

Ameridrives

Bauer Gear Motor

Bibby Turboflex

Boston Gear

Delevan

Delroyd Worm Gear

Formsprag Clutch

Guardian Couplings

Huco

Jacobs Vehicle Systems

Kilian

Kollmorgen

Lamiflex Couplings

Marland Clutch

Matrix

Nuttall Gear

Portescap

Stieber

Stromag

Svendborg Brakes

TB Wood's

Thomson

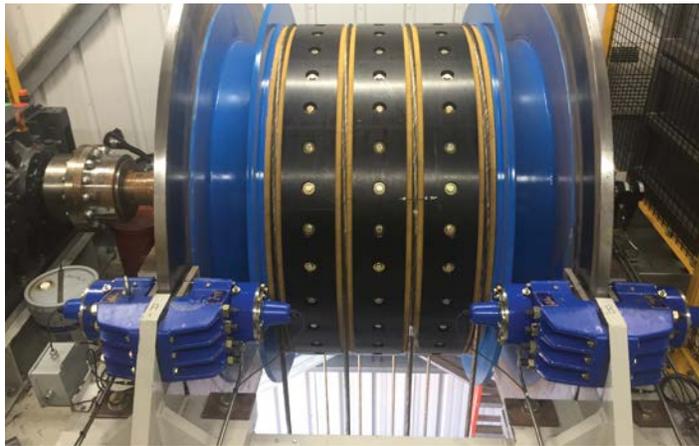
Twiflex

Warner Electric

Wichita Clutch

Excerpted from

Vertical Vanguards



As seen in
International Mining
August, 2021

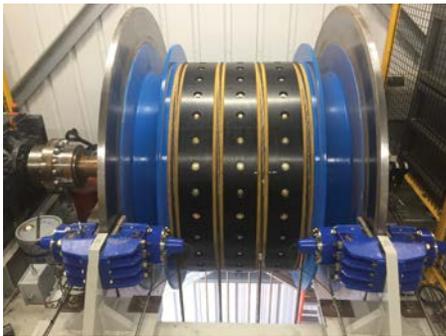


Excerpted from

Vertical Vanguard

By Paul Moore

Editor, International Mining



Altra Motion supplied a custom braking solution for an emergency escape hoist positioned in a mine ventilation shaft.



Twiflex Series VKSD spring-applied, hydraulically released, dual-spring caliper brakes act on a pair of discs shaft-mounted to the hoist's cable reel.

The supply of hoists and winders, plus associated wire ropes, brakes, electrical and automation systems is a specialized market with a relatively small number of players. Paul Moore looks at some market developments and new contracts.

As might be expected, technologies related to even greater safety levels and maximum efficiency achievement through greater use of digital tools dominate the world of hoisting and winders in mining.

Hoist brakes and controls, access shafts and hoisting systems are essential components for mining activities. To optimize transport, stopping and parking operations, these elevator machineries need high-quality redundant controls for speed, acceleration and deceleration.

When a leading manufacturer of mine hoists, Coalfield Services, Inc, needed a custom braking solution for one of its setups, it chose Svendborg Brakes and Twiflex, two brands of Altra Industrial Motion Corp, for the production of a reliable system. The mining industry heavily depends on hoisting equipment for uninterrupted and efficient operations. This offers vertical transport of miners and materials as well as providing access to the network of openings used to recover underground resources. Fundamental in key operations, mine shaft elevators must be fully operational and accurate in their movements at all times.

In particular, they should not be affected by power failures that can occur at mining sites. More precisely, it is extremely important for these systems to be able to maintain smooth and precise control to avoid unexpected movements, such as abrupt stops and startups.

By showcasing these features, mine hoists can deliver comfort in the transport of materials and workers as well as preventing the power train from suffering shock loads caused by abrupt movements, which can lead to substantial mechanical stress on multiple components. Only advanced systems that can modulate braking forces and support 'soft transitions' from movement to stillness and vice versa can guarantee this level of performance in any condition.

When developing a highly reliable setup with these characteristics, Coalfield Services, a major OEM of mine hoists, identified the most suitable braking system as SOBO® (Soft Braking Option) iQ from Svendborg Brakes, a leading global expert in intelligent braking solutions. This solution is a closed-loop controller that can automatically adjust the braking force, even in high-speed situations.

This ability is the result of three-state digital modulation, a dual-loop proportional integral (PI) algorithm to control pressure and speed and an internal pressure control loop. By combining these elements, SOBO iQ can apply only the torque needed for a fully controlled stop. More precisely, the system collects data on speed, pressure and deceleration/acceleration from sensors on the brakes and compares them to pre-defined setpoints. If the values differ, a suitable corrective, modulated change is communicated to the brakes to adjust their action accordingly.

In this application, the most suitable brakes to integrate with SOBO iQ were identified as VKSD58 spring-applied, hydraulically released caliper disc brakes from Twiflex, another brand within Altra Industrial Motion. As a global leader in innovative braking solutions designed to provide years of reliable performance, the company's solution is well equipped to withstand the challenging operating conditions found in mines.

Furthermore, by relying on member companies within Altra, the hoist producer could benefit from a one-stop-shop for its braking needs. In particular, the two brands could leverage a strong, close collaboration to deliver matching components for a fully integrated solution while also offering a single point of contact to the hoist manufacturer.

The spring applied calipers would assure operators that braking would be maintained in the event of electrical supply system failure as well as supplying sufficient braking force, as the VKSD series can reach over 100 kN. In addition, to deliver a system that would fully address the requirements of the mine hoist OEM, Twiflex leveraged its in-house design and manufacturing capabilities to create the custom brakes.

The resulting solution consisted of SOBO iQ communicating with VKSD58 calipers with proximity switches acting on a pair of discs that were shaft-mounted to the hoist's cable reels. For this project, the elevator machinery manufacturer could benefit from advanced application expertise from Svendborg Brakes and Twiflex, which proved crucial to specify, integrate and customize the braking systems. Thanks to the components provided, Coalfield Services improved the design of its accurate, robust and reliable products, delivering enhanced setups to clients in the mining sector.



The industry-leading SOBO iQ braking controller from Svendborg brakes, combines cutting-edge technologies to provide significant flexibility, safety and durability on applications including mine hoists.



Manufactured in-house, Svendborg Brakes' specialized SOBO iQ hydraulic power units are engineered to perform in tough mining applications.

About Altra Motion

Altra is a leading global designer and producer of a wide range of electromechanical power transmission and motion control components and systems. Providing the essential control of equipment speed, torque, positioning, and other functions, Altra products can be used in nearly any machine, process or application involving motion. From engine braking systems for heavy duty trucks to precision motors embedded in medical robots to brakes used on offshore wind turbines, Altra has been serving customers around the world for decades.

Altra's leading brands include Ameridrives, Bauer Gear Motor, Bibby Turboflex, Boston Gear, Delevan, Delroyd Worm Gear, Formsprag Clutch, Guardian Couplings, Huco, Jacobs Vehicle Systems, Kilian, Kollmorgen, Lamiflex Couplings, Marland Clutch, Matrix, Nuttall Gear, Portescap, Stieber, Stromag, Svendborg Brakes, TB Wood's, Thomson, Twiflex, Warner Electric, and Wichita Clutch.



449 Gardner Street
South Beloit, IL 61080
815-389-3771
www.AltraMotion.com

For a complete list of our
global sales offices visit:
altramotion.com/contactus