



CBM – Vision & Profile Monitoring

Maximising the return on your assets

WHY USE VISION & PROFILE MONITORING?

In all conveyor belt systems that are used for transporting bulk materials such as coal, mineral rock and ores over long distances, effective use of “condition based monitoring” contributes to increased plant uptime, accurate and reduced maintenance costs, that combine to increase the return on net assets of a mining operation.

Typically the wearing of the conveyor belt surface has been inspected visually, photographed, marked up where events observed, combined with thickness and hardness testing to project the expected life of the conveyor belt. This service whilst accurate, requires a significant amount of downtime of the target belt to be performed.

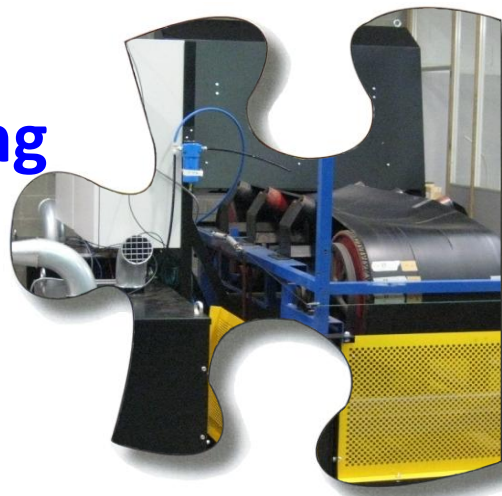
Accordingly, it has long been recognized that an automated “condition based monitoring” system for early detection of deterioration, excessive, uneven or unusual wear and tear in conveyor belts is desirable.

Unplanned downtime is a major avoidable cost for most mining based businesses. In addition, if the failure is of a “catastrophic” nature, the increased costs of replacing assets alone demand their greater utilization through well planned “Non-Disruptive” condition based monitoring and pro-active preventative maintenance programs.

The CBM - Vision & Profile Monitoring System gathers visual and profile information of the belt and CBM engineers analyse the data and create extensive report on the health of the conveyor belt.

The Vision & Profile monitoring system does;

- generate an event after a comparison of a “baseline profile average” to the current belt profile. The baseline is generated by an average over the belt;
- The system signals an event where the current profile differs from the baseline by an area and by a height change in either direction;



- the position of this event is logged to an event file which is used by the system to know where events are so as to not keep signaling them;
- the system sends an email and also pulses a relay when an event is detected;
- the events are removed after a repair or a removal of the damage;
- CBM access the system remotely analyzing the data and reporting to the mine site at agreed frequencies;

The CBM Vision & Profile Monitoring System assists to lower maintenance costs through the reduction of unplanned maintenance, rework and associated down time. *At the same time productivity and safety is enhanced resulting in an overall improvement of operation reliability. Allowing for a better return of investment on the assets employed. The equipment payback cycle is rapid considering the elimination of unplanned stoppages.*

Additionally, the CBM Vision & Profile Monitoring System is a rugged and remotely accessible, especially designed for monitoring mining conveyor belt systems while in operation. The system will help reduce maintenance costs and increase conveyor belt availability and productivity.

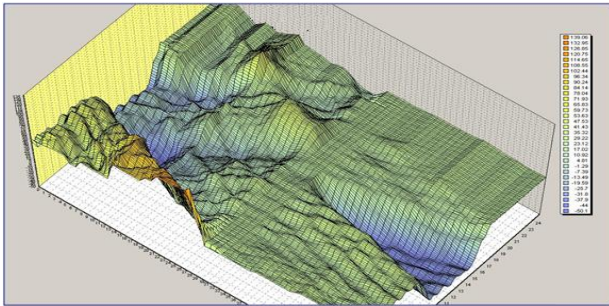
Vision & Profile Condition Based Monitoring helps mining operations to improve asset performance by focusing maintenance on the right conveyor belt at the right time.

Partner of Choice

RELATED SERVICES

- CBM – Longitudinal Rip Detection
- CBM – Conveyor System Inspection
- CBM – Remote Monitoring
- CBM – Semi-Remote Monitoring
- CBM – Steel Cord Belt Scanning
- CBM – Fabric Belt Scanning
- CBM – Cover Thickness Testing
- CBM – Longitudinal Cover Thickness Testing

- ✓ CBM Vision & Profile Monitoring System uses real plant data in its analysis and reporting.
- ✓ CBM Vision & Profile Monitoring System gives maintenance planners as well as operators better visibility into the true condition & health of conveyor belt equipment.
- ✓ By monitoring process data from CBM Vision & Profile Monitoring System and individual conveyor belt histories, equipment issues can be caught before costly unplanned downtime occurs and scheduled into the regular proactive preventative maintenance cycle.

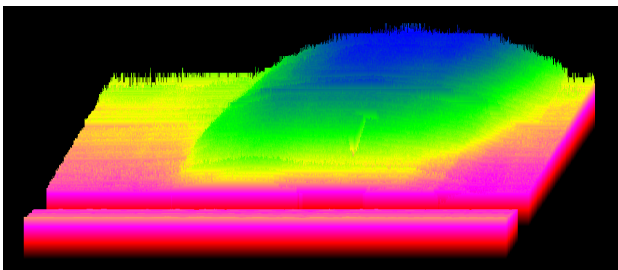


This unique monitoring system has been developed to mitigate the risk of "catastrophic failure" on conveyor belts and the associated lost production.

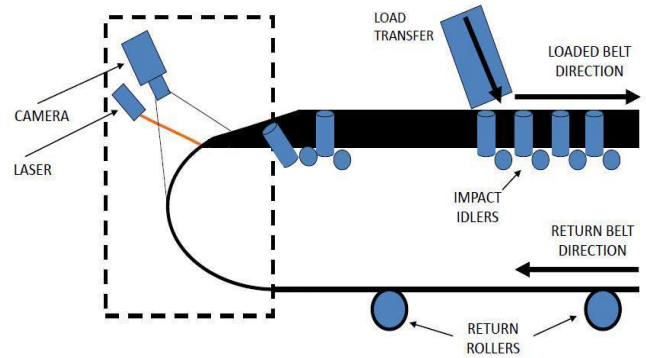
The Vision & Profile hardware continuously maps a 2D, 3D and photographic image of the surface of the conveyor belt allowing for accurate wear rates over time to be established and reported on. A direct web interface allows the belt condition and all events to be monitored remotely. Ideal for monitoring the typically hazardous and/or remote environments associated with large industrial conveyors.

This system is separate from the belt and **can be fitted and retrofitted to any belt, anywhere at any time.** There is no contact with the belt and hence the removal of **"false positives"** due to contact related issues.

The system continuously compares each pass with the one before. The topo/photographic images, accurately measure the thickness, wear, tear and condition of the belt identifying any variation from the previous cycles.



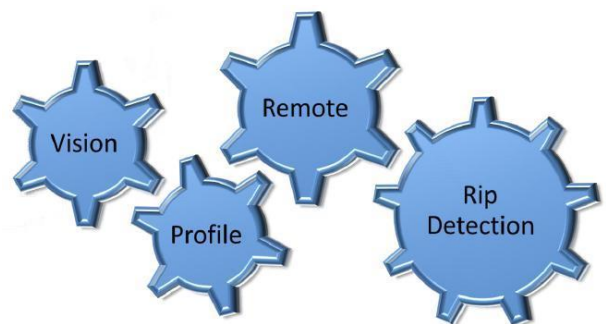
Each unit is fully tested in the factory prior to dispatch.



For many mine sites or production systems, a major conveyor can represent an area of major risk with no redundancy in the event of failure. This is compounded by the typical long lead times associated with replacement belting. This unique monitoring system has been developed to mitigate the risk of **"Catastrophic Failure" & "False Positives"** on conveyor belts.

This new system uses the latest in vision and laser technology to ensure that any problems are detected and the belt stopped as soon as possible so that temporary repairs can be made, returning the belt to service, saving valuable production time. The identified problem can then be planned for removal during a suitable maintenance stop.

CBM Vision & Profile Monitoring has been designed as a standalone system, or as an integral part of a Condition Based Monitoring System.



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