SAVE ENERGY

Conveyor Monitoring & Performance Improvement

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Specific advantages of conveyor monitoring include:

- Instant identification of the reason for a belt stopping, which reduces fault finding time.
- Ability to notify maintenance personnel of the problem before they travel to the breakdown and therefore assist them to carry the correct equipment to rectify the fault. Eg. an earth leakage fault would require the use of a megger.
- A permanent record of breakdowns is available that allows for better analysis of down time and therefore better utilisation of limited resources.
- Analysis of long term breakdown data will allow for effective preventative maintenance schedules to be planned and implemented.
- Trending of bearing temperatures, CO, CH4 and air flows can prevent potential dangerous conditions such as fires or explosive atmospheres

- Advantages Of Conveyor Belt Monitoring System
- Longer Equipment Lifetime
- Malfunction Reduction
- Reduced Maintenance Expenses
- Higher Safety Standards For Employees
- Increased Productivity
- Anomaly Detection
- Environmental Factors
- Structural Damage
- Lubrication and Maintenance Neglec
- Object Recognition And Tracking
- Inspection Automation
- Predictive Analytics
- Applications of Computer Vision In Predictive Maintenance

- Belt Misalignment
- Belt Slippage
- Material Spillage
- Belt Wear and Tear
- Belt Tear or Breakage
- Roller and Pulley Problems
- Conveyor Blockages
- Motor and Drive System Failures
- Sensor and Control Problems

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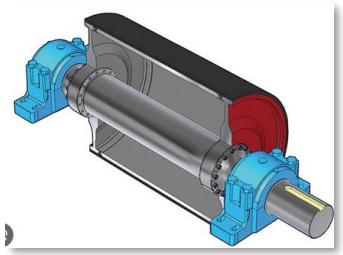


Pulley failures

Conveyer Pully
The pully condition is monitored using temperature sensor, vibration or frequency analysis

Belt damage

- Belt Rip
- Clip & Splice Failure
- tension in the conveyor
- Edge damage - bad tracking
- Carcass damage
- Belt slip

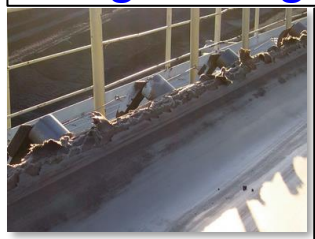
Idler failures

Noncontact scanners that provide an improved tool for early detection of bearing failure in idlers. Ultrasonic inspection of bearings improves the failure detection.

Belt Rip

Belt width measurement with the use of ultrasonic transducers will indicate belt rip. Apart from this induction loop based sensor also used to find out belt rip.

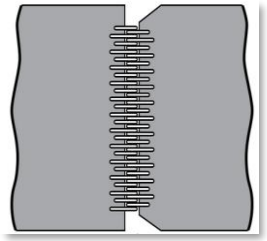
Edge damage - bad tracking



Belt tracking off and damaging the edge of the belt. The conveyor belt scanner analyse the belt and alert the user

Electric motor failures

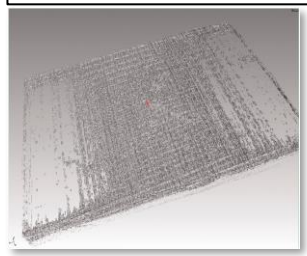
Winding temperature sensor, vibration sensor, bearing temperature sensor, motor surface temperature sensor – Electronic protection – systems – for EB parameters



Clip & Splice Failure

Conveyor belt high speed scanner, monitors the conveyor belt clip & slip anomaly well in advance and eliminate failures well in advance.

Carcass damage



Chute design that assists material to flow onto the belt at transfer points, instead of dropping onto the belt will reduce carcass damage.

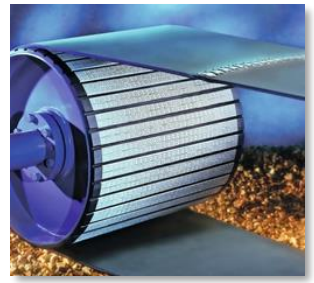
Gear Box Failures

Gear Box – Bearing temperature sensor, gear box lubricant oil – density, viscosity, temperature – monitoring system protects the gear box.

Tension in the conveyor

By measuring conveyor speed, motor power and loop tension, the maximum tension in the conveyor can be continually calculated in a PLC. The tension signal can be graphed in real time and provides a valuable tool in analyzing conveyor performance

Belt slip



Slip is now calculated in the PLC controller and is the difference in speed of the driven pulleys and the belt speed. It is measured in meters per second of slip and is continuously enabled