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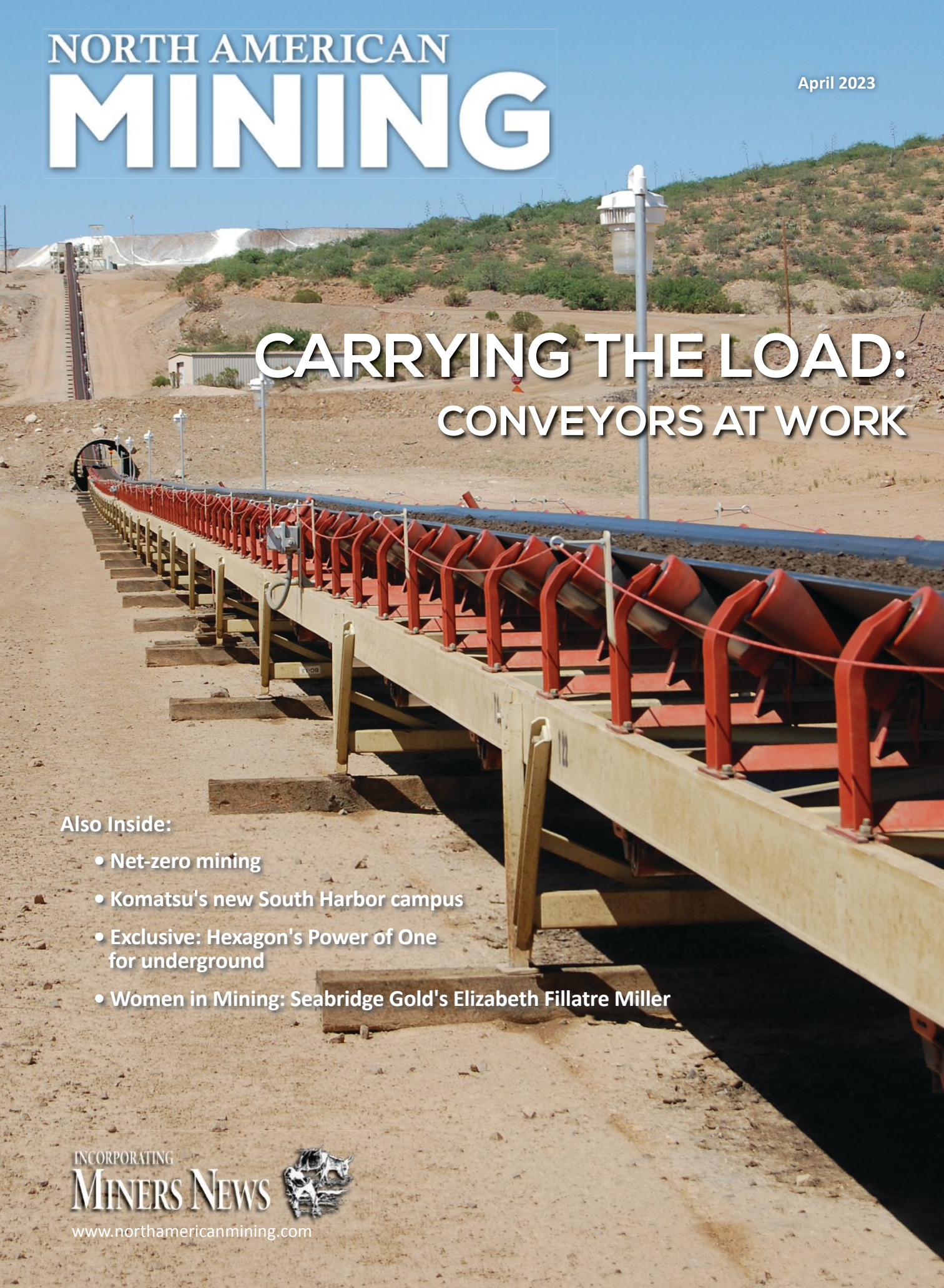

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Martin Engineering talks belt cleaner tensioners

What practices offer the best safety and efficiency? The supplier talks tensioners and breaks down the details for mine sites.

There are many issues to consider when specifying the most appropriate conveyor belt cleaner, not the least of which is maintaining proper tension to achieve optimum cleaning performance without introducing related problems.

Inadequate tensioning causes carryback to cling to the belt and spill along its path, piling up under the conveyor and emitting excessive dust. This requires extra labor for cleanup and can affect air quality.

Over-tensioning leads to friction damage to the carrying side of the belt, premature blade wear and potential splice damage. Both scenarios contribute to unsafe work conditions and raise the cost of operation.

"There are two basic approaches to applying tension to the belt cleaner: linear and rotary," said Dave Mueller, product manager – Conveyor Products, Martin Engineering. "The blade's cleaning position and angle of approach to the belt often dictate whether a linear or rotary tensioner is used."

The Conveyor Equipment Manufacturers Association (CEMA) defines the cleaning positions as primary, secondary or tertiary. Primary cleaners typically function with a "peeling" action, while secondary and tertiary cleaners are usually scrapers. Belt cleaners mounted in the primary position generally employ a rotary style tensioner, while most units mounted in the secondary or tertiary positions use linear style tensioners.

In most cases, belt tensioners have to be monitored and adjusted manually so they can maintain optimum pressure and carryback removal. Estimating when blades need changing is often a guessing game that, if left too long, could lead to unnecessary complications.

Linear Tensioners – "Linear tensioners are most often applied where the compensation for wear is required in small increments, such as with hard metal-tipped cleaners located in the secondary cleaning position or with brush cleaners," Mueller said.

The simple design of linear tensioners often allows just one setting for full blade wear. Further, these tensioners can accommodate actuator deflection for accurate adjustment of cleaning pressure, delivering the ability to accommodate uneven mounting positions or asymmetrical blade wear.

Rotary Tensioners – The required tensioning forces can be applied by springs, hydraulic or pneumatic cylinders, electric actuators or from

torque stored in an elastomeric element. Rotary tensioners like the Martin Twist Tensioner are often used with urethane blades, where changes in blade height and thickness as it wears is significant. Rotary designs tend to be compact and, in most cases, the actuator(s) can be mounted at any orientation, providing options for installing the belt cleaner in the optimum position.

Air Tensioners – Air tensioners use pneumatic cylinder resilience to cushion impact. Tensioners can use Martin's Air Connection Kit to plug them directly into an existing air system, allowing for a more streamlined installation process.

Spring Tensioners – Spring tensioners maintain efficient belt cleaning with a rugged coil spring. The Martin XHD Spring Tensioners deliver effective cleaning while cushioning splice shock to prevent damage, well suited for tensioning heavy duty belt cleaners while standing up to tough conditions.

Dual tensioning is recommended for belt cleaners installed on belts wider than 48 inches (1,200 millimeters). However, dual tensioning does not change the fact that regular adjustment is required to maintain suitable cleaning pressure on the belt, which is where Martin's N2 Smart Technology comes into play.

Auto Tensioner/Position Indicator – Martin Engineering's smart technology platform includes the company's patented N2 Position Indicator to monitor primary cleaner blade wear and inform operators when the blade needs changing. The system uses a cellular gateway that relays data to the cloud and then to the user, delivering actionable information in real time.

The N2 PI and Smart Device Manager App ease the burden on managers and workers so they can focus on other critical operational details. Precise tensioning and improved belt cleaning reduce the dust volumes and spillage from carryback, improving conditions and decreasing the labor needed to maintain and clean the discharge zone.

While manufacturers continue to improve belt cleaner effectiveness, it has become clear that there is no single, ideal solution for belt cleaning and tensioner selection. Personnel and belt safety are the primary considerations when selecting tensioners. Ease of inspection and maintenance is critical for belt cleaner effectiveness, so tensioners must allow quick, safe service.

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