

Electric motors efficiency checklist

Buy the right size motor

Before replacing a burned out electric motor, verify that the old motor was sized correctly. Don't assume that it was the right size. Over or under-sized units will operate at reduced efficiencies. You may need a professional to help you determine the appropriate motor size.

Consider a high efficiency motor next time

Motors are available in standard and high efficiency models. It almost always pays to replace a burned out standard efficiency motor with a high efficiency motor. A high efficiency motor may cost more, but electricity savings can quickly make up for it.

Shopping for high efficiency motors

Manufacturers use words like "high", "premium", "super", or "extra" to describe their high efficiency models. But check the information from the motor nameplate or the manufacturers' literature to compare. In addition to the horsepower rating and the nominal efficiency of each motor, you must have estimates of how hard the motor will have to work (mechanical load) and how many hours per year it will run. The example shows that attention to efficiency ratings can result in significant savings every year for a 20hp motor that runs continuously. The payback of the extra cost for the higher efficiency motor can be very fast.

Adjustable speed drives and other options

Often you don't need the full power that motors can produce. To get the motor power output that's required, you have three options: "throttling", which lets the motor run at full speed but chokes off some of its power output. This wastes energy.

Consider equipping the motor with an adjustable speed drive, which will allow the motor to run at less than full speed. In some situations, the best solution will be several smaller motors that run individually or ganged.