

INNOVATION

SPOTLIGHT from the brands of Altra Industrial Motion Corp.



TWIFLEX BRAKING TECHNOLOGIES PROVIDE RELIABLE PERFORMANCE ON CHALLENGING MINE WINDER APPLICATIONS

As mineral seams close to the surface get depleted, the need to dig deeper, more expansive mines has grown. This trend has significantly increased the demands on mine hoist performance. Mine hoist systems are getting larger with increased material skip capacities and faster hoist speeds (up to 50%) in recent years.

Mine hoist OEMs and mine operators are continuously challenged to develop technologies that transport material, crews and equipment to the surface more quickly and safely. Larger hoist lifting capacities, along with deeper shafts (up to 3150 m) and higher speeds (up to 20 m/sec), significantly increase hoist drive and braking torque requirements.

There are three basic mine hoist types currently in use today. Blair multi-rope hoists are installed on the world's deepest mines. Single- and double-drum hoists are the most common types used and are typically found in North America, South Africa and South America. Friction (Koepe) hoists use multiple ropes which give them a higher payload capacity, and these are typically used on less deep mines.

MEETING THE NEED FOR RELIABLE BRAKING SOLUTIONS ON ALL TYPES OF MINE HOIST APPLICATIONS

As a recognized global leader in mine hoist braking technologies, Twiflex offers a full line of mine-ready systems, including their popular VKSD, VSD and VMS brake ranges. All the brakes are spring-applied and hydraulically-released to provide a fail-safe system for emergency stopping when there is a power failure or mechanical problem with the drive. The brakes are available as dual-spring (two spring modules) or mono-spring (floating) versions.



INNOVATION

SPOTLIGHT from the brands of Altra Industrial Motion Corp.

ADVANCED MINE WINDER BRAKING TECHNOLOGIES

Twiflex mine winder disc brakes are designed to statically hold twice the weight of the cables and fully loaded skip or crew cage at the bottom of the mine shaft. They provide enough braking torque to deal with the static out-of-balance load, in addition to the dynamic stopping duty requirements.

For mine hoisting, brakes are typically rated between 62 kN and 320 kN braking force, at a nominal 0.4 coefficient of friction with a 2mm gap between brake pad face and brake disc. At this rating, Twiflex brakes are designed for more than 2 million braking cycles to meet exacting hoist requirements.

To assist with maintenance, Twiflex brakes incorporate a monitoring system to signal brake-pad wear and loss of braking force. All Twiflex modular brakes are subject to a cycling test and pressure test before leaving the factory. For mine hoists, all critical brake components undergo non-destructive testing.

SUPERIOR BRAKING PERFORMANCE ON LARGE WINDERS

Installed on many mine hoists worldwide, the VMS3-SPS is an improved design from the VMS family, offering an additional 20% braking force. The spring-applied, hydraulically-released brake offers up to 276 kN braking force at 3mm air gap between brake pad face and disc face with a 0.4 coefficient of friction.

Ideal for use on larger mine hoists, the VMS3-SPS is totally sealed to provide excellent corrosion and dust protection. The improved design includes tamper-proof pad wear adjustment, external pad retraction and Twiflex's unique "Park Off" feature where the brake can be set to remove all stored energy, making it completely safe for pad replacement and maintenance. Like all other Twiflex modular brakes, the VMS3-SPS can be serviced using standard equipment without the need for special tooling.



Twiflex Model VMS3-SPS caliper brakes installed on a 20 ft. diameter double-drum, single-clutch hoist at a Canadian gold mine.

LATEST BRAKING INNOVATIONS FROM TWIFLEX

Twiflex recently introduced the VSD series brakes for industrial applications including mine hoists. The new brake incorporates several of Twiflex's latest technological improvements.



The compact, cost-effective VSD design includes Twiflex's exclusive "Park Off" feature, increased braking forces with lower operating pressures, a floating version option, and improved modular flexibility not available on similarly rated brakes.

VSD spring-applied, hydraulically-released disc brakes are available in a range of sizes with braking forces from 100 kN to 220 kN. The brakes are designed for fast and easy installation, adjustment and pad changes.

PROVEN BRAKING SOLUTIONS FOR SMALLER HOISTS

Available in a range of sizes, with braking forces from 26 kN to 119 kN, Twiflex VKSD brakes are ideal for use on smaller mine hoist applications.

The VKSD caliper is a spring-applied, hydraulically-released disc brake which is comprised of two spring modules located on either side of a mounting plate. The plate can be made in any thickness to accommodate brake discs of 20 mm thickness or over.

Similar to the other Twiflex brakes in this range, the VKSD includes the "Park Off" feature, easy brake pad and seal change, simple adjustment using standard tooling and the ability to re-rate the brake without changing the spring pack.

* Source: www.flsmidth.com