

Instrumental Technique

FLASHBACK ARRESTOR

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28-12-2013

A **flashback arrestor** or **flame arrestor** is a device which stops the flame from burning back up into the gas line and causing damage or explosions.

It is most commonly used in oxy-fuel welding and cutting.



Causes of flashback:

- Hot refractory
- Flame
- Sparks
- Dust

Need of flashback arrestor:

- Safety of property and human lives.
- Flashback can occur under various conditions.
- Flashback occurs inside the pipeline or vessels.
- Flame moves through vessel or pipe.
- Flame velocity increases as it moves through pipe or vessels, and if the pipe is long enough the velocity can increase to detonation levels.

Positioning of a flashback arrestor:

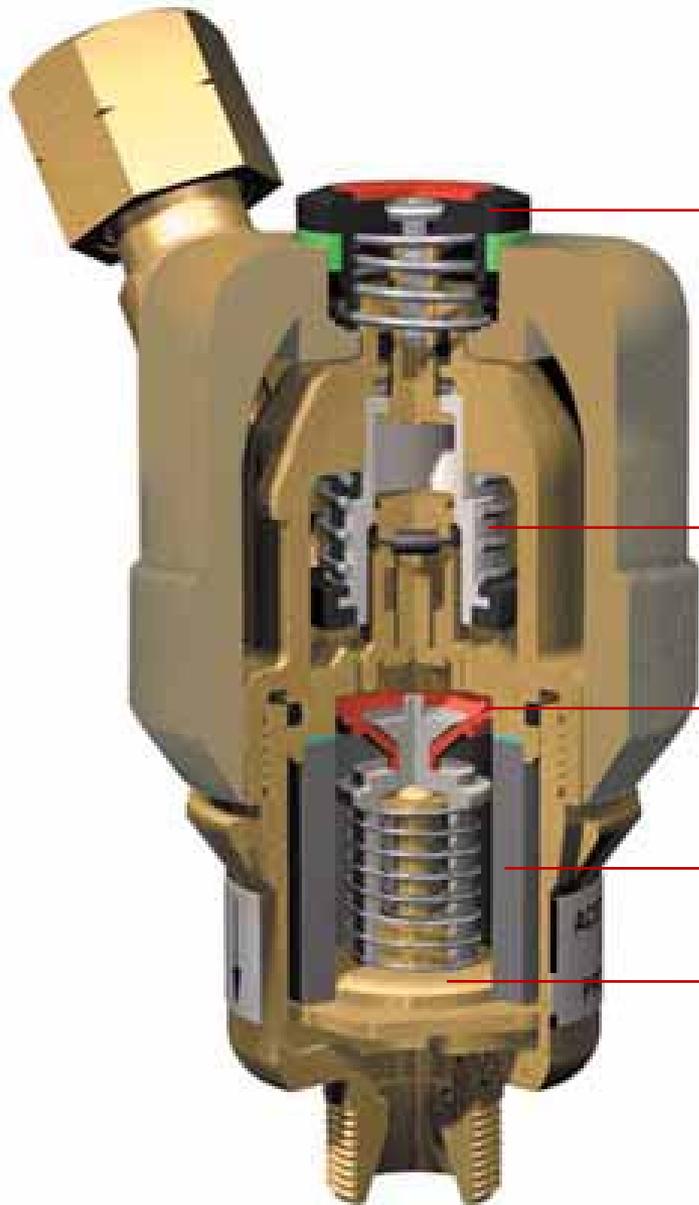
- Flashback arrestor should be placed at the closest point to the flame.
- Otherwise it should be placed in the main pipe line, and also on the fuel gas vessel/cylinder.

Types of flashback arrestor:

- Dry type
- Wet type

Dry type flashback arrestor:

- It uses combination of methods to arrest flashback.
 - Flame trap to cool the flame front.
 - Sintered metal or ceramic
 - Layers of mesh
 - Ceramic beads
 - Temperature-triggered valves to stop the gas flow completely.
 - Check valve that closes due to the back pressure.
- This type of flashback arrestor is mostly found in workshops, homes and portable oxy-fuel kits as it can work effectively in any orientation, need little maintenance, and are often small and light enough to be installed between the torch and hoses.



Indicator button

Pressure sensitive
cut-off valve

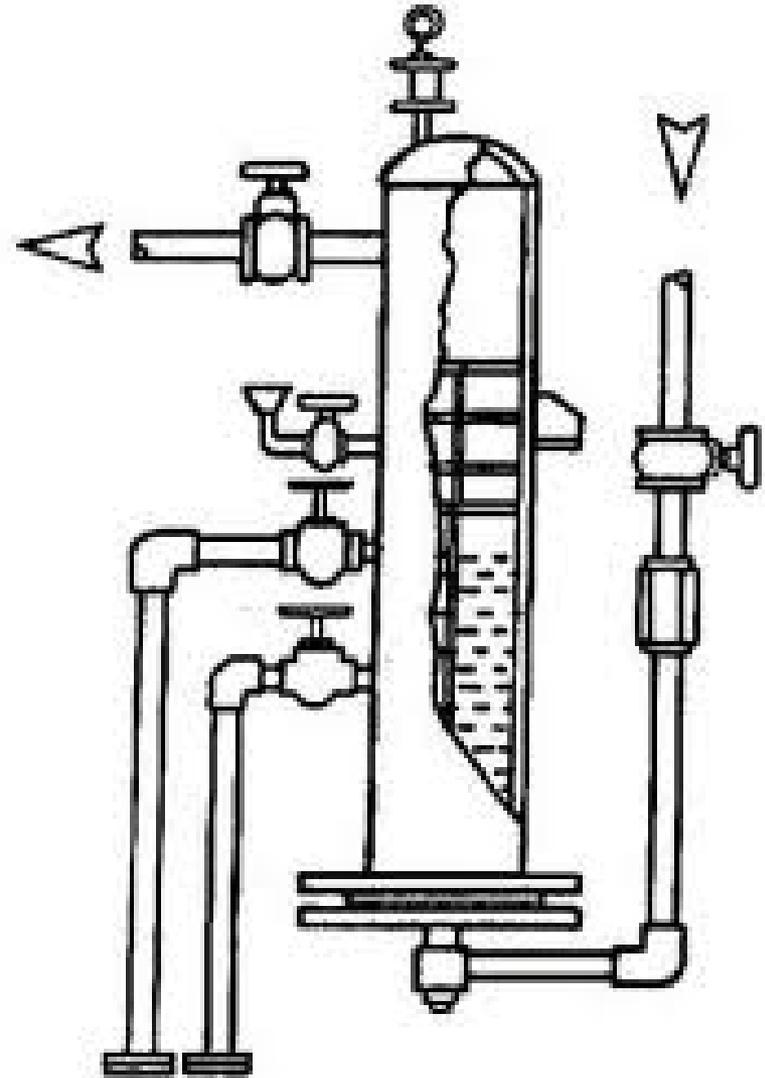
Non-return valve

Sintered metal flame
arresting element

Thermal cut off device

Wet type flashback arrestor:

- It works by bubbling the gas through a non-flammable and ideally non-gas-absorbing liquid, which is typically water. Here flame is stopped by preventing it from reaching the submerged intake.
- These devices are very effective at stopping flashbacks.
- They have the disadvantages of only working in one orientation and tend to be much larger than dry type arrestors. This makes them only suitable for large and fixed installations.
- Here the liquid level needs to be checked constantly.



THANK YOU