Making the Right Decisions to Reduce Energy Costs

SinaSave® Software Tool Helps Make the Right Choices

Our SinaSave software tool can show you how fast an investment in a Siemens energy-saving motor or variable frequency drive amortizes. Based on your application's characteristics, the program determines how much energy you'll save in a specific application. The amortization period is calculated based on the overall monthly energy savings and the purchase price of motors or variable frequency drives. Many times the amortization period is just a few months. From then on, the energy savings you will receive will go to reducing plant operating costs.

To start using this valuable tool, go to:
www.siemens.com/energysaving

Variable-Speed Motor Control Squeezes Out Savings

Pumps, fans and compressors are often controlled by traditional tried and tested control methods such as valves and throttles. With these methods, the motor is constantly running at rated speed with maximum flow rate – although this is rarely required in practice.

The result: continuous motor operation with a high power loss. By using a variable-speed drive to adjust flow rates, motor energy is power-matched to the load requirement, significantly reducing energy costs.

Consider the Gearbox

If your application requires a speed reducer, your choice in the type used can make a significant impact on energy savings. Worm gear drives, for example, have efficiencies from 77 to 85 percent depending on ratio. Inline helical and right angle helical bevel gear drives, on the other hand, deliver between 96 to 98 percent input to output operating efficiencies. Choosing these better efficiencies can reduce energy consumption by 13 to 21 percent.

Siemens NEMA Motors. A Wide Selection of Choices to Meet Your Needs

Our new lines of NEMA aluminum frame motors build on our reputation for rugged and durable motor performance. From simple open drip proof motors and cast iron TEFC motors, to sophisticated NEMA motors that meet or exceed IEEE 841 and NEMA Premium™ standards, you can trust Siemens for the right solution – every time.

Siemens Energy Efficient Motors
The Right Choice for Optimum Cost Savings

nema MOTORS

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SIEMENS

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Motor Efficiency. It is All About Saving Money to Reduce Operating Costs

The new lines of Siemens aluminum and cast iron frame motors have been developed to provide the rugged performance and long service life you have come to depend on us for – plus exceptional operating efficiencies to further reduce your company's cost of ownership.

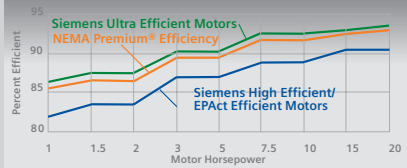
How important is motor efficiency? Just one percent efficiency gain on a 20 horsepower motor can lead to over $2,500 of energy savings over the 20-year normal life of a motor. When you multiply that by the number of motors in your facility, it is easy to see that choosing motor efficiency wisely can produce significant savings.

Helping our environment is also another good reason to choose the best motor efficiencies possible. According to the U.S. Department of Energy, industrial electric motors use approximately one-half of the nation's total power from fossil fuel-powered electrical generation plants. Reducing industrial electric motor energy usage through more efficient designs has the potential to reduce greenhouse gas emissions from these plants.

Two Choices for Motor Efficiency

Siemens offers two choices for low cost operation to meet your specific needs. Our High Efficient motors meet, and often exceed, United States EPAct and Canadian CSA efficiency requirements. The Siemens line of Ultra Efficient motors has been designed to exceed NEMA Premium® standards up to 10 percent for optimal energy savings.

No matter which efficiency level you choose, you will find that dollar for dollar, the newest lines of Siemens motors provide the best operating efficiencies available.



Choose Better Efficiencies for Reduced Equipment Operating Costs

All Siemens motors are available with either a high efficient design that meets or exceeds EPAct standards, or ultra efficient design that exceeds NEMA Premium standards. Either way, Siemens motors are the right choice for energy savings.

A unique die cast copper rotor design is one of the key elements that enable Siemens Ultra Efficient motors to exceed NEMA Premium® efficiency standards.

Efficient by Design

Siemens engineers evaluated each component that affects motor operating efficiency and developed individual systems within our motors that form a complete system to maximize energy usage.

Reduced Heat – Excessive motor heating is one of the primary causes of poor operating efficiency and short service life. The advanced cooling system developed for our newest motors is based on minimizing or preventing heat sources within the motor, and then quickly dissipating any remaining heat. This highly refined system includes:

- An engineered, finned-frame design features a large surface area to provide better heat dissipation than conventional cast iron or rolled steel frame designs. For general purpose applications, our aluminum frame motors provide exceptional heat dissipation, especially compared to rolled steel designs.
- High flow volume polycarbonate fan and unique radial air slot fan cover provides optimum air flow.
- Low-inertia design of all rotating components, including low friction bearings, reduces heat buildup caused by windage and friction.
- The stator core and rotor are designed work together to quickly transfer heat from inside the frame.

Maximized Electrical Performance – The advanced electromagnetic design of these motors optimize energy within the motor for maximum efficiency. Innovations include:

- A proprietary NEMA Class F non-hygroscopic insulation system with a Class B temperature rise at a 1.0 service factor. This system includes 100% fill polyester fiber or varnished glass cloth phase insulation with random wound magnet wire that is heavy terephthalic polyester-coated with an Alimide-limide overcoat. It provides exceptional electrical efficiency.
- Specially designed air gap between the rotor and stator minimizes harmonic rotor and stator surface losses along with harmonic losses in the stator.
- A unique die cast copper rotor design used in Siemens NEMA Premium Ultra Efficient motors provides exceptional electrical performance.

Precisely Manufactured – Close tolerance manufacturing of this new line of motors ensures consistent maximum efficiencies.

- To reduce stray load losses within our motors, the tools and processes used to manufacture these motors have been developed to provide consistent and highly accurate performance.
- All rotors are dynamically balanced before assembly to minimize friction to enhance efficiency and provide long bearing life.
- End shields are precision-machined for accurate rotor, bearing and frame alignment to keep efficiency-robbing friction losses to a minimum.

Siemens Ultra Efficient Motors Exceed NEMA Premium Standards for Efficiency

GP100A Aluminum Frame Motors

Light weight, yet strong GP100A aluminum frame motors significantly reduce plant energy costs and pay for themselves in a short time through energy savings. They are the right choice to replace rolled steel motors in a variety of general purpose applications.

GP100 Cast Iron Frame Motors

GP100 general purpose motors are an ideal solution for energy savings in a variety of applications including material handling, pump, fan, compressor, packaging and other industrial uses.

SD100 Severe Duty Motors

These industry workhorses are ideal for use in the toughest chemical processing, mining, foundry, pulp and paper, waste management and petro chemical applications. They are available with a wide selection of application-matched modifications. Rugged and efficient operating performance, is what you expect from Siemens.

SD100 IEEE841 Severe Duty Motors

This is the ultimate NEMA motor. It has been designed to exceed IEEE 841-2001 standards for efficiency, performance, construction, variable speed operation and long service life in the most demanding applications. This motor's highly-engineered design and rugged construction features are backed by a five-year warranty.