



RUPTURE DISK DEVICES

A collection of rupture disk devices, including two circular metal housings with central openings and several individual rupture disks of various shapes and sizes. One rupture disk is shown in its protective packaging with a red and white label.

CUSTOM ENGINEERED PRODUCTS

A variety of custom-engineered metal components, including flanges, valves, and fittings, arranged on a blue grid background.

SPECIALTY VALVES

A collection of specialty valves, including a large green valve with a vertical stem and a smaller blue valve with a circular face.

INDUSTRIAL EXPLOSION PROTECTION

A collage of images related to industrial explosion protection, including a bright explosion, a red explosion protection cabinet, and several red and white explosion protection boxes.

PROCESS SYSTEMS

A collage of images related to process systems, including an oil pumpjack at sunset, a worker in a hard hat and safety vest, and a large industrial vessel with a 'BS-B' logo.

INDUSTRIAL EXPLOSION PROTECTION

Industrial Explosion Protection

Risk Management / System Solutions Provider

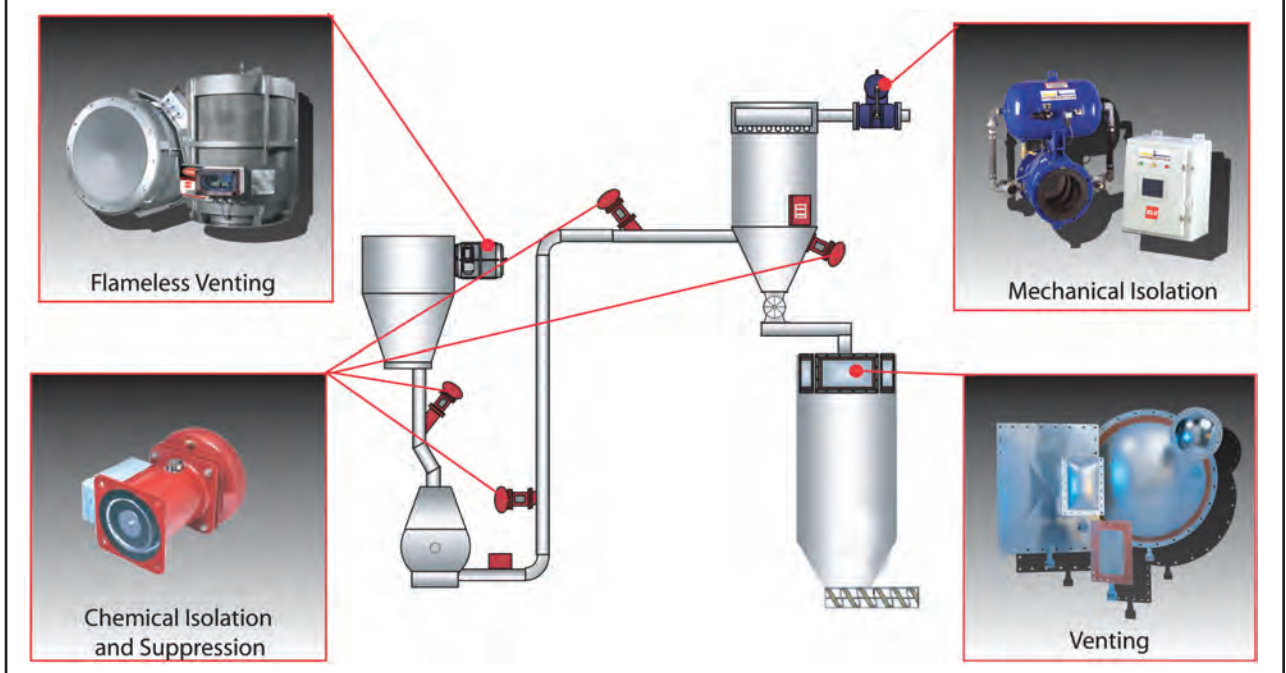
The BS&B companies have proven to be the fastest growing manufacturers of industrial explosion protection technology with products designed to meet the requirements of the United States OSHA Combustible Dust National Emphasis program, NFPA standards and European ATEX Directive.

With a broad range of dust explosion prevention and protection technology, BS&B is in a unique position to provide support to owners, operators and equipment manufacturers in their quest for compliance to OSHA, NFPA and ATEX requirements. BS&B offers more than 80 years of pressure safety management and a team of research and development specialists and application experts who support our clients' existing and new applications.

Capabilities

- Equipment protection by
 - explosion venting direct to atmosphere
 - ducted explosion venting
 - flameless explosion venting
 - suppression
 - chemical isolation
 - mechanical isolation
 - spark detection and extinguishing
- Dust testing for combustion characteristics
- Combustible dust facility audits
- Inspection of prevention and protection systems

Explosion Protection and Prevention Solutions Applied to Typical Milling Process



Prevention

- Explosion isolation systems applied to ducting to stop propagation of a dust explosion
- Spark detection and extinguishing systems applied to ducting to arrest ignition sources in air flow

Trusted Service

- BS&B provides service 24/7 to support new and established installations

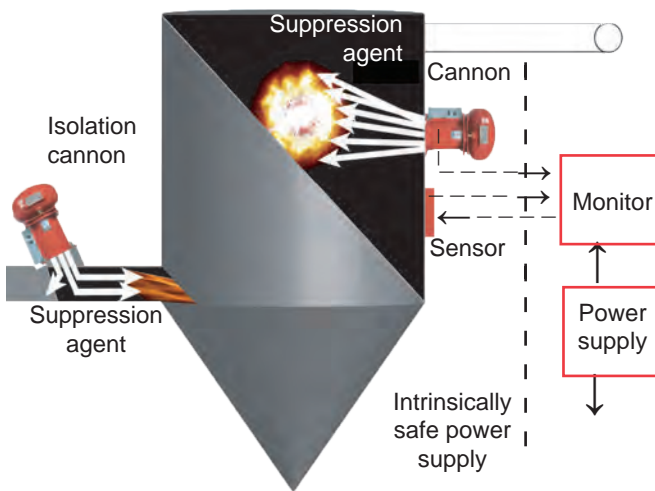
Protection

- Explosion vents for process equipment protection
- Explosion vents for building protection
- Flameless vents for indoor applications or wherever fireball release is unacceptable
- Fast acting valves for mechanical isolation of connecting ductwork
- Chemical isolation systems to provide a barrier to flame transmission through connecting ductwork

Combustible Dust Risk Management - Technology Platforms

Combustible dust explosions are fast and dangerous, producing flame and pressure risks which must be managed according to the user application conditions. The technology platforms employed for protection and prevention all seek to maintain the pressure developed by a dust explosion within safe limits for the typically light metal construction process and storage equipment used in bulk materials handling. Suppression and chemical isolation systems extinguish flame early in the dust explosion event. Explosion venting to atmosphere requires careful management of the flameball generated, which can be 100 feet (30 meters) or more in length.

Explosion Suppression / Isolation



Sensing of the pressure waves ahead of the fireball developed by early stages of a dust explosion allows a suppression cannon module to extinguish the flame inside this dust collector before it engulfs the process equipment and develops a dangerous pressure. The isolation cannon blocks the flame from entering the dirty air inlet, avoiding propagation of the dust explosion. System relays are used to shut down the process and generate appropriate user alarms.



VSP™
vent



Pinch
valve

Venting

Explosion venting offers the most economic approach to dust explosion protection when the flameball generated during venting can be accepted in the surrounding environment. Sizing and placement of explosion vents must be correctly engineered to ensure their effectiveness. Where ducted venting is deployed, enlarged vent areas must be implemented to offset the delay in the fast combustion event reaching the open atmosphere. BS&B provides more than ten models of explosion vent, each developed for specific application conditions and to be in compliance with industry standards. Whether protecting a storage silo, a dust collector or an oven, BS&B has proven vent technology for your application.

Isolation

While chemical isolation is the most flexible approach to providing a barrier to flame propagation, some applications cannot accept the presence of the extinguishing agents commonly used (most typical is sodium bicarbonate). Mechanical isolation barriers such as the BS&B IVE 'pinch valve' or IFV 'flap valve' can be inserted into a process line. Under normal operating conditions the process flow passes through the mechanical barrier. Under dust explosion conditions, the mechanical barrier either self closes due to the pressure wave that precedes the flameball of a dust explosion or is actuated shut. Isolation devices must be located at a distance from the dust explosion hazard verified by BS&B.

Spark Detection and Extinguishing

Under normal air flow conditions, hot spots and sparks passing through ducting can be optically detected and extinguished with water or other compatible medium further along the piping. Successful extinguishing is typically achieved without stopping the process. Spark detection systems are often deployed to detect a hot spot in a process flow and provide a trigger to an abort gate or diverter valve, directing the unwanted hot material to a safe location.





Reliability · Excellence · Innovation · Safety

