



## Protecting VFD-Driven Motors In: Pharmaceutical Production

### VFDs Provide Precise Control of Pharmaceutical Production and Dramatically Reduce Energy Costs

The production of pharmaceuticals is an extremely energy-intensive process. In fact, pharmaceutical manufacturing plants in the United States alone spend billions of dollars on electricity and fuel each year. For most of these plants, heating, ventilation, and air conditioning account for the largest share of energy usage, followed by process equipment and compressed air systems. And the electric motors that power these systems are estimated to account for  $\frac{2}{3}$  of a pharmaceutical plant's total energy usage.

The precise control of a wide range of variables is critical in the production of safe, sterile, and effective pharmaceuticals. By precisely controlling the speed and torque of process motors, variable frequency drives (VFDs) provide the precise control of environmental, production, and packaging processes required for pharmaceutical production.

### But VFDs Can Damage Motor Bearings and Shut Down Processes...

VFDs induce voltages on the shafts of the motor they control — voltages that can discharge through motor bearings, causing fluting and catastrophic motor failure.

### And the Cost of Downtime and Lost Production Can Be Astronomical

Variations in any of the environmental or process variables in pharmaceutical production can result in non-compliant products or even the need to shut down, clean, and sanitize production lines or entire facilities. The cost of such unplanned shutdowns, lost production, and possibly FDA fines can be startling. In fact, an unplanned shutdown of production at one major pharmaceutical facility was estimated to cost the drugmaker \$560 million.



### Applications:

#### HVAC Systems

- ☐ Cooling tower fans and pumps
- ☐ Chiller pumps
- ☐ Circulating pumps
- ☐ Air handlers
- ☐ Fans
- ☐ Heat recovery wheels
- ☐ Run-around coil pumps

#### Compressed Air Systems

- ☐ Spray coating systems
- ☐ Blowguns and air lances
- ☐ Instrument air systems (hazardous areas)

#### Conveying Systems

- ☐ Dispensing conveyors
- ☐ Packaging conveyors

#### Vacuum Systems

- ☐ Vacuum pumps
- ☐ Water system pumps





### Protect VFD-Driven Motors from Bearing Damage with AEGIS® Shaft Grounding Rings

By diverting damaging current safely to ground, AEGIS® Rings ensure the reliable, long-term operation of VFD-driven motors and systems in pharmaceutical plants.

So, to prevent VFD-induced bearing damage and costly, unnecessary downtime and repairs, specify/install AEGIS® Shaft Grounding Rings on all AC and DC motors:

- New motors before they are put into service
- In-service motors when they are refurbished or repaired
- Spare motors when they are purchased or before they are put into service

For a complete list of manufacturers that offer motors with AEGIS® Rings factory installed, visit: [www.est-aegis.com/oem](http://www.est-aegis.com/oem).

For washdown applications, LEESON® offers Extreme Duck® washdown motors with AEGIS® Rings factory-installed internally.

Unlike other shaft grounding products, AEGIS® Rings do not require routine maintenance or adjustment. They provide effective protection for the L-10 life of the motor bearings.



**AEGIS® Rings are available through:**

