

## FREQUENTLY ASKED QUESTIONS

### **Will installing a Spark Detection System lower my insurance premiums?**

Many insurance companies will offer tangible incentives for their insured properties to implement protection measures to reduce the risk of loss. This practice however is by no means consistent throughout the insurance community. Whether a payback on the purchase of a protection system can be realized solely on the reduction of premiums depends upon your relationship with your insurer. Loss histories, size of operation, and degree of risks are likely to be factors considered by the insurer.

### **Will installing a Spark Detection System allow us to meet NFPA requirements?**

The National Fire Protection Association (NFPA) publishes fire safety standards for different industries and different industrial processes. These standards provide a wealth of information concerning industrial facility protection. The use of Spark Detection Systems is specified in a number of NFPA standards including NFPA 664, 654, 69 and 72. The NFPA is not an enforcement agency. How the standards must be followed in a particular area is up to the local Authority Having Jurisdiction (AHJ). The AHJ determines to what degree the standards are to be followed and how they are to be interpreted.

### **Why should I install a FLAMEX System to protect my Baghouse if it already has sprinkler protection?**

One of the most important advantages of a spark detection and extinguishing system is that it is designed to PREVENT a possible ignition source from entering a collection vessel where the environment necessary for a potential fire or explosion is likely to be found. This is most often accomplished with a brief water spray in the duct upstream of the collector that requires no downtime or clean up. A sprinkler system by contrast requires a large build-up of heat caused by a fire in the vessel before it will release. It is too slow to prevent an explosion. Upon activation, the sprinkler suppression floods the unit until it is manually shut off resulting in downtime and clean up. Initial damage to the unit from the fire would also be incurred. Sprinkler systems installed in a dust collector basically are designed to keep a fire from spreading after it has begun. Spark Detection and Extinguishing Systems are designed to prevent the fire or explosion from occurring.

### **Where should the system be installed on the duct?**

The detection and suppression components of the system are typically installed on the main trunk line of the duct, downstream from all branch pipe inputs to the system and upstream of the inlet to the collector. In material transport systems where positive pressure fans blow material into the collector, it is best from a protection standpoint (if possible) to locate the detectors downstream of the fan discharge so that any material passing through the fan is monitored by the system.



### **How much distance must be between the sensors and the nozzle?**

The minimum sensor to valve distance (SVD) is based on a simple factor that is multiplied by the maximum air velocity in feet per minute. In most cases this factor is based on 300 milliseconds reaction time however the installer should consult the installation manual or supplied drawings to verify this critical distance prior to mounting the components. Based on this factor, typical air speeds of 4,000-5,000 feet per minute would require 20-25 feet or minimum distance respectively. The faster the air velocity, the more distance is needed.

### **Will the water spray shut us down or ruin our bags?**

One of the principle advantages of the system is that it uses the minimal amount of water to eliminate the potential ignition source. When responding to a spark, the valve will open and then shut off after completing a pre-set spray time duration. The amount of water expelled into the duct will vary depending upon the spray cycle time, water pressure, size and number of valves or nozzles used however it is highly unlikely that an activation of the system will cause any business interruption.

### **How much water pressure do we need?**

To establish an effective spray pattern in the duct, a minimum flowing water pressure and water volume is required. As the duct size increases, more water and pressure are required to produce an effective spray pattern over a larger area. Air velocities are also a consideration. To some degree, the pressure requirement can be reduced with more volume and vice versa so that there is some flexibility in designing the suppression to facilitate compatibility with the plant water supply. The requirements for each duct will be calculated and stated separately by FLAMEX. It is not unusual that most systems can be designed to require a minimum flowing pressure between 44 psi and 58 psi (3-4 Bar).

### **Can we use a potable water supply?**

The minimum required water volume and pressure for a particular application must be available at all times for suppression to be effective and reliable. For this reason, we recommend that the sprinkler system be used for the water supply if possible. The sprinkler system provides a stable water supply with plenty of volume that usually has the pressure necessary to meet system requirements. A domestic water supply can be used if it can meet the minimum flow and pressure requirements of the system. The possibility of fluctuations and increased uses of the potable water supply must be considered and addressed in the design and continued use to ensure reliability.

### **Our water comes from a well. How do we meet the flow and pressure requirements of the system?**

Where a continuous water supply is not available or if the minimum volume and pressure requirements of the system cannot be met, FLAMEX can supply a Booster Pump Unit that can draw water from an atmospheric tank to provide the necessary supply.

### **Should we shut off the fan?**

It is not recommended to shut off blowers to stop the airflow upon activation of the system (at least initially). The system is designed to detect and suppress airborne sparks moving through the duct based upon a known air velocity. If the velocity is stopped, then the system cannot function as designed. The main concern is that when air movement through the duct ceases, material will collect on the bottom of the duct and provide fuel for a potential ductwork fire. If the source of spark generation has not been addressed or if sparks or burning material upstream of the suppression location (previously airborne) falls to the bottom of the duct, a fire or smoldering could result. NFPA 664 A.9.3.5.4 (2020 edition) discusses the explosion risk that is created when fans are shut down during a dust collector fire. It is beneficial however to disable the bag cleaning mechanism when a spark is detected to minimize the dispersion of dust particulate in the collector.

### **My extinguishing assemblies are outside. Can I use antifreeze in my water piping to avoid freeze-ups?**

Antifreeze is not recommended for use with the system as it does not have the same extinguishing capabilities as water. The proper way to freeze protect any system plumbing exposed to freezing weather is to use heat tape and insulation. FLAMEX provides removable insulation jackets for the extinguishing assemblies for convenience for maintenance inspections.

### **Do I need an Abort Gate?**

Abort gates provide an effective means to purge sparks, burning material, smoke and combustion gases out of the pneumatic material flow. Although they are sometimes used on material handling ducts to protect a dust collector located downstream (as a "fail-safe" back-up to water suppression or where water suppression is not acceptable), they are most often used on a return air or clean air duct that recycles filtered air back into the building. NFPA 664 (2020 edition) 9.3.5.4.2. specifies the use of these devices in wood dust collection units where exhaust air is being returned to the building. NFPA 654 Annex C (2020 edition) also discusses the use of Abort Gates in non-wood applications.

### **Water is not an acceptable extinguishing agent for my application. What alternatives are there?**

Water is not an acceptable extinguishing agent for some dusts such as aluminum, magnesium, and titanium. The FLAMEX System provides very rapid detection and an output. This output can be used for a variety of desired actions such as diversion/Abort, machinery shutdown, alarm, reversal of augers to a fire dump, and suppression by a variety of extinguishing agents other than water. Many of the FLAMEX control panels are listed as releasing panels so the system can be used to release CO<sub>2</sub>, Nitrogen and clean agents.



### **Will the sensors be obscured by the material flow in the duct?**

Although the Detectors are highly sensitive and can detect IR in a material flow, it is possible that at some point the detection capability can be compromised due to the obscuration of the lens by material build-up. Highly resinous material that adhere to the inside duct walls may cause such a problem. For this reason, regular inspections are necessary. This task has been made much easier with the use of the YMX 5000 Spark Detector as it features a constant integrity test of the lens. The use of this feature will reduce the minimum cleaning frequency as outlined in NFPA 664 (2020 edition) Table A.9.8.1.

### **What maintenance is required on the system?**

Like any piece of equipment, the FLAMEX system requires periodic testing and regular maintenance to ensure the degree of reliability that is required of crucial fire protection and life safety systems. The recommended maintenance procedures are not difficult to perform but should be carried out regularly. These procedures are outlined in the FLAMEX Installation and Applications Manual and can be found in NFPA 664 (2020 edition) A.9.8.1. FLAMEX technicians provide training to plant personnel upon commissioning of the system including instruction on preventative maintenance. Service Contracts are also available from FLAMEX Inc.

### **Who does the installation?**

In most cases, plant personnel can perform most if not all aspects of system installation unless local codes or ordinances require specific licensing. FLAMEX provides design and layout assistance, complete wiring diagrams and installation documentation. If installation assistance is desired, FLAMEX can provide pre-installation orientation, partial installation service or complete turn-key installation.

### **What electrical wiring is required and where do I get it?**

FLAMEX Control Panels require 110VAC or 220V AC incoming voltage. Low voltage DC cabling run in electrical conduit is recommended from the Control Panel to the field devices. Normally 18 gauge 4 conductor shielded cable is recommended for the wiring of the Detectors and Test Lights. The required gauge for the non-shielded cable to the solenoid Valves may vary depending upon the length of the wiring required and the number of valves per zone. Typically 16 gauge cabling is used for a single valve up to 380 feet. FLAMEX can supply the wiring necessary for your installation. Consult FLAMEX Inc. for more information.

### **Do I need a technician to perform start-up and commissioning after installation?**

Start-up and commissioning of the system is highly recommended and may be required in some instances by an insurance carrier or the AHJ. The FLAMEX technician can verify proper installation of the system, test each component for proper operation and train plant personnel concerning the operation and maintenance of the system. Upon completion of start-up, the warranty of the system is validated. No one other than factory trained FLAMEX technicians are authorized to perform commissioning on a FLAMEX System.



**Will installation of the FLAMEX System be sufficient to protect our facility from any possibility of fire or explosion associated with the dust collection system?**

No system can provide a 100% protection guarantee against all possible incidences of fires and explosions. Certainly there can be ignition sources and hazard scenarios that are beyond the scope of protection that any one system can provide. The FLAMEX System has been proven effective in addressing sparks that are commonly generated during normal operation in a number of industrial processes. It cannot however, reduce the severity of an explosion should one occur. For this reason, spark detection and extinguishing systems should be considered an important part of an overall facility protection design which can be used in combination with other protection measures such as isolation products, explosion venting, deluge systems and sprinkler systems to provide a more comprehensive degree of plant safety.

**Can FLAMEX help us with our other fire protection needs?**

FLAMEX offers a wide range of fire protection products and is part of a worldwide fire protection organization that has many capabilities. If you have an installed FLAMEX System, additional components can be added to provide a greater degree of process protection such as:

- \*Heat Detection for Baghouses or Bins
- \*Deluge Systems
- \*Mid-IR Detectors for Drop chutes and conveyors
- \*Smoke Detectors for Motor Control Rooms and Clean air ducts and plenums
- \* Isolation Products such as Abort Gates and Back Draft dampers
- \* Foam Systems for hydraulic pumps, thermal oils and other flammable liquids.
- \* Low pressure water mist system for presses, oven, dryers and cable trays

In addition to these capabilities, we also have resources within our organization and associates that can perform installations and supply other systems to meet the special hazard requirements of a variety of industrial applications.

Please contact us to discuss your fire protection needs.