

INNOVATION

SPOTLIGHT from the brands of Altra Industrial Motion Corp.



BRAKE SOLUTIONS FROM ALTRA PROVIDE LONG-LASTING PERFORMANCE ON DRAGLINES AROUND THE WORLD

Current market conditions in the coal mining sector have put increased pressure on mine operators worldwide. Now, more than ever, mines need to operate at very high levels of productivity to achieve even modest profit targets.

With operating costs around \$30,000 per hour, draglines are one of the most expensive pieces of equipment found at any open pit coal mine operation. Draglines provide the most efficient way to remove overburden (top layer of soil that can be 150 ft. thick or more) to expose buried coal seam deposits.

The cost of a new dragline, depending on size, is in excess of \$100 million. At that price very few new machines are built as mine owners increase the demand on existing machines to remain fully operational for many years.

These massive machines can weigh upwards of 8,000 tons, with a bucket capacity of 150 cu.yds. or more. The dragline's bucket is lowered over the desired area, dragged along the surface, then lifted and swung to a dumping area.

A series of up to 30 different electric motors, each with multiple brakes, drive the hoist rope, drag rope, and propel and swing movements. Under tough mine pit operating conditions, dragline brakes typically last between 4-5 years before they need to be rebuilt or replaced.

ADVANCED ALTRA BRAKING TECHNOLOGIES ARE DESIGNED FOR USE ON DRAGLINE BRAKING APPLICATIONS

Industrial Clutch heavy-duty brakes and Twiflex caliper brakes are used for controlled engagement and emergency stopping on rope hoists, bucket drag winches and swing, propel, and crowd motion applications.



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Industrial Clutch[®]
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TWIFLEX GMR-SD BRAKES SUPPORT ALL TYPES AND SIZES OF DRAGLINES

For more than 40 years, Twiflex has been providing dragline caliper disc brakes for new builds and as replacements for old shoe (drum) brakes. Back in the 1970's Twiflex worked with Ransomes and Rapier (1000/2000 Series machines) and more recently with Caterpillar (formally Bucyrus) on the following draglines:

- Models 1370, 8050 and 8200 (drag and hoist)
- Model 8250 (drag, swing and propel)
- Model 8750 (swing and propel)
- Model 2750 (hoist drag)

GMR-SD Brakes offer many advantages:

- Modularity/Flexibility - Fit multiple units and size of thrusters can be varied to suit installation
- Adjustable Torque - Torque can be adjusted according to operating conditions
- Low Maintenance - Easy-to-replace brake pads, low cost spares
- Air Released - Spring applied, air released – both safe and reliable



Twiflex Model GMR-SD caliper brakes shown operating on a drag motor disc.

Extensive dragline application experience allows Twiflex to supply complete brake packages including:

- Brake calipers
- Thrusters
- Mounting frames
- Mounting bolts
- Discs, hubs and taper-lock bushings
- Air pressure regulators
- Local piping
- Guards

INDUSTRIAL CLUTCH LKB DISC BRAKES PROVIDE SUPERIOR PERFORMANCE VERSUS DRUM STYLE BRAKES ON DRAGLINES

One of the problems with drum brakes is that they are difficult to maintain and require frequent adjustment. If the adjustments are not made in a timely manner the brake's torque capacity falls off severely.

In contrast, Industrial Clutch LKB disc brakes are designed with rotating discs that are splined to a hub which is keyed or splined to the rotating motor shaft. These discs, or plates, slide axially when engaged and carry the friction lining. The braking surfaces are radial and the friction surface is defined by its outside and inside diameter. Springs move the plates axially and engage stationary plates against the rotating discs thereby affecting the braking action.



Heavy-duty LKB brakes feature high-energy metallic linings with large swept areas to ensure excellent heat dissipation, uniform stopping distances and long lining life. Units also feature high-strength alloy steel drive studs, actuation springs sized for maximum life, and long-life piston seals. Long spline lengths on the brake discs maximize load-carrying capacity.

Industrial Clutch has been supplying Model LKB brakes for draglines and shovels to OEMs and the aftermarket since 1980.

ALTRA BRANDS PROVIDE OPTIMUM DRAGLINE BRAKING SOLUTIONS

Both Twiflex GMR-SD brakes and Industrial Clutch LKB disc brakes are the preferred solutions for dragline hoist, drag, swing and propel motions, providing many advantages over shoe (drum) brake technology.

* Source: The Parker Bay Company; www.parkerbaymining.com



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