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It's true: an ounce of prevention is worth a pound of cure. Proactive motor maintenance and planning keeps you from having to cure a crisis, plus it's easier and less costly than taking a reactive approach. Establishing a routine maintenance program for your industrial motors can alert you to problems before they happen so that you can schedule downtime and plan for motor repair and replacement and prevent the surprise failures that bring productivity to a standstill.

Healthy motors are crucial to your operations, and there are several preventive practices and tests that can help you keep them that way. As a rule, motors should be kept appropriately lubricated and clean. Assuring that each motor has the proper amount of lubricant, as indicated by the manufacturer specifications, can prevent one of the major causes of premature motor failure—*excess lubricant being forced out of the bearing housings and damaging motor windings*. Motors also must be kept free of debris and buildup. Clean, clear air passages provide access for heat to dissipate away from the motor and fresh air to reach the motor to cool it.

Periodic testing, including insulation resistance testing, polarization-index testing and vibration testing are all important—*and should be conducted at regular intervals*. Just how often depends on the type of motor, the application and the operating environment. It is equally important that the results for each test be recorded. This provides the means to track motor performance over time and ultimately indicates when a motor should be repaired or replaced, before a surprise failure or other problem occurs.

Insulation resistance tests identify signs of insulation deterioration. These tests can be affected by temperature and humidity, so it is important to have consistent conditions when these tests are conducted. *Polarization-Index* (P-I) tests detect contamination that could damage windings. These tests also can help to identify gradual deterioration of insulation. It is particularly important to include P-I tests in your routine maintenance program if you suspect that a foreign substance has contaminated the insulation system.
Vibration
testing identifies several key factors, including wear on the bearings, mechanical looseness, misalignment, defective belts and rotors and electrical unbalance.

Sound motor management includes a routine maintenance program, and can help reduce downtime, decrease energy costs and increase productivity. Knowing when downtime, motor repair and motor replacement will occur— *rather than being surprised by a crisis*—lets you plan

ahead, ensure production and save money. In addition to lost productivity, surprise system downtime frequently forces a costly capital investment in the rush to buy the motor that's most readily available, as opposed to investing in the motor that best meets your operational and efficiency parameters.

There are many resources available to help you develop or enhance your motor maintenance program. The Motor Decisions Matter (MDM) Campaign, sponsored by utility efficiency programs, motor manufacturers and motor sales and service centers, offers free tools, such as the Motor Planning Kit, and links to helpful resources on the MDM Website: www.motorsmatter.org. UM

The Motor Decisions Matter campaign is managed by the Consortium for Energy Efficiency, a North American nonprofit organization that promotes energy-saving products, equipment and technologies. For further information about MDM, contact Kellem Emanuele at kemanuele@cee1.org or (617) 589-3949, x225.