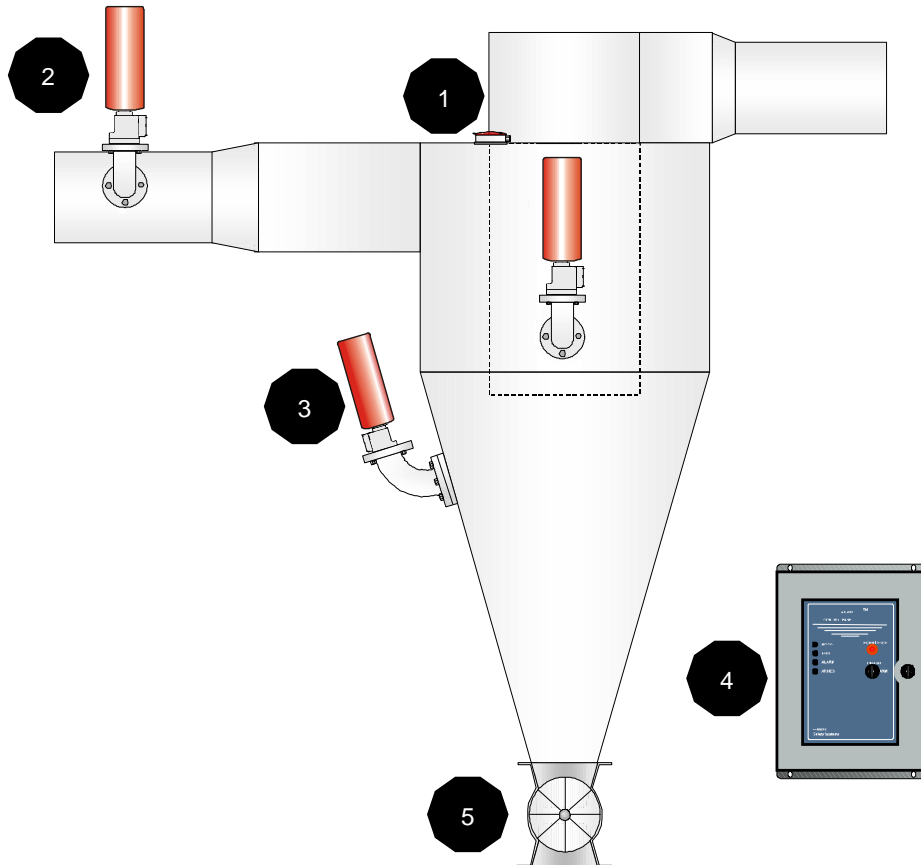


Cyclone Separators

Explosion Suppression Systems



Application

Cyclone separators are used both as receiving vessels and for the collection of dust. They separate solids from the air stream by the centrifugal action of a vortex created as the inlet air tangentially enters the cyclone. The dust or granular material is thrown to the walls of the cyclone and then falls to the hopper section from which it discharges via a rotary gate valve. Meanwhile, the cleaned air exhausts through an outlet.

System Components

1. Pressure Detector
2. HRD Suppressor
3. Isolation Suppressor
4. Control Panel
5. Rotary Gate Valve (by others)

Hazard

If the material being handled by a process is combustible, then any dust generated will pose an explosion hazard. When a cyclone is used as a primary separator, an explosible dust cloud may be present continuously during normal operation. Under these conditions, an ignition source is all that is required to initiate an explosion. This can be provided by electrostatic discharge or by incoming burning particles from upstream equipment such as mills or dryers.

Protection System Considerations

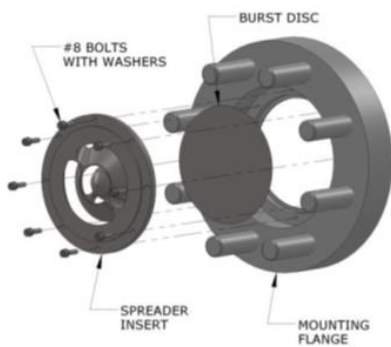
Protection systems for cyclones must accommodate the need to maintain a smooth inside vessel wall for efficient cyclone performance. IEP Technologies suppression systems achieve this by using flush spreader assemblies for suppressant dispersal.

Protection System Description

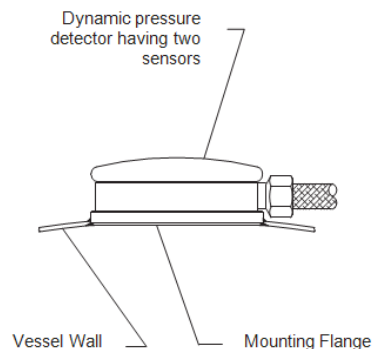
Cyclones are frequently located inside the plant where explosion relief venting is impractical. Additionally, their configuration makes explosion relief venting a challenge, since a smooth inside wall and adequate vent area are required. An explosion suppression system provides the solution. In such a system, explosion pressure detectors, mounted on the cyclone, detect the pressure excursion from an impending explosion. The detectors transmit a signal to a control panel, which triggers high rate discharge suppressors while simultaneously shutting down the process. Suppressors mounted on the cyclone are designed to rapidly discharge suppressant and quench the fireball before maximum explosion pressures are reached. An isolation suppressor mounted on the inlet duct reduces the risk of explosion propagation to upstream process equipment. Additionally, an explosion-proof rotary gate valve mounted on the hopper reduces the likelihood of burning materials passing downstream.

Typical Installation Details

Extinguisher Flush Spreader



Dynamic Pressure Detector



Contact Information

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