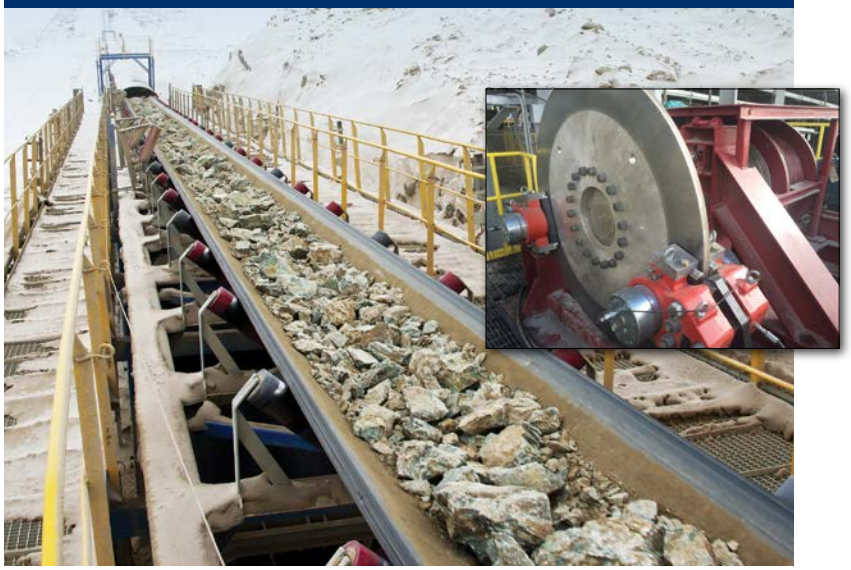
SVENDBORG BRAKES™
A REGAL REXNORD BRAND

Application Success Story



BSFK 527 Braking System with SOBO® iQ

Mine Conveyor Take-Up Winch

HIGHLIGHTS

- Unique soft braking control (SOBO iQ)
- BSFK 527 dual-spring hydraulically released caliper disc brakes
- Minimum of 315,630 Nm (232,796 lb.ft.) of torque
- Hydraulic power unit manufactured in-house
- Ameridrives Amerigear FS 209 hub (with double keyway) rated for 390,285 Nm (287,859 lb.ft.) of torque

PROBLEM

A controlled brake system was required for a “Smart” take-up winch on a conveyor at a copper mine in Chile. The 2,650 m (1.64 mile) long conveyor can transport ore at a rate of 11,400 mtph. The winch is used to adjust and maintain the conveyor belt’s tension during operation. However, this needed to be the first take-up winch to accurately maintain torque control even during a power failure.

SOLUTION

Svendborg Brakes supplied its SOBO® iQ soft braking control to meet the challenging braking system requirements. The SOBO iQ provides torque-limited braking during winch drive failure by effectively allowing the take-up winch to slowly release the conveyor belt tension. This is achieved by monitoring the line pull of the winch cable. When the winch line pull from the cable reaches the set limit, the SOBO iQ decreases the brake torque to allow the winch drum to slip. Maintaining control of the take-up winch in this manner prevents damage to the belt and other mechanical components.

The complete braking system, consisting of two Model BSFK 527 caliper disc brakes, a SOBO iQ controller, a hydraulic power unit, a brake disc, two dynamometers, and an Ameridrives FS 209 hub, provides parking and emergency control of the winch drum.

The spring-applied, hydraulically released BSFK 527 brakes act on a 1.9 m diameter disc, mounted to the low-speed side of the drive shaft. In normal operation, the brake system is used to park the winch by providing a minimum of 315,630 Nm (232,796 lb.ft.) of torque during full torque operation. During a power failure, the SOBO iQ is set to release tension when the winch builds 200,000 Nm (147,512 lb.ft.) of torque.

The system was commissioned by Svendborg Brakes, Chile. Its facility, located in La Serena, Chile, serves the region as a critical spare part warehouse and repair center.

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