

Technical properties

A flame arrester is a device fitted to the opening of an enclosure or to the connecting pipe work in a system of enclosures and it permits gases or vapours to flow under normal operating conditions but prevents the transmission of a flame should an ignition takes place. A flame arrester comprises a housing, an element and connections to secure it to the pipe work. There are different types of flame arresters, designed to handle different types of flame events:

- **Unconfined deflagration:** The flame occurs in the atmosphere outside a container or equipment. For example a breathing or ventilation outlet from a tank storing gasoline could have a cloud of flammable vapour next to it. Ignition from such as a cigarette, static electrical discharge or lightning could ignite this vapour and the flame may attempt to enter the tank itself.
- **Confined deflagration:** Usually the flame will occur in a pipeline and initially proceed at sub-sonic speed along the pipe. Typically this could occur in industrial or process plant. For example many coal mines generate flammable and poisonous methane gas below ground which is pumped to the surface along a pipe and then burned in a boiler for heating purposes. Problems with the boiler or the pumping system could ignite the pipe contents and the flame could travel back below ground.
- **Confined detonation:** Usually this is referred to simply as a "detonation" and occurs where the flame travels along a pipe at sonic or even supersonic speeds and is combined with a shock wave. Typically this occurs where turbulence is induced in the mixture by roughness in the pipe walls or interruptions such as bends, valves or changes in section of the pipe thus causing the flame to accelerate.
It can also occur simply by allowing the flame to continue to accelerate along a pipe. Such a flame rapidly stabilises and travels at sonic velocity. A shock wave is defined as a step change in pressure and density through which the flow velocity changes from being subsonic to supersonic.

End-of-Line Deflagration Arresters

End-of-line deflagration arresters are designed to be installed at the end of a pipeline or exit vent from a vessel, where the ignition source is external



AVA, FE-EXH and AVC Series

- Replaceable element
- AVA Gas groups I and IIA -
- FE-EXH Gas groups up to IIB3
- AVC – Gas groups up to IIC
- AVA / FE-EXH 15–400 mm NB
- AVC 25–150 mm NB



SV and SVE Series

- Light duty
- Fixed element models
- Gas groups up to IIB3
- SV 15–50 mm NB
- SVE 10-50mm NB



FE-IE Series

- For use with Pressure / Vacuum Relief Valves
- Gas groups up to IIB3
- 15–300 mm NB



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In-Line Deflagration and Detonation Arresters

In-line deflagration arresters are designed for pipeline installation close to the potential source of ignition.



Deflagration arrestors

SGE-IB, DFB and DFC Series

- Replaceable element
- SGE-IB Gas groups up to IIB3
- DFB Gas groups up to IIB3
- DFC Gas groups up to IIC
- SGE-IB 15 – 400 mm NB
- DFB 25–150 mm NB
- DFC 25-150 mm NB

Detonation arrestors

CE-IB Series

- Replaceable element
- Gas groups up to IIB3
- 15–200 mm NB

In line detonation flame arresters are designed for the worst-case unstable detonation conditions in pipelines.

Low Pressure Venting Equipments

Storage tank and vessel protection are designed to protect tanks from rupture or implosion during filling and/or emptying cycles.

They limit product loss and environmental discharges whilst also protecting tanks during thermal changes.



Pressure/Vacuum Relief Valves

- Pressure-only, vacuum-only or combined
- Weight or spring loaded
- 50-300 mm NB



Pressure-Only and Pressure/Vacuum Emergency Relief Manways

- Non-sparking emergency relief manhole covers permit access to low pressure storage tanks and provides emergency venting capacity in the event of fire.
- 250-600 mm NB



Tank Blanketing Valves

- Prevent ingress of air/moisture
- reduce evaporation of stored product to negligible amount
- 15 – 100 mm NB

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