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RAPTOR SPARK

SPARK DETECTION & EXTINGUISHING SYSTEM

BOSS PRODUCTS LLC

Transitioning the World to a Safer Working Environment

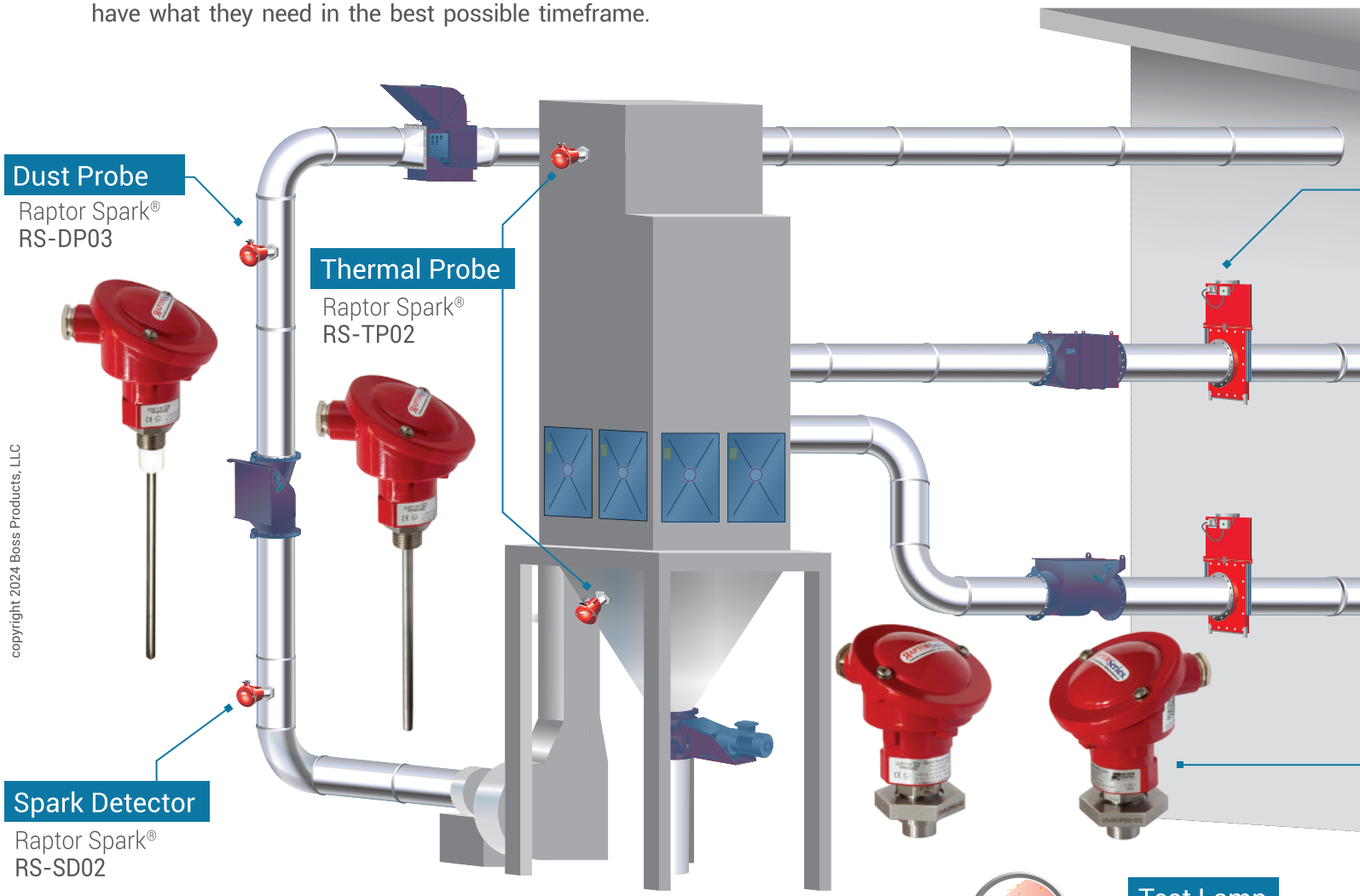
About Us

Beginning in 2012, Boss Products formed with the intent to become the world's leading supplier of fire & explosion protection solutions serving industrial dust collection and related process industries.

Boss Products promptly supplies our customers the safety components they need from the largest inventory available in North America. Centrally located near San Antonio, Texas, we maintain redundant supplies of all sizes of varying inventory to assure customers have what they need in the best possible timeframe.

We are exclusive North American distributors for major worldwide manufacturers, as well as promoting our own Raptor Series brand of components that are supported by electronics manufacturing

The **Raptor Spark® Detection and Extinguishing System** is an **FM Approved safety device** that is designed to detect and extinguish sparks and glowing embers that are traveling through a duct system. The hazard



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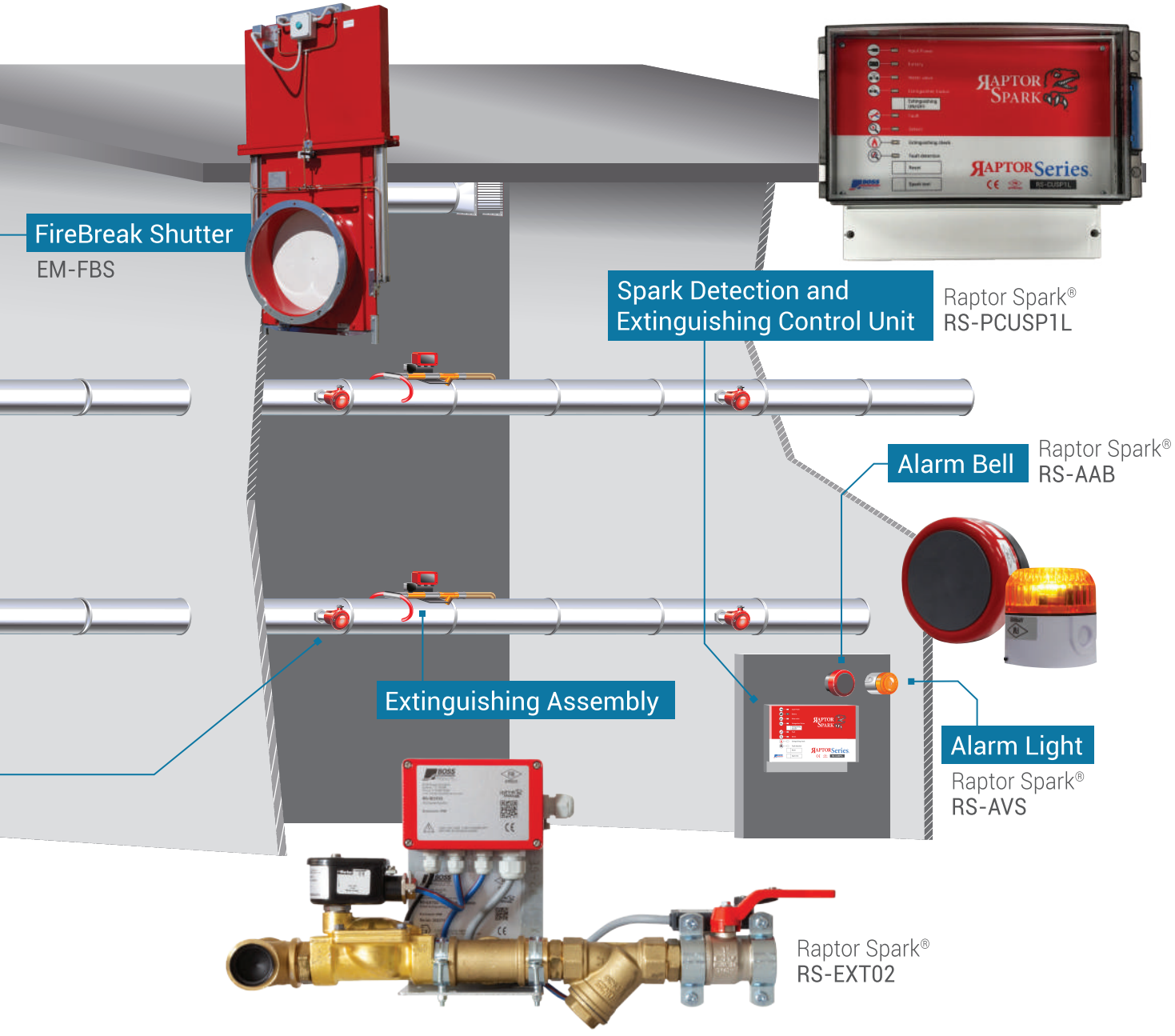
Spark Detection & Extinguishing System

is detected by infrared sensors and extinguished with water spray nozzles within milliseconds of detection.

The Raptor Spark® detection control unit has the capacity to receive hazard alert signals from multiple components and monitor multiple duct-zones and vessels. The Raptor Spark® Detection and Extinguishing System is an essential Fire Protection, Fire Isolation and Diversion device that is commonly installed with Raptor Gate™ High Speed Abort Gates, FireBreak Shutters, VIGILEX Explosion Vents and explosion certified VDL Rotary Valves. Typical automatic functions include hazard detection, system shut-down, isolation/abort, and extinguish and/or suppression.



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Spark Detection & Extinguishing System

Raptor Spark® Detection & Extinguishing Control Unit

The **Raptor Spark Detection & Extinguishing Control Unit (RS-PCUSP1L)** is designed to minimize the risk of fire and explosion in dust filtration and pneumatic conveying systems. This control unit communicates with a variety of components to monitor and protect a single zone with up to six components. **The Control Units, RS-PCU1610SD & RS-PCUSP1L, are FM Approved**.

Raptor Spark® Extinguishing Assembly

The **Extinguishing Assembly** is designed to work in conjunction with the **RS-CUSP1L control unit** and **Spark Detectors**. When the control module gets a signal that a hazard has been detected, the extinguishing assembly is activated. A water spray is initiated inside the piping system to extinguish sparks or glowing embers that could cause fire or explosion. **The Extinguishing Assembly** is **FM Approved and ATEX Certified**.

Raptor Spark® Dust Probe

The **Dust Probe** is a charge displacement probe that uses the principle of the displacement of the electric charge in the electrode. It signals the **RS-PCUSP1L Control Unit** when there is an increase in the concentration of dust levels which could potentially indicate the rupture or ineffective operation of dust filters and/or dust bags. **The Dust Probe** is **FM Approved and ATEX Certified**.

Raptor Spark® Thermal Probe

The **Thermal Probe** is designed to work either as a thermovelocimetric output (rapid raise in temperature in a short amount of time), or as a thermostatic output (fixed temperature threshold) to alarm the **RS-PCUSP1L Control Unit** of potential fire hazards in the ductwork, dust collector units, hoppers, cyclones and etc. The **Thermal Probe** is **FM Approved and ATEX Certified**.

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Raptor Spark® Spark Detector

The **Spark Detector** is designed to work with the **RS-PCUSP1L Control Unit**. The **Spark Detector** uses advanced technology and circuit, sensitive to infrared light to detect sparks, flames, and incandescent material that passes in front of its optical element. The **Spark Detector** is **FM Approved and ATEX Certified**.

Raptor Spark® Test Lamp

The **Test Lamp** is designed to work in association with the **Spark Detectors**. The **Test Lamp** provides a function check to ensure the cleanliness of the **Spark Detector** lenses by emitting high infrared radiation into ducting or pneumatic conveying lines across from the spark detectors to simulate a spark or glowing ember in the line. The **Test Lamp** is **FM Approved and ATEX Certified**.

Raptor Spark® Firebreak Shutter

The **FireBreak Shutter** is engineered to isolate fires and fire hazards in process ventilation and dust collection applications. It can be installed in multiple applications ranging from wood dust, metal dust, oil mist and/or any other process that has a fire hazard. The **Fire Break Shutter** can be activated by the **RS-PCU1610SD Control Unit** or **RS-PCUSP1L** via **Spark Detection** or sensing activation by a **Thermal Probe**. Preventative (active) and reactive (passive) solutions are available.

Water Pressure Booster Pump

The **Raptor Spark® Water Pressure Booster Pump RS-CPR** was designed to regulate water pressure going into the extinguishing unit. It is the best solution for facilities that have over or under pressure water lines available for installation of the **Spark Detection** and **Extinguishing System**.

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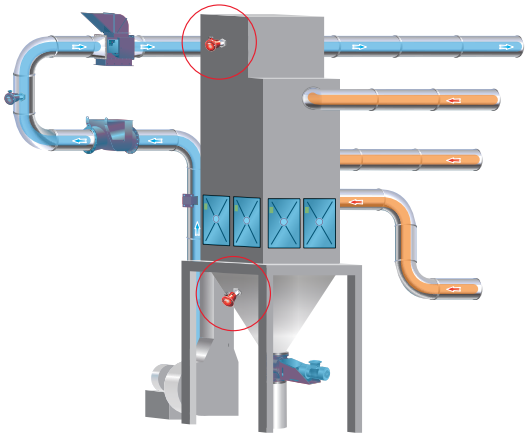
Thermal Probe

APPLICATIONS

The **Thermal Probe** monitors the temperature rise within a vessel using thermostatic technology. The **Thermal Probe** is complete with an alarm function which signals upon rapid temperature rise based on fixed threshold set points to monitor the temperature in enclosures. It is designed to be used specifically for fire protection in dust collection systems.

The probes are equipped with a **6"/150 mm long steel electrode** that can be placed within the area to be monitored (eg, silos, cyclones, filter units) while the electronic circuit and electrical cable connections remain outside the vessel. These probes have cast aluminum enclosures with IP65 protection. The internal circuit and the measuring sensor (within the electrode) are immersed in a resin bi-component which allows the probe to be installed in difficult places, such as dusty environments. **The Thermal Probe is suitable for ATEX zone 22**.



CERTIFICATIONS & STANDARDS

ATEX Zone 22

CE

FM Approved

STANDARD FEATURES

- Select temperature rise or temperature threshold
- Output for Alarm
- Bus **RS485**
- **IP65** Enclosure
- Working temperature: **-4°F to 149°F (-20°C to 65°C)**
- Electrode Measurement Range: **-40°F to 302°F (-40°C to 150°C)**

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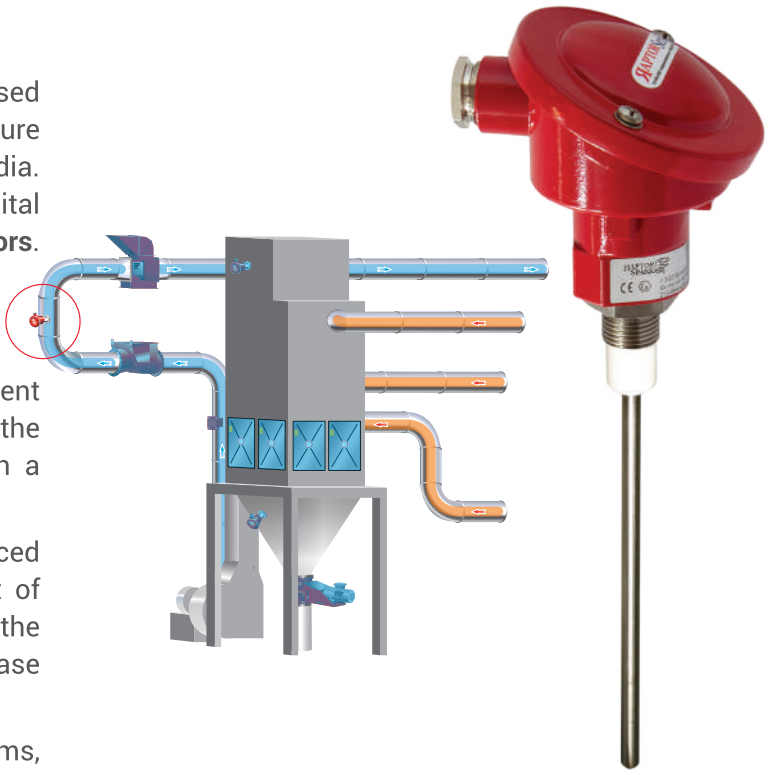
Dust Probe (Broken Bag Detector)

APPLICATIONS

The **Dust Probe** is a microprocessor based instrument that is designed to detect and measure dust emissions caused by leaks in filtration media. Design characteristics include pre-calibrated digital optically isolated outputs and a set of **LED indicators**.



OPERATING PRINCIPLE

The **dust probe** uses the principle of the displacement of the electric charge in the electrode, induced by the electrical charges, carried by dust immersed in a gaseous fluid.

The amount of electric charge dynamically induced on the electrode is proportional to the amount of dust present in the gaseous fluid. An increase in the concentration of dust, causes a proportional increase of the signal that reaches the microprocessor.

Applying sophisticated mathematical algorithms, the individual powder particles are counted so as to be able to calculate their concentration.

The computed values can be stored internally in order to be drafted in the future, or sent via **RS485 serial transmission**, or **PWM 4/20 mA** to an **external control unit** for further analysis.

STANDARD FEATURES

- **Min Air Speed:** 787 FPM (4m/s)
- **Max Outputs Current:** 100 mA
- **Max Voltage on Outputs:** 48VDC
- **Max Working Temperature:** 284°F(240°C) or 428°F(220°C) on High Temp Version
- **Working Pressure of the Probe:** < 2bar
- **Enclosure Material:** Die-Cast Aluminum (Type DIN "A")
- **Protection:** IP 65
- **Electrode Material:** Inox Steel 304

Model	Resolution	Threshold 1	Threshold 2	Output 4-20mA	Scale @20mA	Autoacquisition	RS485
RS-DP03	$10x10^{-8}$ oz/cu.ft 0.1 mg/m³	$5x10^{-6}$ oz/cu.ft 5 mg/m³	$10x10^{-6}$ oz/cu.ft 10 mg/m³	NO	$10x10^{-6}$ / $5x10^{-5}$ oz/cu.ft 10/50 mg/m³	YES	YES
RS-DP05	$10x10^{-8}$ oz/cu.ft 0.1 mg/m³	$5x10^{-6}$ oz/cu.ft 5 mg/m³	$10x10^{-6}$ oz/cu.ft 10 mg/m³	YES	$10x10^{-6}$ / $5x10^{-5}$ oz/cu.ft 10/50 mg/m³	NO	YES

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Transitioning the World to a Safer Working Environment

BOSS Process
PEOPLE. PARTNERSHIP. PERFORMANCE.

VIGILEX® SAFETY PROTECTION By STIF

VDL

ISO 9001 : 2015 Certified Company, Certificate #12373

RAPTOR Series

RAPTOR SPARK

RAPTOR BREATH

RAPTOR DRUM

RAPTOR GATE

RAPTOR SHIELD

Mission

We preserve lives and investments with innovative, tailored safety solutions.

Vision

To be recognized as the world-wide leader in combustible dust safety, making technical solutions accessible to clients around the world.

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