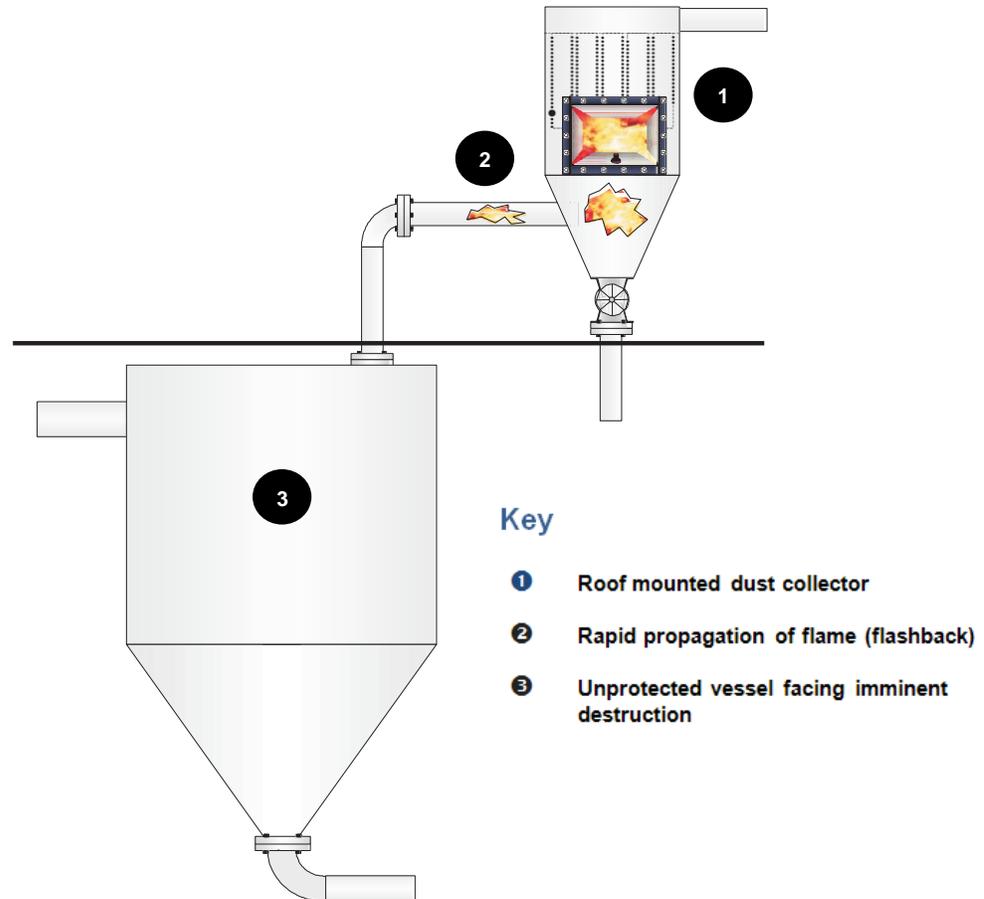


Chemical and Mechanical Explosion Isolation Barriers



Application

Both NFPA 654 and ATEX require explosion isolation to be considered to reduce the risk of explosion propagation between interconnected vessels, yet many vessels are installed without this vital component. Take the example shown here. A dust collector is installed which has an explosion relief vent panel. Mounted on top of a roof it will vent an explosion to atmosphere. However, without an

isolation barrier, flame can propagate at high velocities from the collector to interconnected vessels causing devastating, more intense secondary explosions. The secondary explosions can be more intense because of pressure piling, induced turbulence and flame jet ignition effects associated with the connected explosion. Simply venting interconnected vessels is inadequate.

Isolation Valve Solution

IEP Technologies explosion isolation valves close rapidly to provide a mechanical barrier to mitigate propagation of an explosion. By design, it can withstand the full pressure of an explosion from a closed vessel. In the installation example shown the valve is subject to a light pressure load because the dust collector is installed with an explosion relief vent panel. Although its mechanical strength may not be totally utilized in all applications, it is often chosen to isolate low-strength, interconnected vessels from propagating explosion when product contamination is a concern. Mounted on the vessel detect the pressure excursion from an impending explosion, the detectors transmit a signal to a control panel, which triggers the high-speed isolation valve while simultaneously shutting down the process.

Chemical Isolation Solution

IEP Technologies chemical (suppressant) explosion isolation barriers are triggered in the same manner as the high-speed isolation valve solution described above. In response to the triggering signal they rapidly discharge extinguishing agent into the duct reducing the risk of passage of flame and burning materials to interconnected process equipment. In a large duct, suppressant distribution is provided through 3- in (75mm). piping / stubs. For a smaller sized ducts, smaller (e.g. 1-in, 25mm). hose assemblies can be connected to a bracket mounted suppressor.

Ordering Information

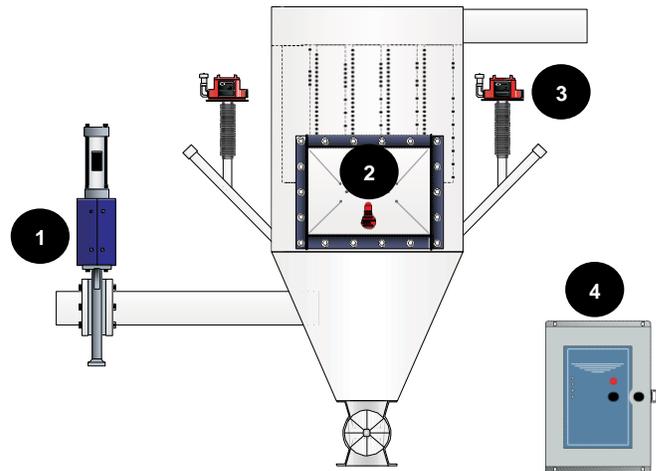
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Key

- ① High-Speed Isolation Valve
- ② Explosion Relief Vent Panel
- ③ Pressure Detector
- ④ Single-Zone Control Panel



Key

- ① Extinguisher, delivery pipe work, and flanged suppressant delivery nozzle
- ② Bracket mounted extinguisher with dual-exit head and suppressant delivery hoses

