



Motor Efficiency Tip Sheet

Understanding the true costs of operating a motor, planning for motor failure and making sure the correct motor is used for each purpose, can result in substantial energy savings. Below are answers to common questions which may help you tap into the savings that are possible through efficient motor operation.

Q. How do I determine if my motor is efficient?

A. If your motor is not a National Electrical Manufacturers Association (NEMA) premium motor it is not considered to be an efficient motor. In 2011 NEMA introduced a premium energy-efficiency motor standard. Motors purchased since then may or may not be NEMA certified. If a motor was purchased before August 2011, assume that it is not an efficient motor. If it was purchased after August 2011, check with your supplier on whether or not it is a NEMA premium motor.

Q. How much money can you save with an efficient motor?

A. According to the U.S. Department of Energy, annual cost savings for a NEMA premium motor ranges from \$250 for a 10 horsepower motor to \$2,350 for a 200 horsepower motor. Since most situations do not require that the motor run at full speed all the time, savings can also be boosted through use of a variable speed drive (VSD). If an application doesn't require an electric motor to run at full speed, a VSD can be used to reduce the frequency and voltage to meet the requirements of the electric motor's load. As the application's motor speed needs change, the VSD can adjust the motor speed up or down to meet the speed requirement.

Q. How do I develop a motor management plan?

A. A great place to start when developing a motor management plan is Motor Decisions Matter at motorsmatter.org.

Q. What is an electrically commutated motor (EC)?

A. Electrically commutated (EC) motors can reduce energy consumption in refrigeration systems by 40 to 70 percent compared to conventional shaded pole motors on evaporator fans. EC motors can also allow for the introduction of controls that slow the evaporator fans during periods of unnecessary full-speed operation, resulting in additional energy and cost savings.

Vendors are now producing new easy drop-in replacement EC motors that can be retrofitted into your existing refrigeration system, minimizing labor costs. Most electric utilities offer rebates which can result in shorter payback periods.

Need help or have questions? Call Energy Smart at (651)292-4653.