# Pressure / Vacuum & Explosion Protection Using The Right Flame Arrester & Tank Vent Combination

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In the process industry, safety managers face the challenge that very little energy can be enough to ignite an atmosphere saturated with hydrocarbon gas. For all applications in which oil, gas or solvent-containing substances are processed, it is therefore an ever-recurring, high-safety-relevant topic to effectively counteract ignition hazards. While application design can eliminate common ignition hazards, a single small spark is often enough to trigger combustion. Flame arrester technology is tried and tested as a successful passive technology barrier to propagation of combustion. Over the past 10 years, more accurate testing protocols have been introduced as ISO and EN Standards which has generated performance test data for manufacturers that is critical to the safe application of flame arrester technology. A fresh look at many flame arrester applications arrives at improvements to safety system design.

## Flame Arrester Technology Requires Application Specific Design & Selection

Flame Arresters can be installed to prevent potential hazards associated with flammable or explosive materials within storage tanks and pipelines.

A flame arrester is a device that stops fuel combustion by passively extinguishing a flame. A flame arrester works by forcing the flame front through narrow passages. These passages allow the gas to flow through the flame arrester but are narrow enough that flame cannot pass through because the heat is extracted by the typically metallic construction.

This presentation provides an overview of the different types of independently tested and certified flame arresters, and how this data is used together with essential application information to make the correct and safe selection.

## Simplifying The Combination Of Flame Arrester & Tank Vent Protection

The same storage tank and pipleline applications to which flame arresters are applied will frequently require reclosing vent devices that provide both overpressure

and vacuum protection. The BS&B FlameSaf flame arrester technology has been integrated into such a pressure / vacuum vent to provide a single, efficient device for both pressure and explosion protection. Such a compact design (patent pending) assists the safety system designer by providing a low mass safety system that can be accommodated on light metal storage tank equipment typically without the additional cost of a support structure.

Fig.1: BS&B End Of Line Pressure / Vacuum Relief Vent With Integral Flame Arrester