Harsh Environment Application Note

APPLICATION

The Securiton range of Aspirated Smoke Detection systems can provide reliable smoke detection in environments where other forms of detection are unsuitable.

Harsh environments can be identified as areas where the sampled air is generally outside the normal working conditions recommended for traditional forms of Detection such as beam detection, photo-optical point and heat type detection.

Harsh Environmental conditions include areas with high airborne dust loads found in many industrial processing and storage areas, such as,

- Timber Mills   - Paper Mills   - Grain storage and processing
- Coal Conveyors   - Mineral Storage facilities   - Recycling plants

Areas with high and low temperature extremes and excessive humidity are also not conducive to traditional Detection methods.
Each situation needs to be surveyed in detail and will require different installation considerations dependant on findings.

CHALLENGES

There are a number of challenges when applying smoke Detection to areas with Harsh Environmental conditions.

Airborne dust \ dirt particulate

Dust \ Dirt particulate needs to be removed from the air sample before it enters the Detection chamber. Optical light scattering principle relies on smoke particles for the scattering effect , if dust \ dirt particles are present a false reading could occur resulting in unwanted alarms.

The Securiton Aspirated Smoke Detection systems employs a highly effective Automated Blow back system (SEC-ADB-500) to flush pipe at a programmed frequency to ensure trouble free operation of Detection system.

Also included in line with pipe work is a Dirt Trap box (SEC-DTB) which allows any remaining particulate to drop to base of collection chamber. The airflow then feeds from the top of box preventing (by way of gravity) any heavy particulate entering the final stage of filtration. The final stage is a Securiton pre filter (SEC-DFU-911) to ensure there is a completely dust / dirt free sample entering smoke detection sensor.

SEC-ADB-500   SEC-DTB-25   SEC-DFU-911
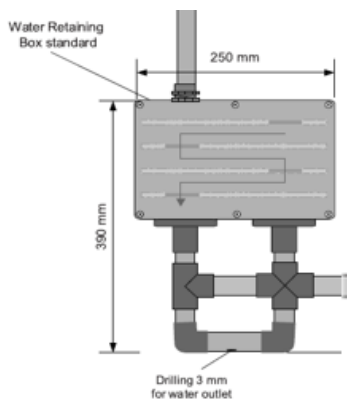
Sample air out

Sample air in
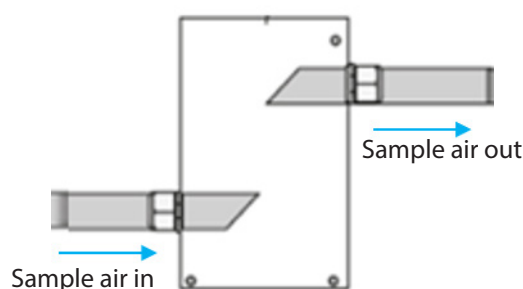
CHALLENGES

Humidity \ Moisture

Humidity \ moisture can also be an issue in many industrial sites due differences in temperatures causing condensation, steam generating processes causing excessive moisture or daily wash downs of facilities.

Moisture and humidity issues are addressed using the Securiton Water Retaining Box (SEC-WRB-25). The moisture enters the Water Retaining Box and runs through a series of baffles before eventually exiting via the horizontal pipe at the base of unit .

This combined with the Securiton Sample clips, (SEC-CLIP-XX) that are designed with a concave entry point to prevent water droplets forming on sample points helps alleviate any possibility of moisture compromising operation of systems.

SEC-WRB-25

SEC-CLIP-X.X-PA

HARSH ENVIRONMENT DIAGRAM

ASD-EC

SEC-CLIP-X.X-PA
(X.X denotes hole size in mm)

ASD-PC

ASD-SB

SEC-ADB-500

ASD-P

SEC-535-1

Compressed Air
4-8 Bar pressure

Water Retaining
Box standard

250 mm

390 mm

SEC-WRB-25-PVC

SEC-DFU-911

Drilling 3 mm
for water outlet

SEC-DTB-25