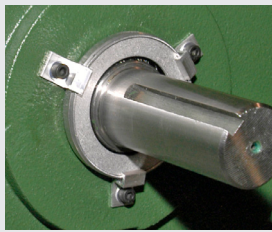
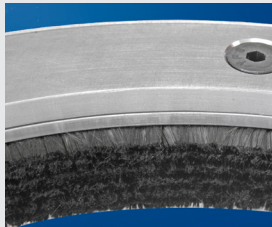


## AEGIS™ SGR vs AEGIS™ iPRO



### AEGIS™ SGR Shaft Grounding Ring

- 2 rows of conductive microfiber
- Low voltage motors through 5000 NEMA frame
- Motors less than 100 hp:  
Install one AEGIS™ ring on either the drive end or the non-drive end of the motor.
- Motors over 100 hp:  
Non-drive end bearing journal should be insulated or insulated ceramic bearing to disrupt circulating currents.  
Drive end- Install AEGIS™ SGR (opposite end of insulation)

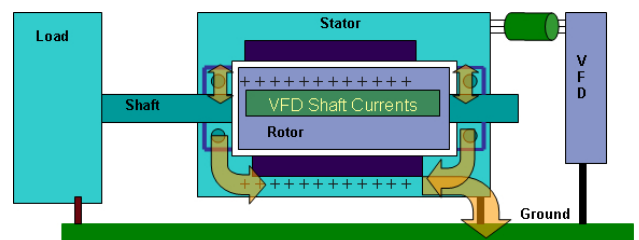


### AEGIS™ iPRO Shaft Grounding Ring

- 6 rows of conductive microfiber
- Large motors over 5000 frame and Medium Voltage
- All medium voltage motors over 1000 volts AC supply
- Medium voltage motors
- Generators and Turbines
- One end of the motor should have an insulated bearing or ceramic bearing to disrupt circulating currents.
- Install AEGIS™ iPRO on the drive end (opposite end of insulation)

### VFD Induced Shaft Voltages - All Motors

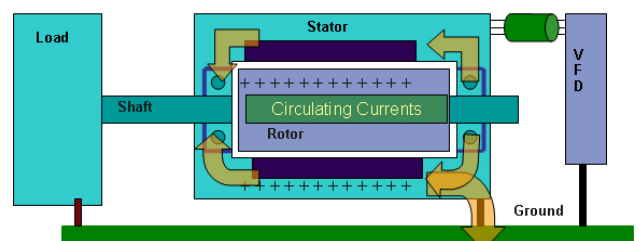
VFD's on AC and DC motors induce harmful electrical voltages on the motor shaft. Once these voltages exceed the resistance of the bearing lubricant, they discharge through the motor's bearings causing pitting and fluting and may lead to excessive bearing noise and eventually bearing failure.



EDM Currents Damage Bearings

### High Frequency Circulating Currents in Large AC and DC Motors

In addition to potential bearing failures in motors from VFD induced EDM currents, AC and DC motors above 100 hp (75 kW) may also experience bearing failures caused by high frequency circulating currents. VFD induced high frequency circulating currents are in the kilohertz or even megahertz range and circulate through the motor's bearings because of magnetic flux imbalances in the stator. This type of VFD induced current becomes the more dominant destructive current in higher hp/kW motors.



High Frequency Currents Damage Bearings

## AEGIS™ SGR vs AEGIS™ iPRO

**Questions to ask for an AEGIS™ SGR installation**

**Question:** Will the AEGIS™ SGR be installed on the inside or outside of the motor?

**Answer:** If the AEGIS™ SGR will be installed on the inside, ask for the shaft diameter at that location. Also ask how they plan to mount the SGR, ie bolt through mounting to bearing cap? If AEGIS™ SGR will be mounted to the outside of the motor, there are several questions to ask...

**Question:** Does the shaft have a slinger, seal shaft, and/or irregular boss at the end bracket that would prohibit a direct mount of the AEGIS™ SGR to the motor end bracket?

**Answer:** If no, the AEGIS™ ring can be installed directly to the motor end bracket. Ask the customer which mounting method they prefer; standard mounting clips, bolt through or conductive epoxy. The conductive epoxy eliminates the need to drill into the motor end bracket so many customers like this option. If yes, the AEGIS™ SGR cannot be installed directly to the end bracket. An AEGIS™uKIT or NEMA Kit is the best option. Order the kits based on the 'u' dimension of the shaft.

**Question:** Is there a shaft shoulder at the motor end bracket (shaft is larger at the end bell then drops down to the "u" dimension of the shaft)?

**Answer:** If yes, what is the length of the shaft shoulder. The shoulder should be at least .375" in length so that all of the fibers are in contact with the rotating shaft. The diameter of the shaft shoulder

is the dimension used to determine the correct SGR. Custom Option: If the shaft shoulder is between .189" and .375" in length, a custom SGR can be used. At the manufacturing process, the fibers are placed toward the back of the ring. The part number suffix will end with an X for this style. It can be ordered as a clip mounted ring, bolt through, press fit or conductive epoxy mounting ring.

**Question:** Will the fibers come in contact with the keyway during operation?

**Answer:** If yes, the keyway should be filled in with a fast-curing epoxy putty (such as Devcon epoxy putty) in the area of contact.

**Questions to ask for an AEGIS™ iPRO installation**

- What is HP of motor?
- What is the application?
- What is the history of the motor?
- Will the AEGIS™ iPRO be installed on the outside or inside of the motor?
- What is the shaft diameter where the AEGIS™ iPRO will be installed?
- Does the customer need a solid ring or a split ring?
- The AEGIS™ iPRO is supplied with 4 mounting holes for a bolt-on installation. Will this be OK or do you need custom brackets?
- Will the fibers come in contact with the keyway during operation?
- Can a photo of the end bracket be supplied?

Contact Customer Service at Electro Static Technology for a quote.

Ph: 1-866-738-1857 or sales@est-static.com



Bearing fluting, "washboard" pattern on bearing race

**Electrical Damage in the Bearings (EDM) - Pitting, Fluting, Failure**

Damaging currents arc through the dielectric oil film between the rolling elements and the bearing race. This is known as electrical discharge machining (EDM) effect. EDM causes fusion craters, severe pitting, and eventually bearing fluting (a washboard-like pattern in the bearing race) which results in premature bearing failure.