CBGuard
Conveyor Belt Monitoring

Boosting safety and efficiency of conveyor belts

Maximum safety and efficiency

Conveyor belts are subjected to exceptionally high stress. Apart from countless bending cycles, the belts suffer from permanent material loading impact, from worn, failing or wrongly adjusted conveyor parts, and from entrapped objects - or simply from ageing.

A failure or damage of the conveyor belt often has dramatic impacts.
It is essential to detect damage as soon as it occurs so that action can be taken before it worsens.

The CBGuard system is permanently recording all data, and comparing them with target values. Any critical damage automatically triggers an alarm.

CBGuard's best-in-class hardware delivers precise, seamless imaging.

Its smart software, incorporating world's most advanced face and palmprint recognition algorithms, not only generates a live video with marked deficiencies of the belt, but also shows exactly what kind of damage it is, how severe it is and where it is.

Belts can be safely operated to their real end.

Real time information - wherever you are.

Complete knowledge of conveyor belt condition

An artificial intelligence-assisted complete analysis of the belt is continuously generated. Arising damages, not still visible from the outside - for instance broken or corroded steel cords - trigger an alarm.

Irregularities like holes, notches, bubbles, foreign objects, protruding cords, edge damage, abnormal cover wear, even insufficient belt cleaning, are detected and signaled.

An optional laser module measures the exact belt thickness and creates a contour map of the entire belt. Timely information about the upcoming need for a replacement belt is yielded.

If it is intended to refurbish conveyor belts, the optimum time for doing so as well as the eligible belt segments, are determined by the CBGuard system.

The condition of the belt can be observed from anywhere in the world in real time over the internet.

No other method available today delivers such a wealth of precise information about every detail of a conveyor belt.

Automatic detection and processing of deficiencies.

Every cubic millimeter of the belt continuously examined.

Preventing disastrous consequences

Being the weakest points in conveyor belts, splices carry a higher risk to the operation. The CBGuard Life Extender is scanning all of the splices. Each splice in a belt is individually recognized. No manipulation of the belt is required.

Any deviation from the desired splice condition will automatically trigger an alarm - or even stop the conveyor in case of threatening failures. The operator`s maintenance staff is automatically informed by SMS at the same time.
Through timely detection of such degradations, severe accidents can be prevented.

The intervention points of the software can be programmed according to the preferences of the operator.

Conveyor belt users get immediate answers in the most simple and intuitive way to: Is there a problem with the belt? What is the problem? Is the problem serious? How should we fix it?

Stopping the belt before splices are failing.
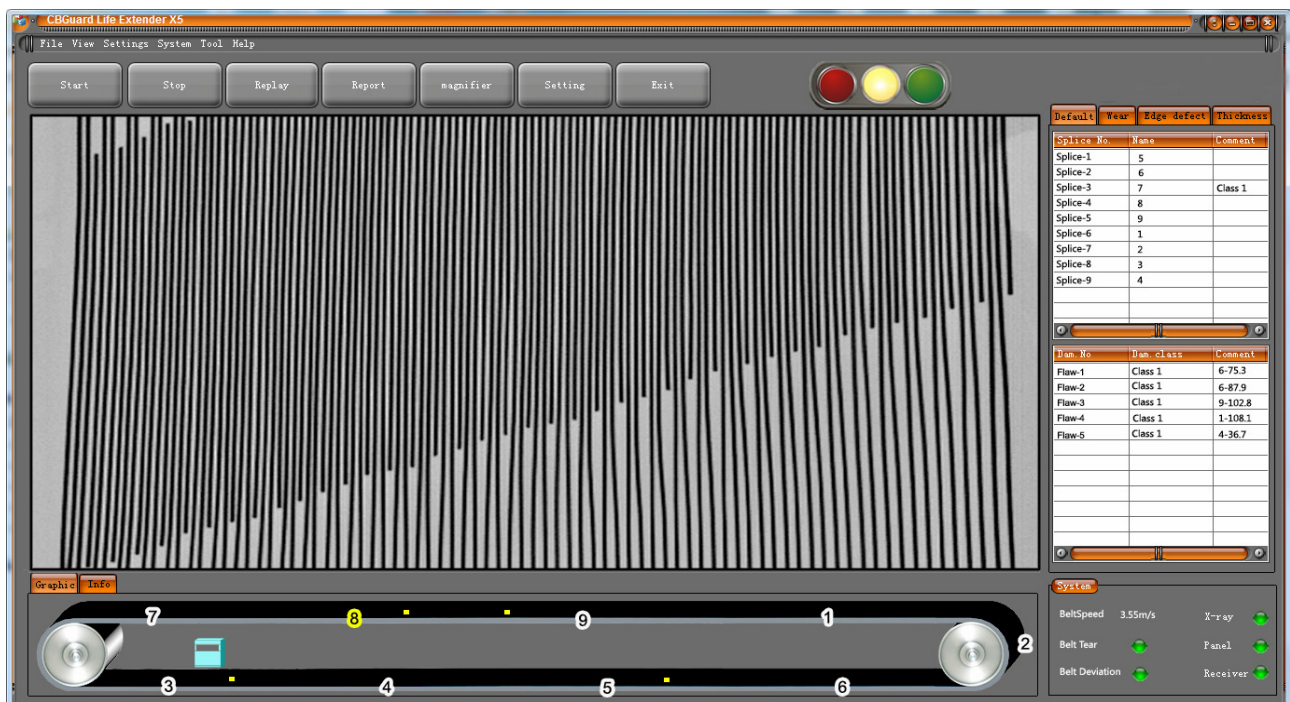
Efficiency improvement

Damages can be eliminated opportunely, preventing costly downtime of the conveying system and worsening of the damage.

Precise scan results avoid premature replacement of the belt due to *assumed* deficiencies. The belt can be operated up to its real safe end.

Incalculable costs of a complete belt failure, for instance a splice rupture, can be prevented.

CBGuard digitises the entire conveyor belt, every cubic millimeter of the belt is captured. It can be integrated into the Industrial Internet of Things. In combination with other elements of a logistical chain, the optimal time for the next maintenance stop can be scheduled.

CBGuard is an important part of the mine's or plant's preventive, predictive and prescriptive maintenance program.

Enabling maximum output of a conveyor belt.
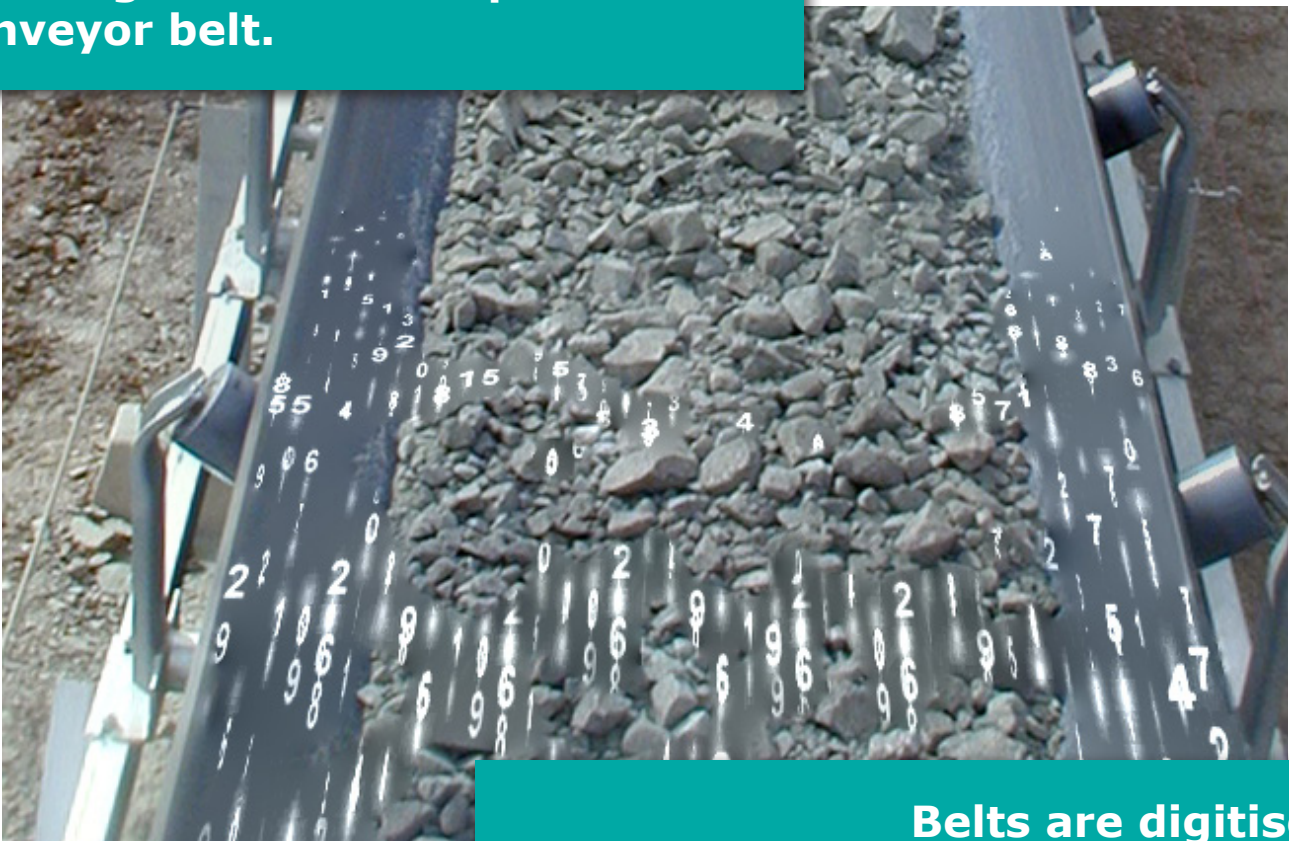
Belts are digitised and can be integrated into IoT.

Most advanced failure detection algorithms

The CBGuard monitoring system is based on radiographic technology, similar to that used in hospitals and at airports.

The generator produces artificial X-ray energy from electricity.
The X-rays penetrate the running conveyor belt and then impinge on the detection board, an amorphous silicon imaging panel.
Similar to a digital camera's image sensor chip, photodiodes generate electrical signals in proportion to the light received.

The CBGuard software analyzes the greyscale images. Depending on the combination, size, intensity and position of the originally tenthousands levels of grey, conveyor belt failures are determined.

The scanner is equipped with several safety devices. The radiation outside the fence is below 1 µSv/h (microsievert per hour), which is in line with international standards.

The system does not contain any radionuclide material. There is no radiation when it is turned off.

Highly reliable and almost maintenance-free.

Easy installation

CBGuard's compact layout and low weight allows a simple and quick installation. It fits in almost all conveyors and is compatible with all types and brands of steel cord conveyor belts.

The preferred place is in the bottom run, because the belt has to run flat through the CBGuard. Access to power and communication facilities as well as a concrete foundation, are required.
Precautions like protection from weather or foreign objects, the installation of calming (twin) idlers, an additional scraper or other measures may be necessary.

The analysis software runs on Windows Pro 7/10/11 and Windows Server 2016/2019/2022. The programme is intuitive and very easy to use.

A comprehensive User Manual gives detailed information about the installation and operation of the CBGuard scanner.

> **Hundreds of systems successfully in operation.**

Minimal maintenance required

The CBGuard Life Extender needs little maintenance. It is almost wear-free. A regular calibration is not necessary.

The software will signal in time when the X-ray generator-tube module is about to be replaced. Changing it is easy and safe.

The CBGuard can be operated whenever the belt is running, or for one belt revolution every day, week etc. It can automatically start and stop such an inspection cycle and generate a report listing all the belt deficiencies.

It is suited for conveyor belt widths of up to 3200 mm, a maximum thickness of 60 mm, a maximum speed of 9 m/s, and for virtually any length.

**Complete knowledge
of the entire belt.**

**Increasing safety.
Reducing costs.**

**An essential upgrade for
important conveyor belts.**

CBG
**CONVEYOR
BELT
GATEWAY**

Safety. Efficiency.

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