

## Conveyor belt fire safety: A new proactive way of thinking



Mock-Up Conveyor with Delta Detector and Forrex System Installed

Advanced Automated Systems was chosen to present its developments in proactive conveyor belt fire protection at MineSAFE 2015. The reason for the current interest in this sector is due to the paradox which exists between the legislative requirement and the code based designs for fire protection systems on conveyor belt installations.

Advanced Automated Systems researched the relevant fire standards and codes and compared them to the requirements of the Mines Health and Safety Act and concluded that the current systems are not compliant and is not in line with the culture of "Sustaining Zero Harm".

The MHS Act and Mandatory COP requires the employer to prevent persons from being exposed to flames, fumes and smoke arising from a conveyor belt installation catching fire, the code based designs are reactive in their methodology demanding extreme temperatures or flames to detect and react to a fire.

Thus a new proactive system was developed by Advanced Automated Systems to meet the challenges set by the MHS Act and Mandatory COP.

By installing the Lehavot Delta pneumatic-electronic linear heat detector within the conveyor framework at the designated areas the ; rapid change in temperature can be detected before the ignition temperature of the conveyor is reached.

In addition to this, the automatic actuation of the Dafo Forrex wet chemical fire suppression system with its unique

fire suppression abilities further inhibits the probability of ignition and re-ignition thereof.

The system is scalable and not complex and facilitates ease of operation, the systems requires limited maintenance and is more reliable in the case of a fire compared to water based systems.

For the detection along the conveyor belt installation as required by the Mandatory COP in Annexure B under the heading "Fire Detection", research lead to fire detection systems utilized with in the transport sector specifically in Europe's long underground tunnels.

The leading system utilized is the Lios De.Tect state of the art frequency domain based distributed temperature sensing system measuring the temperature by means of optical fibres functioning as linear sensors where temperatures are recorded as a continuous profile along the entire sensor cable.

The controller analyses the fibre optic sensors for every 0.5m up to 10km in length with a resolution of 1°C or better and with a response time of 4 seconds or less continuously, As a result the exact fire location, temperature and spread are accurately monitored along the complete conveyance installation.

A proactive approach to fire safety promotes to culture of "Sustaining Zero Harm" and saves lives and can be applied to various applications within the mining environment, especially Trackless Mobile Machinery, transformers and hydraulic power systems.

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Advanced Automated Systems prides itself on partnering with the worlds leaders in fire suppression to ensure the perfect solution for all applications. Through its ability to engineer purpose built fire systems vs the available common systems Advanced Automated Systems is redefining fire solutions in all market sectors throughout Africa.



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