Prevent Generator Bearing Failures with AEGIS®

Generators……large and small are subject to electrical bearing damage from circulating currents. Insulated bearings prevent the flow of current but often transfer damage to the motor's opposite end bearing. AEGIS® Rings, on the other hand, provide a safe path around the bearings for such currents, improving reliability and reducing costly downtime and repairs.

Just like high-power motors, generators are subject to circulating currents that can cause electrical bearing damage and failure, often in a very short time. In fact, more than half of all generator failures are due to bearing failures.

These circulating currents travel from the frame through one bearing, then along the shaft to the other bearing, then back to the frame. To interrupt these circulating currents, generators are typically equipped with an insulated bearing on one end of the motor shaft. But this approach doesn't always work, and bearing failures still occur. This was the case at an American hydropower plant, where the cost just to disassemble a turbine generator reached $1.5 million!

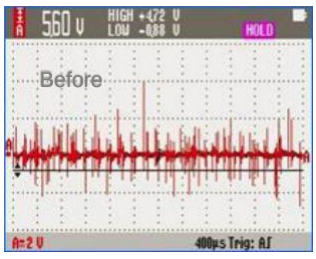
To protect against the high repair and downtime costs of electrical damage to generator bearings, an added layer of protection is needed.

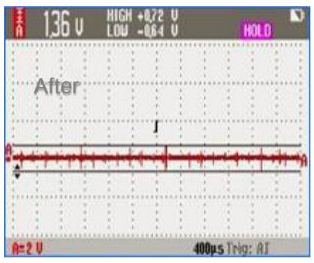
Grounding the shaft provides a shaft-to-frame path of lower resistance than a path through a bearing. But traditional shaft grounding methods like carbon block brushes and wire bristle brushes require frequent replacement or adjustment to maintain shaft contact. This is a hazardous job if the generator is kept online during this maintenance.

In contrast, the AEGIS® iPRO Ring encircles the generator shaft with conductive microfibers, providing millions of contact points with the shaft and creating a low-resistance path for damaging currents. These long-lived microfibers are designed to flex without breaking and have been shown to withstand over 2 million direction reversals. They work with ultra-low friction for minimal wear and last for the L10 life of the bearing.

The AEGIS® iPRO-MR combines high current capacity shaft grounding with real-time shaft voltage monitoring in a single compact ring. For remote or hard-to-access generators, the iPRO-MR is fitted with a lead wire for connection to a wireless or hard-wired transmitter, SCADA system, or building automation system. The iPRO-MR is ideal for mission-critical applications where, in addition to unmatched bearing protection, it provides the peace of mind that comes from real-time remote monitoring of actual shaft voltage levels.

In addition to protecting generator bearings, the AEGIS® iPRO also improves power quality by bleeding off high-frequency components of generator output.





Readings taken from a generator with one isolated bearing show shaft voltages high enough to damage bearings.

Readings taken after installation of an AEGIS® iPRO Ring show voltages reduced to non-damaging levels.

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