

CASE STUDY



SAVING COMPRESSOR MOTOR BEARINGS

Preventing Bearing Damage with Bearing Protection Kits™

VFD Induced Bearing Failure

A Wisconsin based manufacturing company, Bradley Corporation, was losing compressor motor bearings almost every year on their main compressor units. The Atlas Copco compressors, with 243HP Siemens motors, were failing due to induced shaft currents generated by the VFDs (GA180 VSD-FF) that control each compressor motor. The unexpected downtime was costly and not something the manufacturing company could continue to deal with on a long-term basis.

Another Wisconsin company, Wenniger Compressor, became involved in the situation and did some preliminary research. Their research found Helwig Carbon Products Bearing Protection Kits™ to be a viable and local solution!

At this point, Bradley Corp & Wenniger Compressor asked Helwig's trusted team of Engineers to step in to determine the correct course of action.

Analyzing the Situation

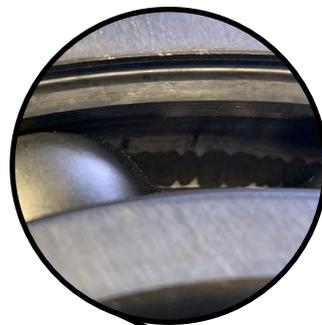
Helwig's team of Engineers were given access to both compressor motors to perform diagnostic testing with their patent pending BPK-Probe™, a shaft voltage detection device. Helwig's test device was designed to measure for induced shaft voltage and determine the risk to the motor bearings.



BPK-Probe™

After measuring for shaft voltage with the BPK-Probe™, it was promptly verified that both VFD driven compressor motors needed bearing protection!

“compressor motor bearings...were failing due to induced shaft currents generated by the VFDs”



Actual damaged bearing from 243HP Siemens Motor

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The initial BPK-Probe™ measurement displayed a FAILED, 6.3 volts on the compressor motor shaft

“SELECTED DUE TO ITS ROBUST DESIGN AND SUPERIOR DEPENDABILITY”



Measurements after the BPK-4 install displayed a PASS, less than 1 volt on the compressor motor shaft

BPK-4 Saves The Day

Helwig’s BPK-4 was selected due to its robust design and superior dependability. After new bearings were installed on each 243HP Siemens compressor motor, the kits were installed using a drill and tap method. Specifically, each kit was installed on the shaft inside the motor fan cover.

Following the startup of each newly repaired compressor motor, another round of BPK-Probe™ voltage tests were conducted. The voltage measurements on shaft of the motors confirmed immediately, **peak voltage was reduced from 6.3 volts to less than 1 volt!**

No More Bearing Failures

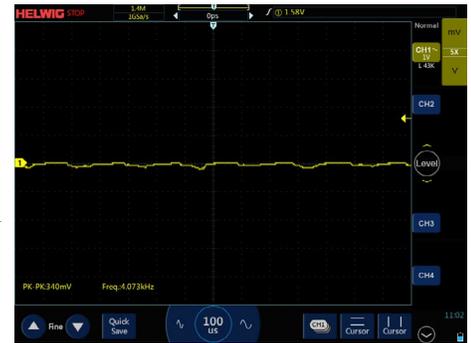
Both of these Bradley Corporation compressor motors were fitted with Helwig BPK-4s back in 2018 and with little to no wear and less than 1 volt peak-to-peak are still running as good as the day of installation. Each Siemens compressor motor has not experienced any bearing troubles as the induced shaft currents have been **completely mitigated!**



OVERALL SIZE
.5" x 1.5" x 1.38" inch
(12.7 x 38 x 35mm)

FEBRUARY 2020

Oscilloscope screenshot from a BPK-Probe™ test from Bradley Corporation compressor motor with the BPK-4



ABOUT HELWIG CARBON

Helwig Carbon Products, Inc. is the premier, family-owned, American manufacturer of carbon brushes, brush holders, spring assemblies, bearing protection kits, metal graphite brushes, and mechanical carbons. Since 1928, we have forged innovations that have since become industry standards and requirements. We pride ourselves on manufacturing all of our products to the highest standard and performance because we know your application depends on it!



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