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New Shaft Grounding Brush Extends Life of AC and DC Motors

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Of *The NEWS* Staff

With the increasing use of variable-frequency drives (VFDs), there is increased generation of electrical currents on shaft motors, causing electrical damage to bearings. Manufacturers and end users have been looking for an effective strategy to protect the motor and reduce bearing noise, motor repairs, and downtime in order to prevent catastrophic motor failure.

Electro Static Technology, Mechanic Falls, Maine, recognizes the need to prevent electrical damage and to extend the life of AC and DC motors.

The company recently introduced its Aegis SGR™ Conductive MicroFiber™ shaft grounding brush (SGR). According to Adam Wilwerth, sales and marketing manager for Electro Static Technology, "The SGR prevents electrical damage to motor bearings by safely channeling harmful shaft currents to the ground. The currents are channeled through the SGR instead of the motor bearings."

Currents induced in electric motors will always seek the path of least resistance to ground. Without a safe discharge path, the current discharges may eventually lead to motor failure. The SGR channels the currents away from the bearings in the motor and attached equipment.

The SGR is available in 137 standard sizes for all AC and DC motors with motor shaft sizes from 0.311 inches to 6.02 inches. Larger sizes are available upon request.

BENEFITS TO SERVICE/REPAIR CONTRACTORS

One of the benefits to contractors, in-house maintenance departments, repair shops, and OEMs is the fact that the SGR is easy to install in the shop or in the field.

"The Aegis shaft grounding ring worked very well in our application," said Tom Hall, engineering sales for Colby Equipment, Indianapolis. "The air-handling fans with electric motors were already on the jobsite and could not be turned on until the grounding devices were installed.

"I was familiar with the shaft grounding brush technology. In this situation, it would have been more difficult to field install this type of grounding system. Fortunately, I

discovered the Aegis system while searching the Internet for options. The contractor who installed these devices in the field indicated the installation was clean and simple."

The SGR can be installed with external mounting brackets that clamp directly to the motor end bell. Installation may be on the drive end and/or the nondrive end of the motor, depending on the application.

"The timing [for this product] was good, as we are starting to see an increase in specifications calling for some sort of protection from the problem these devices tout to eliminate," said Chris Smith of Fuller Engineering, Carmel, Ind.

"We have utilized the Aegis product on several motors to date. It seems to work as advertised. It should be a very workable option for organizations like ours. We currently need to pick up the motor and bring it to a fabrication shop to have these devices mounted. This increases handling time and cost."

BENEFITS TO THE CUSTOMER

Easier installation means lower costs to the customers, too. Michael Moersfelder, senior HVAC sales engineer for ABB Power & Control Sales, New Berlin, Wis., said, "Customers are keenly aware that any motor service, as involved as changing bearings, costs the facility both the actual cost of the teardown and repair; downtime; and the lost use of the equipment. Those few customers that have experienced bearing loss are looking for a practical solution that is cost effective. Of the solutions ABB has used, this system has proved to be the most practical to implement."

As important as any of these benefits are, the bottom line is that motors last longer and cost less to operate. Business owners who don't know the benefits of the SGR either don't know enough about it or depend on their service/repair contractors to provide the most cost-efficient and reliable equipment solutions available.

Jeremiah Plagge, product specialist for Greenheck Fan, Schofield, Wis., identified why the SGR is reliable. "One of the single biggest factors that we like about the brush is

that the end user does not have to perform any maintenance on the brush for the life of the product,” he said.

“This means the brush is guaranteed for the life of the motor. As companies and organizations continue to run leaner in today’s society it is important for all HVAC manufacturers to do what they can in order to keep maintenance costs down for the end user.

“The Aegis SGR is an excellent alternative to traditional shaft grounding methods. In the past, motor vendors along with HVAC manufacturers have been limited with shaft grounding options because of fit and space requirements,” said Plagge. The Aegis SGR has eliminated all those limitations because of the size and effectiveness of the brush.”

Moersfelder concluded that the SGR offers the best blend of benefits for both the manufacturer and the end user. He noted two examples. “One system requires a mechanical brush that requires maintenance and a precise installation. Another system requires precise machining of the shaft and has a mercury switch.

“The isolated bearing system requires the motor to be ordered with that option, and is an expensive retrofit in the field. In contrast, the Aegis system is easy to install; either prior to the motor installation or afterwards as a retrofit.” ■

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Shaft Current Kills HVAC Motors

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