

CHECK OUT THE FULL AAKI CORP VIDEO LIBRARY

Find all the content & information you need to know about VFD generated shaft voltages and how to protect your motor bearings in our video library.



BEARING PROTECTION EXPERTISE

PROBLEM DIAGNOSING & TROUBLE SHOOTING

VFD'S & SHAFT VOLTAGES INFORMATION

MOTOR MODEL LIBRARY AND INSTALLATION GUIDES

CHECK OUT THE FULL AAKI CORP MOTOR SHAFT GROUNDING LINE



DISCOVER OUR SOLUTIONS AND EXPAND YOUR KNOWLEDGE ON EDDY CURRENTS

Thank you for your interest in our brochure on VFD induced shaft voltages and how they can cause bearing damage. We are excited to introduce you to our range of solutions that will help you better understand and prevent this poorly understood challenge.

At Aaki Corp, we have been studying and developing solutions to VFD induced bearing damage for many years. Our team of experts has conducted extensive research to create innovative products that will help you tackle this problem head-on.

To learn more about VFDs, shaft voltages, eddy currents, and all things grounding solutions, we invite you to check out our media library by scanning the QR code. Our media library contains a wealth of information that will help you deepen your knowledge and stay up-to-date with the latest developments in the field.

We take pride in our expertise and our commitment to delivering high-quality solutions to our clients. We are confident that our brochure will provide you with valuable information on this phenomenon and how it can damage your bearings.

If you have any questions about our products or services, please do not hesitate to reach out to us. Our team is always ready to help you with any inquiry you may have.

Thank you for exploring our brochure and our motor shaft grounding line. We look forward to hearing from you soon.

Best regards,

Andy Kveps

Andy Kveps, P.Eng.
Owner & Head of R&D
Aaki Grounding Solutions

WEBSITE WWW.AAKI.CA
PHONE 1-888-899-AAKI (2254)
EMAIL info@aaki.ca
YOUTUBE [@aakisolutions](https://www.youtube.com/@aakisolutions)

IF VFD'S ARE DRIVING YOUR ELECTRIC MOTORS...

YOUR BEARINGS ARE AT RISK TO

DAMAGE

CAUSED BY

SHAFT VOLTAGES

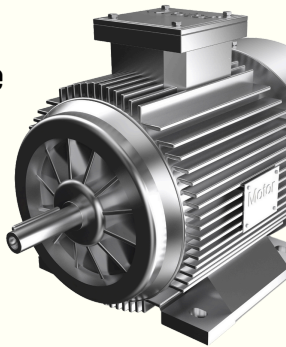


End
User
Copy

70% OF ELECTRICAL
MAINTENANCE COSTS
in the USA are due to electric motors
FAILING.

The majority of these
failures are due to

**BEARING
WEAR &
DAMAGE!**



Here is a breakdown of
why this is happening!

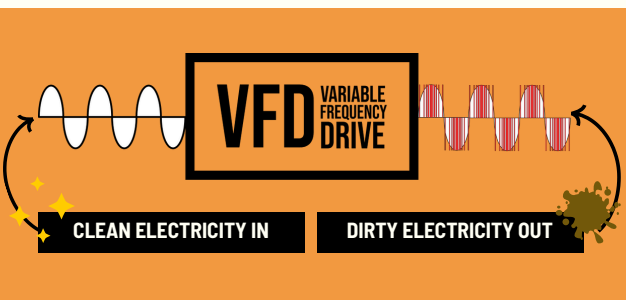
1 Variable Frequency Drives

Variable Frequency Drives (VFDs) are electronic devices used to control the speed and torque of electric motors.

VFDs allow motors to operate more efficiently and over a much wider operating range and are used in every industry, BUT they can also be a source of problems.

VFDs take a clean electrical sine wave, chop it up, and then feed it to the motor in a pulsed waveform that loosely resembles a sine wave.

This "dirty" sine wave can cause a subtle voltage to build up in the motor shaft.



2 Shaft Voltages

Why don't shaft voltages dissipate through the motor's housing to ground? Although the motor shaft and housing would seem to be electrically connected, they are in fact *isolated* from each other by the thin layer of grease protecting the shaft bearings.

As shaft voltages build up due to VFD side effects, this voltage will eventually cause a small spark to travel from the shaft through the grease and through the bearing.

This tiny spark eats away a small amount of the bearing and race in a process known as Electro Discharge Machining or EDM.

This damaging effect can occur hundreds of times per second.

3 Frosted, Fluted or Pitted Bearings

Frosted, fluted or pitted bearings are the result of the damaging effects of shaft voltages (shown below).

Early signs of this damage are blackened grease and a motor that "howls".

In as little as a few months, the bearing and the race can be destroyed through frosting or fluting and will need to be replaced.



HOW DOES THIS IMPACT YOU?



Replacement bearings are expensive.
Labor to replace them is even more.
Downtime costs could be bigger yet.

Shaft currents can damage more than your motor. If not properly bypassed to the ground, they will keep travelling downstream through all of the equipment electrically tied to the motor.

This puts your pumps, fans, compressors, and any other type of inline equipment at risk.

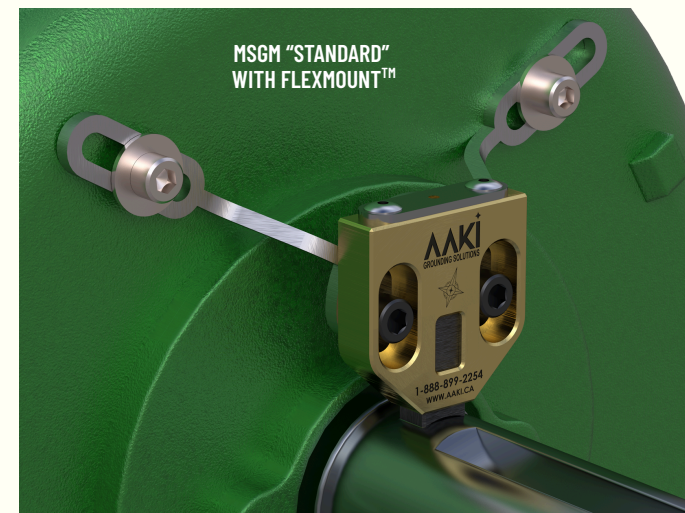
PROTECT YOUR ELECTRIC MOTOR
BEARINGS FROM SHAFT VOLTAGES
WITH AN AAKI GROUNDING MODULE



MSGM "MINI"

THE AAKI GROUNDING MODULE WAS
BUILT WITH SIMPLICITY IN MIND.

Difficult motor installations
become a breeze with Aaki's
innovative Motor Shaft
Grounding lineup featuring the
patent pending Flexmount™
System.



MSGM "STANDARD"
WITH FLEXMOUNT™