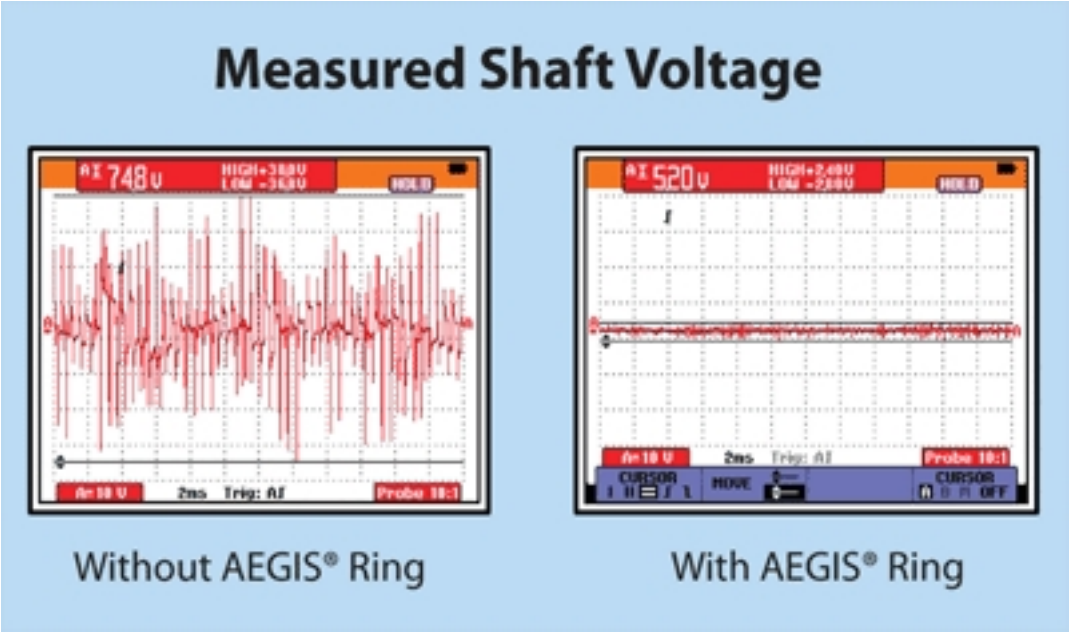
Problem

Variable frequency drives (VFDs) make commercial HVAC systems, automated assembly lines and other processes more energy efficient. But they induce currents that can damage motor bearings. The resulting downtime and costly repairs can wipe out energy savings and severely diminish the reliability of an entire system. Now, with the AEGIS® Shaft Voltage Test Kit, you can find out which motors are at risk and install AEGIS® rings to protect them.



Solution

With the AEGIS® Shaft Voltage Test Kit you can test every VFD-controlled motor in an entire plant, office building or other facility to confirm the threat of bearing damage. A collaboration between Electro Static Technology (EST) and Fluke Corporation, the test kit contains a voltage probe tip, an extension rod and a portable oscilloscope to measure the potentially destructive voltages on a motor's shaft. The probe's special tip contains conductive microfibers that enable fast, easy and accurate measurements. EST makes the tip and extension rod, while Fluke makes the probe and F190 Series ScopeMeter.

Without mitigation, voltages can build up on the motor shaft, discharging repeatedly through bearings and causing EDM pitting and fluting. Fluting (a washboard-like pattern in the bearing race from concentrated pitting) can produce vibration and noise, but by that time bearing failure is often imminent. The AEGIS® Shaft Voltage Test Kit is handy for maintenance/testing personnel—*anyone who needs to determine and convince others that shaft voltages either are or are not present at levels high enough to erode bearings.*

How can such damage be prevented? If significant shaft voltages are detected, the most effective bearing-protection device available today is the AEGIS® Bearing Protection Ring, which safely redirects harmful currents away from the bearings to ground. Developed by EST, the maintenance-free AEGIS® Bearing Protection Ring outperforms conventional spring-pressure grounding brushes, which corrode, become clogged with debris and wear out quickly, as well as ceramic-coated bearings, which can shift damage to connected equipment. It even provides bearing protection for so-called “inverter-duty” motors, which offer beefed-up insulation to protect windings, but nothing to guard against bearing damage, and transforms them into “true inverter-duty motors” with full protection of windings and bearings.

Click to enlarge.Proven bearing protection…

The AEGIS® ring has already proven itself in over half a million applications. Key to the ring’s success are the patented conductive microfibers arranged along its entire inner circumference, com-pletely surrounding the motor shaft—*a critical design requirement.*

As preventive maintenance, the AEGIS® rings can be easily installed on any NEMA or IEC

motor regardless of shaft size, horsepower or end-bell protrusion, using brackets or conductive epoxy. A new split universal mounting kit includes a split version of the ring that allows retrofitting without decoupling the attached equipment—*the hinged halves open on one side to fit over the motor shaft.* For larger motors, generators and turbines with shafts up to 30” in diameter, EST offers the maintenance-free AEGIS® iPRO Bearing Protection Ring, also available in a split design.

Return On Investment

By diverting damaging currents safely to ground, AEGIS® grounding rings extend motor life, locking in energy savings to make systems sustainable and truly “green.”

For more information or for a free in-plant motor shaft voltage test, contact www.est-aegis.com. **MT**

Electro Static Technology
Mechanic Falls, ME

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