

CONVEYOR BELT

FIRE SUPPRESSION SYSTEM



Complete Conveyor Belt

Suppression Solutions

The design of the system layout is based on different possible fire scenarios for conveyors. The design takes into account stationary, localised fires; moving belt fires as well as belt burnthrough and breakage. The design aims to mitigate all the fire risks associated with these scenarios.

OUR COMPLETE CONVEYOR BELT SUPPRESSION SOLUTION CONSISTS OF:

- Primary (Head, Tail and Take up/Tensioner Pulleys) **Minimum requirement for surface and underground conveyors**
- Secondary (Cooling Zone) **Recommended for underground conveyors**
- Redundancy (Zonal Protection) **Recommended for surface and underground conveyors**

The I-CAT Fire Solutions', TRT-LPS-FM, product range was designed to protect your valuable production and industry equipment such as transformers, hydraulic power packs, conveyor belts (high risk areas like tail, head and tensioner pulleys).



Primary System

Head, Tail and Take up/Tensioner Pulley

The I-CAT Fire Solutions' Localised Suppression System was designed to protect conveyor belts - high risk areas like tail, head and tensioner pulleys.

THE SYSTEM MAKES USE OF T-ROTOR TECHNOLOGY:

This technology is currently the leading misting technology internationally, extinguishing all classes of fires by using Foam Mist as the agent. The system creates a fine atomised mist, charged with kinetic energy to penetrate the heat radiation caused by a fire. It leads to gradual cooling without causing thermal shock to the equipment. Telesolv foaming agent is added to the system to prevent any B class fire from spreading when fuel lines or hydraulic lines rupture, causing equipment fires.

I-PROTECT HEAT SENSITIVE, LINEAR DETECTION TUBING:

Pneumatic, detection tubing is available in activation temperature ranges of 80°C - 110°C and 150°C-180°C. When used in conjunction with CAT Localised Suppression System it offers a highly reliable detection and system activation methodology.

SYSTEM OBJECTIVES:

- Conveyor protection
- Effective fire detection
- Effective fire suppression
- Equipment protection
- Reducing down-time and clean up after activation
- Easy installation and operation
- Assists in cost effectiveness

Secondary System

Cooling Zone

Due to the fact that automatic fire suppression along the full length of the belt is not only unnecessary but also cost inefficient, I-CAT has developed the concept of cooling zones. Cooling zones are pre-determined zones along the length of the conveyor that consist of a flame or equivalent detector and a fixed installation of discharge nozzles feeding from fire suppression cylinders.

The purpose of a cooling zone is to suppress a moving fire on a conveyor belt and to cool the belt to a safe working temperature, below its reignition temperature, as it moves through the zone. The number of cooling zones required, the location of the zone as well as its length are dependent on a number of variables. Upon detection of a heat abnormality on a moving conveyor belt, a signal will open the solenoid valves feeding the cooling zone nozzles

Redundancy System

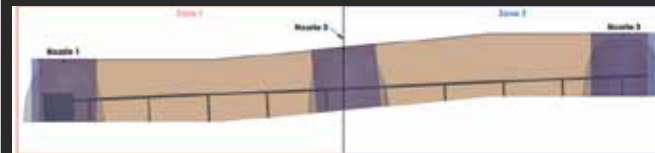
Zonal Protection

This system comprises a CTI/L linear heat detection cable that runs along the complete length of the conveyor belt and a number of specialized corridor nozzles designed to generate fine mist over a large area, covering the complete cross section of the mine corridor with fine mist.

THE CORE FUNCTIONS OF THE CONVEYOR FIRE SUPPRESSION SYSTEM INCLUDE:

- Fire suppression
- Containment and cooling
- Minimizing structural damage to equipment
- Limited health and safety risks for workers during fire emergencies
- Minimal maintenance through the use of an automated self-cleaning filter

The nozzles act as a barrier and aid with smoke scrubbing, shielding the workers from excessive heat and toxic fumes. Once the linear heat detection cable detects a fire, a signal is sent to the control unit which in turn activates the solenoid valves of the two nearest corridor nozzles.



The diagram above illustrates the functionality of the system: if a fire is detected within zone 1, nozzles 1 and 2 will activate. Should a fire originate and be detected within zone 2, nozzles 2 and 3 will activate.

APPROVED DISTRIBUTOR DETAILS



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