



Ski safe for the shaft grounding ring

Protection of inverter-controlled motors in ski resorts

The day-to-day operations of ski resorts require an enormous amount of energy. Frequency inverters are an effective way of saving energy but can create harmful voltage on the shafts of the motors they control. This can result in ski lifts and snow-making systems having to be switched off. In this context, AEGIS® Shaft Grounding Rings help to avoid large financial losses.

When you strap on your alpine or cross-country skis in one of the many ski resorts in the Alps or other winter sport areas, it's because you want to have fun or improve your fitness while enjoying perfectly groomed slopes and trails. Hardly anyone gives a thought to the fact that it takes a considerable amount of energy to create optimal conditions for your skiing pleasure.

In all winter sports areas, skiers have to be transported to the ski area or cross-country ski trails by lifts or gondolas. In areas where natural snowfall is uneven or insufficient to create good downhill or cross-country skiing conditions, artificial snowmaking becomes essential. However, this all requires a lot of energy. Lifts and snow-making systems account for over 80% of the total energy costs of most ski resorts.

Regulation of motors depending on the load

To reduce the energy consumption of motors of ski lifts, snowmaking systems and other applications, resorts often install frequency inverters to regulate the motors. Frequency inverters are used to adapt the speed of chair lifts, gondolas, magic carpet lifts and high-capacity lifts to different passenger loads, weather conditions, disabilities of skiers, shift changeovers and emergencies. In snowmaking systems, frequency inverters are a simple and cost-effective way of adapting the mixture of water and compressed air to the snow cannons to cope with changing requirements. Speed-controlled drives are ideally suited to saving significant amounts of energy. These drives adjust motor speed to use only as much power as needed. The resulting energy savings often reach 30%.

Frequency inverters can damage motors

Frequency inverters can reduce energy costs dramatically but can also damage the motors they control. The devices induce voltage on motor shafts. This voltage discharges through the bearings, causing cumulative electrical damage (fluting) and eventual failure.

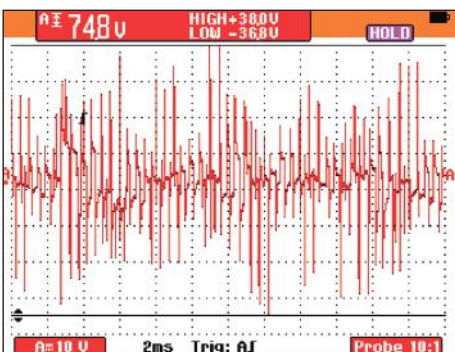
As a result, the energy savings achieved by using frequency inverters on motors without bearing protection can quickly be nullified by unusually high costs of repairs and system downtime.

Proven long-term bearing protection

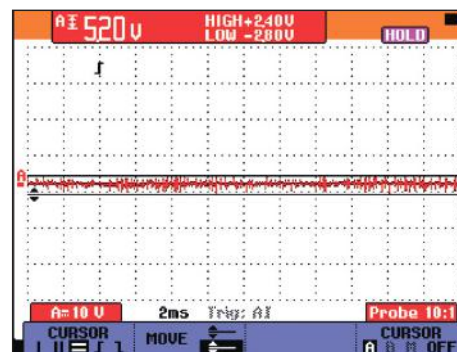
This potential bearing damage can be prevented by using AEGIS® Shaft Grounding Rings. They conduct harmful inverter-induced voltages away from the bearings and safely to ground.

By diverting harmful bearing currents safely to ground, the AEGIS® Shaft Grounding Rings guarantee the reliable, long-term operation of motors controlled by frequency inverters. In ski areas, they protect important lift and snowmaking motors from damage and ski resorts can thus avoid costly downtime.

This protection is particularly vital for those ski resorts that have short or unpredictable ski seasons.



Measurement of shaft voltage: Without AEGIS® ring: 74.8V peak-peak



Measurement of shaft voltage: With AEGIS® ring: 5.20V peak-peak

Applications Ski Resort

2-year warranty

The manufacturer of the AEGIS® Shaft Grounding Rings, Electro Static Technology offers users who register their motors with installed AEGIS® Shaft Grounding Rings a two-year extended warranty against electrical bearing damage.

Electro Static Technology offers this warranty against bearing fluting on all AC motors on which AEGIS® Rings installed according to their best practices.

It applies to AC motors of all sizes, regardless of whether they are low-voltage or medium-voltage, new or repaired motors. Once the ring has been installed, all the user has to do is register the motor on the AEGIS® website.

Applications of AEGIS® Shaft Grounding Rings

- Lifts
- Chairlifts
- Magic carpet lifts
- Gondolas
- High-capacity lifts
- Platter lifts (Poma lifts) and T-bar lifts
- Snowmaking
- Water pumps
- Base and peak load air compressors
- Single-ring and multiring blower systems
- HKD tower system pumps
- Snow-making feed pumps
- Facilities
- Well and well water barrel pumps
- Building heating/cooling systems
- Sewage pumps
- Pumps for off-season attractions



Pump station to increase pressure