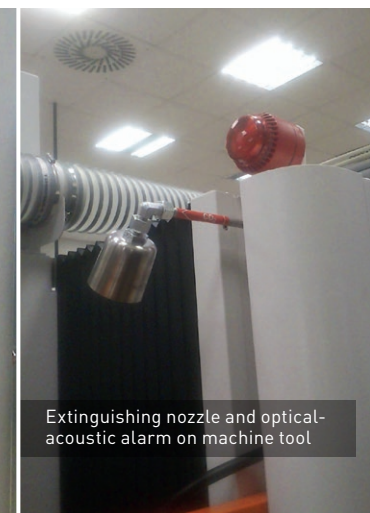


### DIAGRAM OF FIRE PROTECTION FOR MACHINE TOOL

1. Control unit
2. Extinguishing nozzle
3. Manual call point
4. Optical-acoustic alarm
5. Fire extinguishing battery
6. Optical detector



CONEX control unit with manual call point on machine tool



Extinguishing nozzle and optical-acoustic alarm on machine tool





# AUTOMATIC FIRE SUPPRESSION SYSTEM FIREPRO

## FIRE PROTECTION OF MECHANICAL EQUIPMENT

In many industries, we encounter machines which use flammable substances in their operation. Generally, it is not possible to rule out ignition – therefore there is a possibility or probability of fire.

The FIREPRO automatic fire suppression system by RSBP is a possible solution for the protection of special applications such as exhaust systems, mixers, driers, mills or grinders.

and damage caused by fire. In principle the system works on the basis of continual monitoring of a protected area by sensitive detectors which detect the specific parameters of a fire. Should there be a fire, the detector will send a signal to the control unit, which initiates extinguishing immediately. The extinguishing agent is dispersed evenly in the protected space using special nozzles designed precisely for the specific type of extinguisher. The system's function generates a highly effective means of extinguishing fires in mechanical equipment.

### RISK:

- Friction and generation of heat
- Heat as the result of overloading of a machine
- Mechanical failure causing an ignition source
- Electrical fault
- Spontaneous combustion

### ADVANTAGES:

- High reaction speed of system
- Great extinguishing effectiveness and cooling effect of extinguishing agent
- Automatic checking that detectors are not fouled
- Flexible modular system

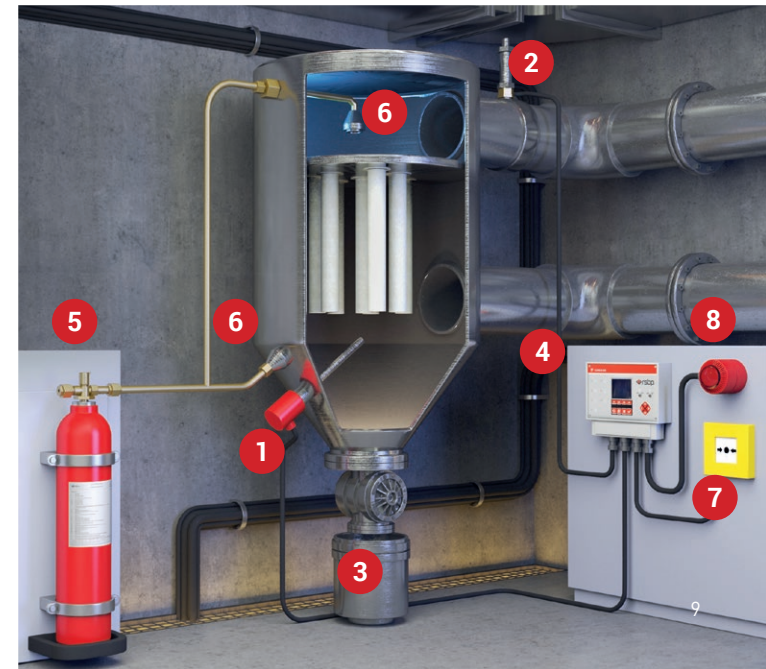


### FUNCTION OF THE SYSTEM:

The fire protection system supplied by RSBP forms an effective tool for the extinguishing of fires in mechanical equipment, and it thus minimises the possibility of injury

### DIAGRAM OF FIRE PROTECTION OF MECHANICAL EQUIPMENT (FILTER) BY AUTOMATIC FIRE SUPPRESSION SYSTEM

1. Temperature detector
2. Optical detector
3. Rotary valve
4. Control unit
5. Extinguishing cylinder
6. Extinguishing nozzle
7. Manual call point
8. Optical-acoustic alarm



CONEX control unit with manual call point and optical-acoustic alarm on case with CO<sub>2</sub>



Lumex 1 optical detectors



Battery with extinguishing gas



# FIRE PROTECTION OF ELECTRICAL SWITCHBOARDS, DATA AND COMMUNICATION CENTRES

The modern era places ever increasing demands on the use of electrical equipment. Whether it involves communication and data centres or just electricity distribution systems, in all cases there is a fire risk. For these applications, gas extinguishers are far more suitable than water based ones. If water is used for extinguishing there could be greater damage than the fire itself would cause (both to property and human life as a result of electric shock etc.).

## FUNCTION OF THE SYSTEM:

Gas extinguishing equipment is used for extinguishing fires in closed and partially open areas. They work mainly on the principle of reducing the oxygen level in the protected spaces. Sensitive detectors analyse the protected space and communicate with the control system. Then, through a prompt reaction to a fire in its infancy, it activates the discharge of the quenching gas and informs the operator of the danger that has arisen.

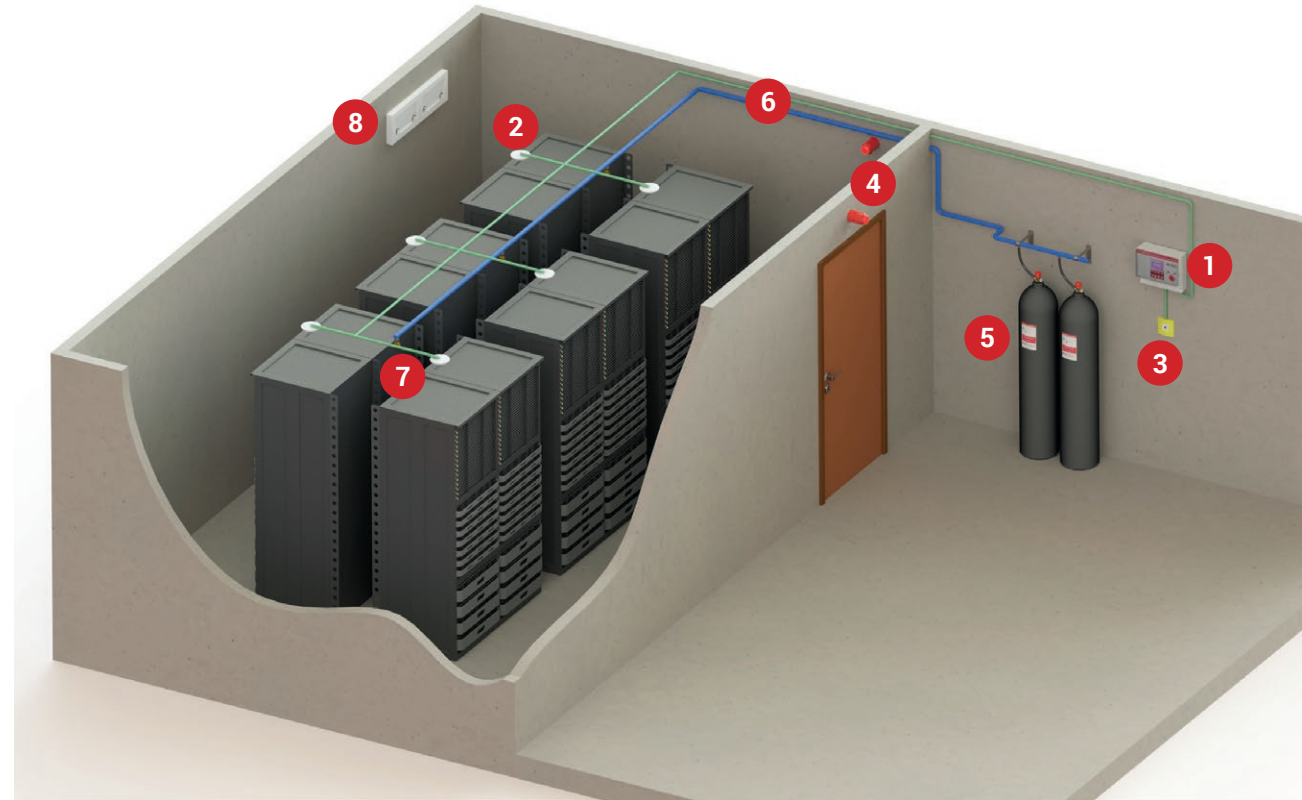
The fire suppression system is fully automatic with the possibility of manual activation.

## ADVANTAGES:

- Minimal damage to protected equipment due to the activation of extinguishing
- Early warning of fire at its very beginning
- Operator-free system - automatic
- Minimal demands for maintenance
- Modular system

## DIAGRAM OF FIRE PROTECTION FOR INFORMATION AND COMMUNICATION CENTRES

1. Control unit
2. Fire detector
3. Manual call point
4. Optical-acoustic alarm
5. Fire extinguishing battery
6. Extinguishing agent distribution system
7. Extinguishing nozzles
8. Overpressure valve







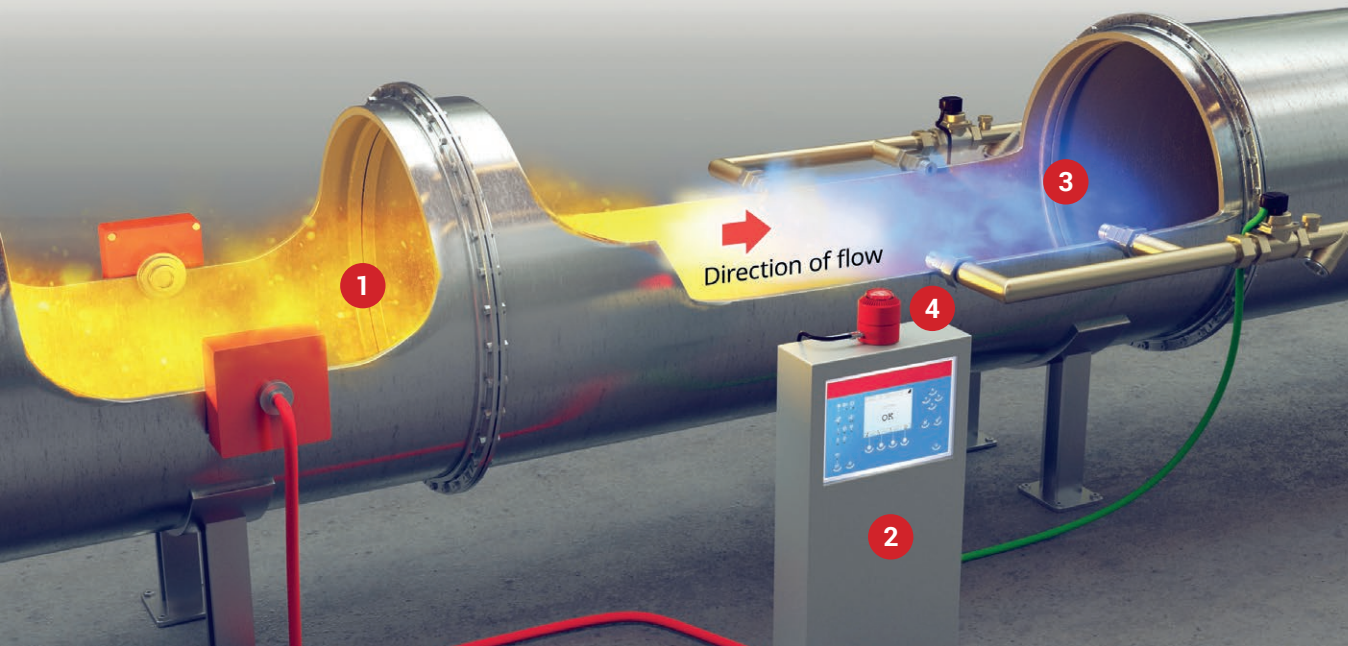
# SPARK EXTINGUISHING SYSTEM

During some specific industrial processes, sparks and embers can be generated. These can be transported by air currents along ducting or by conveyor belts, and be deposited in the filtration unit, hopper or silo. The transported material can start smouldering, which can lead to a fire or a destructive explosion.

In order to minimise the risk of fire - to protect equipment and persons and to reduce any downtime resulting from a fire, RSBP offers a tried and tested spark extinguishing system for preventative protection from fire.

## DIAGRAM OF THE SYSTEM FOR EXTINGUISHING SPARKS IN TUBE

1. Detection of burning particles
2. Evaluation of state by control unit
3. Extinguishing of burning particles
4. Optical-acoustic alarm



## RISK:

Sparks and burning particles resulting from:

- Friction
- Static charge
- Addition of foreign particles
- Spontaneous combustion

## FUNCTION OF THE SYSTEM:

The basis of the spark extinguishing system consists of highly sensitive detectors reacting in a few milliseconds to the presence of sparks in conveyor systems. If sparks or a fire appear, the control unit immediately receives an impulse from the detector, and on the basis of electronic analysis it activates the quick-opening valve releasing pressurised water within a few thousands

of a second. The extinguishing nozzle in the conveyor system creates a conical mist of extinguishing agent, and the undesirable sparks or burning particles are extinguished.

At the end of system activation and the effective elimination of the danger, the system automatically reverts to the standby state.

## ADVANTAGES:

- Great effectiveness and short reaction time of system
- Possibility of fitting on short tubes too
- Flexible and modular system
- Ease of installation
- The design of the nozzles prevents clogging
- Automatic checking that detectors are not fouled
- Automatic restoration of operation
- Suitable for outdoor applications



Control unit and water storage for the spark extinguishing system



Extinguishing nozzles for water distribution system

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## SERVICE

Our fully qualified Service department is available to support our customers on a 24 hour, 7 days a week basis and is ready to help with any difficulty – at any time. Prompt servicing of your vital fire protection equipment is available, should you ever need it.

- We offer regular Inspection and Testing services in compliance with the legislation of the EU member states
- We provide emergency repairs, and delivery of spare parts
- We provide customer support for all equipment supplied by RSBP

Contact our servicing department and work with top experts in the field.

### Service Department Contact (24/7):

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