

## Motors Controlled by PWM Drives (VFD) Electrical Bearing Damage Protection



*Engineering Specification:*

*Construction Specification Institute Section 23 05 13*

### MOTORS

23 05 13

#### 2.1 MOTORS

##### A. General Requirements – Shaft Grounding:

1. All motors operated on variable frequency drives shall be equipped with a maintenance free, conductive micro fiber, shaft grounding ring with a minimum of two rows of circumferential micro fibers to discharge damaging shaft voltages away from the bearings to ground.
2. Application Note: Motors up to 100HP shall be provided with one shaft grounding ring installed either on the drive end or non-drive end. Motors over 100HP shall be provided with an insulated bearing on the non-drive end and a shaft grounding ring on the drive end of the motor. Grounding rings shall be provided and installed by the motor manufacturer or contractor and shall be installed in accordance with the manufacturer's recommendations.

##### B. General Requirements – High-Frequency Bonding:

1. All motors operated on variable frequency drives shall be bonded from the motor foot to system ground with a high frequency ground strap made of flat braided, tinned copper with terminations to accommodate motor foot and system ground connection.
2. Application Note: Proper grounding of motor frame for all inverter-driven induction motors
  - a. References: ABB Technical Guide No.5  
Allen Bradley Publication 1770-4.1 Application Data, Industrial Automation Wiring and Grounding Guidelines

Recommended parts: AEGIS® Shaft Grounding Ring  
AEGIS® High Frequency Ground Strap

Recommended source: Electro Static Technology-ITW  
Manufacturer of AEGIS® products  
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**AEGIS® SGR Prevents Electrical Bearing Damage**