

AGGREGATES

Canny Crushing

*Rebuilt primary crusher's
30% power saving p56*

LOADING

Big loader models in demand p37



EQUIPMENT UPDATE

A Stage V emission-ready engine p62

ASSOCIATION NEWS

*UEPG input into EU Protocol on
management of C&D waste p14*



Conveying efficiency



Conveyor belts are becoming increasingly sophisticated, as is the technology used to monitor their performance and maintenance needs. This creates huge potential efficiency savings for aggregate and cement product suppliers. **Guy Woodford** reports.

CBG says having a conveyor belt continually monitored by its X-ray technology-based CBGuard Life Extender X5 (CBGuard) system will supply quarry operators with detailed, digitised real-time information about its overall condition and the state of all of its components. This, CBG claims, will ensure a conveyor belt's safe and efficient operation. Any critical damage to the belt automatically triggers a CBGuard alarm, allowing any damage to be immediately addressed, thus reducing costly downtime and further belt deterioration.

Best placed in the bottom run of the conveyor, the CBGuard, consisting of an X-ray generator with tube, a receiver and a control unit, allows the user to play a complete or clip-form video at any time and speed, reproducing the x-ray image of a belt. The location of every fault identified by the system within the belt is said to be clearly shown. As it can be accessed over the internet by authorised personnel, CBGuard allows users to check the health of their conveyor belt anytime, anywhere in the world.

The CBGuard's X-ray generator produces artificial X-ray energy from electricity. The X-ray beam penetrates the conveyor belt and impinges on the detection board, which then, CBG explains, forms a grey-scale photograph

based on different absorptions of the conveyor belt areas. This happens millions of times with a running belt. The radiation source is insulated, stresses CBG. However, a safety zone with a fence around two metres distance around the CBGuard system needs to be installed. There is an interlocking system on the doors of the fence and the X5 cabinet. Once doors are opened, the generator will be switched off. Equipped with a number of safety devices, CBG states that the system can only be started if a unique dongle and password are applied. Beyond the safety fence, CBG states that the radiation produced when using CBGuard is less than 1 $\mu\text{Sv/h}$ (microSievert/hour).

More than 300 CBGuard systems are said by the company to be successfully in operation, including in a number of quarry settings. Designed as a standalone system, it can, says CBG, be used as an integral part of the plant's monitoring network (IIoT – Industrial Internet of Things) and communicate with other electronically controlled conveyor parts and logistical processes. The CBGuard is said to be suitable for conveyor belts with widths of up to 3,200mm, a maximum thickness of 60mm, and a maximum speed of 8m/s. Its standard image resolution is 1.6mm x 1.6mm, but 0.8mm x 0.8mm is also available.

CBG stresses that the lifetime of the

CBGuard's X-ray tube for continuous operation is limited, with the system's software signalling in time when the tube is in need of replacement. A spare generator tube module can be shipped with each CBGuard.

Emphasising its flexible use, CBG says the CBGuard can be operated continuously, or for one belt revolution every day, week or month. The system automatically starts and finishes a complete cycle inspection and produces a report, listing the belt deficiencies.

TOP: CBGuard Life Extender X5 system is said to supply quarry operators with digitised real-time information about their conveyor belt's overall condition