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# ABB AC drive system gives Colorado skiers a lift



March 31: - Breckenridge, Colorado – Moving skiers safely and efficiently is a peak priority for Jon Mauch, lift director at Keystone and Breckenridge ski resorts, located deep in the snowy heart of Colorado's famous mountain playground.

 By Editorial services

That's why Breckenridge chose an energy-efficient ABB AC drive and motor combination to get skiers to the top of the resort's new 12,000-foot Independence run, which offers stunning views of the continental divide on the way down.



"Independence runs are fully loaded, all day, every day," says Mauch, which translates into 3,000 people an hour, eight hours a day, 160 days a year. To move them safely and efficiently, Breckenridge installed the ABB ACS 800 drive and a powerful 800hp ABB motor.

### AC over DC

The Breckenridge lift at 2,200 meters is one of the longest AC-powered lifts in the United States. The other is at the Sugarbush resort in Vermont. Both lifts use ABB industrial AC drives and motors.

Breckenridge lift director, Jon Mauch, inspecting the 800 hp ABB motor powering the Independence lift.



ABB's AC drives represent a departure for the ski resort industry, which has traditionally used DC drives for ski lifts because, as Mauch explains, "The power utilization is superb, they're extremely reliable and virtually maintenance-free."

That sounds like a tough combination to beat, but ABB's AC drive and motor system not only offers reliable, maintenance-free motor operation for big, high-powered chairlift operations, but also significantly reduces power consumption.

### The drive to regenerate

The regenerative ABB industrial drive is unaffected by power failures, and the direct torque control feature ensures smooth, accurate motor torque across a range of speeds.

ABB AC drives can help save resort operators cut their energy bills by as much as 40 percent, and over a season, that represents substantial savings. The lower power requirements of the Sugarbush top-drive lift configuration alone yield annual savings of more than 46,000 kW hours, while increased system efficiency creates savings of about 25,000 kW hours per season.



ABB AC drive and motor systems can cut resort energy bills by as much as 40 percent.

"The new drive is a better operation, and responds faster," says Mauch, who works for Vail Resorts Inc., one of North America's leading ski resort operations whose properties include Vail, Breckenridge, Beaver Creek and Keystone in Colorado, and Heavenly in Lake Tahoe, Nevada.

### Compensates for irregular power

AC drives can compensate for irregular power, so that an AC drive-equipped lift is able to operate at full power even during 80 percent brownout conditions. AC drives also make full use of power produced by the motor during downloading and braking.

AC motor/drive electrical control systems give lift operators significant maintenance and operating benefits, according to lift manufacturer Leitner-Poma.

The sister resorts of Breckenridge and Keystone attract more than four million visitors

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Breckenridge is one of the first two ski sites in North America (the other is in Vermont) to install large-horsepower regenerative AC-powered drives on a detachable lift. Regenerative means that when the motor yields rather than consumes electricity, that power can be captured and used by the system, instead of wasted. ABB has also provided DC-powered and non-regenerative AC drives to the ski industry for years.

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annually with some of the finest skiing available in North America.

ABB industrial drives are also used to lift skiers at the Sugarbush ski resort in Vermont. "We wanted to put in the best available technology," says Jason Lisai, director of planning for Sugarbush.

