Protecting VFD-Driven Motors In:

Meat and Poultry

VFDs: Improved Control and Energy Savings

By providing precise speed control of motors that run conveyors, pumps, mixers, compressors, and other meat and poultry processing equipment, variable frequency drives (VFDs) enable the fine tuning of food preparation, transfer, and packaging processes. In addition to improving process control, VFDs save energy. In fact, the use of VFDs in HVAC systems has been shown to reduce energy consumption by as much as 20 to 30%.

The Crippling Cost of Unplanned Downtime

Meat and poultry processors face staggering losses due to spoilage if their equipment goes down. And despite their benefits, VFDs can cause downtime by damaging the motors they control. In an effort to eliminate such unplanned downtime, many processors are looking for ways to prevent motor failures by protecting bearings from VFD-induced electrical damage.

The Need for Shaft Grounding on VFD-Driven Motors

VFDs induce currents on motor shafts that discharge through the bearings, causing pitting, fluting, and catastrophic motor failure. Without bearing protection, any savings from using VFDs can be quickly wiped out by the costs of system downtime and motor replacement.

Proven, Long-Term Bearing Protection

By diverting bearing currents safely to ground, AEGIS® Shaft Grounding Rings ensure the reliable, long-term operation of VFD-driven motor systems, locking in energy savings and making these systems truly sustainable and truly green!

Applications:

- Conveyors (belt and overhead)
- Kill chains
- De-hairing/de-feathering
- Bleed table pumps
- Boiler pumps
- Scald tub chains
- Dump press feeds
- Tumblers
- Separators
- Casers
- Water pumps
- HVAC ventilation fans
- HVAC air handlers
- Chilled water pumps
- Water/wastewater pumps
- Trash compactors

Field Survey Testing:

Hormel Foods

The Study

This field survey was conducted at Hormel Foods, Freemont, Nebraska. Voltage readings were taken from the shafts of VFD-driven motors throughout the plant to demonstrate the presence of harmful shaft currents. In addition, voltage readings were taken on the motor that powers the plant's hog kill main chain drive — both before and after the application of AEGIS® Shaft Grounding Ring technology.

The Problem

The motor studied was a 20 HP 1765 RPM 256T frame motor that drove the hog kill main chain. High peak-to-peak readings from the motor shaft indicated that currents were building up on the shaft and discharging through the motor bearings, causing EDM pitting and possibility of bearing race fluting.

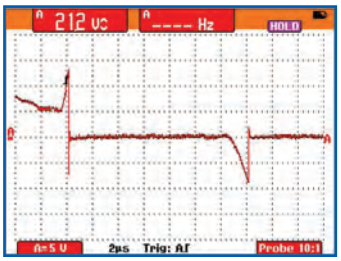
The Solution

After AEGIS® Shaft Grounding Ring technology was applied to the motor shaft, additional readings demonstrated that the rings were effectively channeling harmful shaft currents away from the bearings to ground. Peak-to-peak voltage readings were negligible, far below levels that damage bearings.

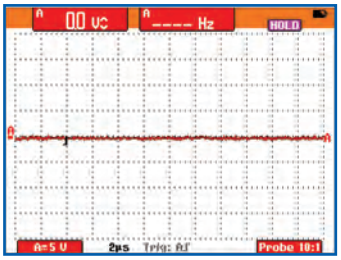
Washdown-Duty Motor

HP: 20

Frame: 256T



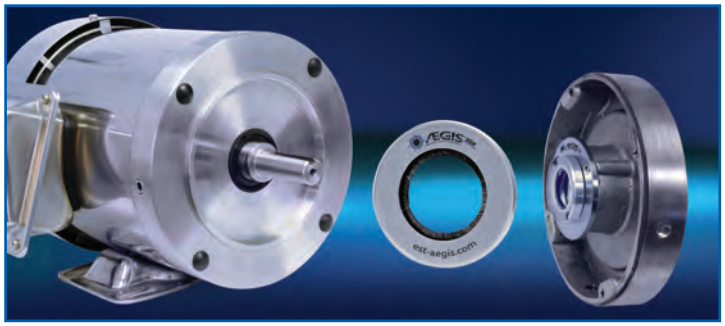
Without AEGIS® SGR: 21.1 V peak-peak



With AEGIS® SGR: 0 V peak-peak

Save your washdown-duty motors — Specify AEGIS® Rings installed inside

Most VFD-driven washdown motors today are more likely to fail from bearing current damage than from water damage. Proven in hundreds of thousands of installations, AEGIS® Rings protect motor bearings from these damaging VFD-induced currents, dramatically reducing downtime, extending motor life, and improving the reliability of systems.



AEGIS® Rings are available through:

