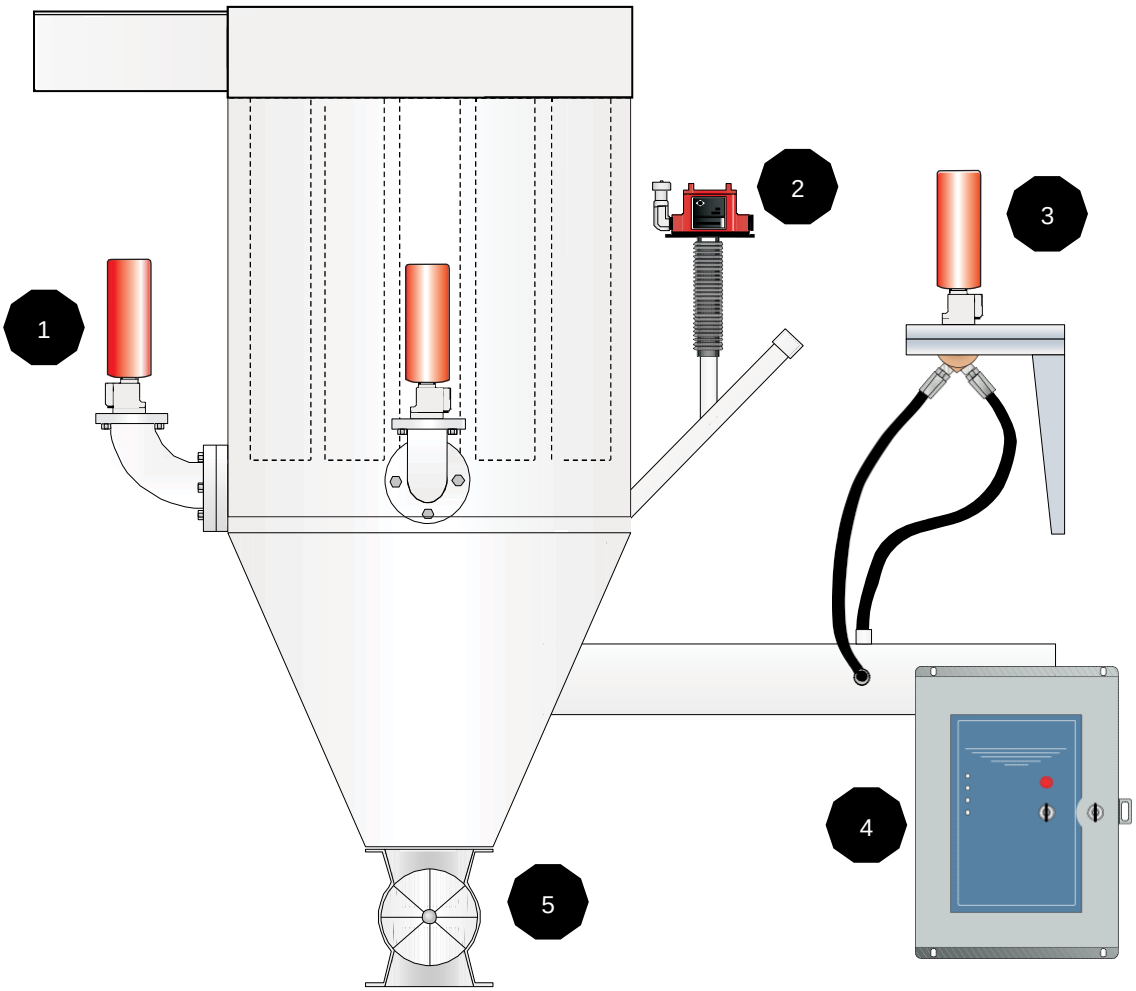
IEP TECHNOLOGIES
HOERBIGER Safety Solutions

CAPT-AIR®
8001 Rue Larrey, Anjou, QC, Canada, H1J 2L4
514-273-4331 • info@capt-air.com • www.capt-air.com

Dust Collectors

Explosion Suppression Systems



Application

Dust collectors are typically used as receiving vessels or for the collection of dust. They separate dust from the air stream by employing an array of filter bags or filter cartridges. Dust-laden air slows down as it enters the collector, shedding some of its dust load into the collection hopper which may empty via a rotary gate valve. The lighter dust is swept up into the filter components from which it is periodically removed by air blasts or by a shaker mechanism.

System Components

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

IEP Technologies
417-1 South Street, Marlborough, MA, 01752
ph 855.793.8407 fax 508.485.3115
www.IEPTechnologies.com

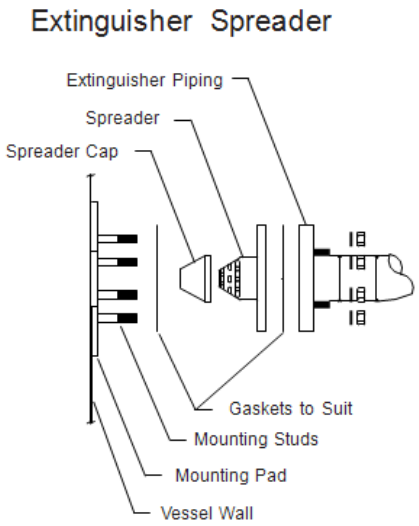
Hazard

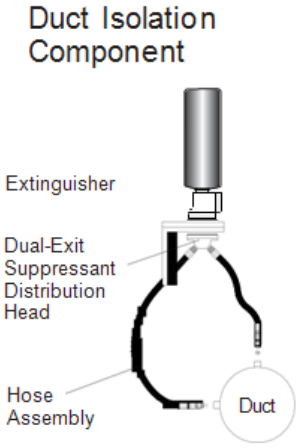
If the material being handled by a process is combustible, then any dust generated will pose and explosion hazard. Dust collectors collect the fines and therefore the most readily ignited dust in a process. For this reason, dust collectors are the most commonly protected process vessels. Many dust collectors handle dust loadings that are below the explosible limit. However, in the period during which the filter components are cleaned, either by shaking or by reverse jets of air, explosible concentrations can be reached. 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.

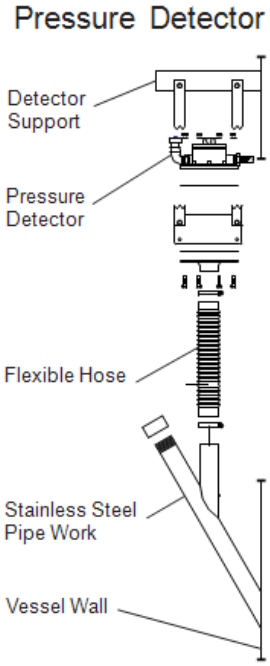
Protection System Description

A dust collector is frequently located inside the plant, making protection by explosion relief venting often impractical. The solution is an explosion suppression system. In such a system, explosion pressure detectors mounted on the collector detect the initial pressure excursion from an incipient 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 collector rapidly discharge suppressant to quench the fireball before destructive explosion pressures are reached. An isolation suppressor mounted on the inlet duct reduces the risk of explosion propagation to interconnected process equipment. Additionally an explosion-proof rotary gate valve mounted on the hopper plays a role in preventing burning materials from passing downstream.

Typical Installation Detail







Contact Information

For additional information, please contact one of the following locations:

IEP Technologies
United States: Tel: +1 (855) 793 8407
United Kingdom: Tel: +44(0) 1242 283 060
Switzerland: Tel: +41 (0) 62 207 10 10
Germany: Tel: +49 (0) 2102 5889 0

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