A Closer Look at Top Innovations

How the Software Motor Company is changing energy. The Software Motor Company (SMC) designed a mechanically leaner, sustainable future. 

"Equally important, because the SMC motor provides ongoing feedback, it provides prescriptive notification well in advance so our customers can take corrective action and mitigate any performance issues," Morris says.

**Looking Ahead**

By bringing the Internet of Things to the electric motor industry and designing the "LED of motors," SMC is well positioned to provide value-added services that solve everyday commercial energy challenges. SMC is also the only electric motor provider that offers a five-year warranty. In the coming months, SMC plans to release the certified findings of its lab and field tests. The company currently random motor fans from FIP and plans to introduce models up to 2HP and 1HP this year.

"Motors are the proverbial lost-hanging light that comes to driving dramatic improvements in building energy efficiency," Morris says. "The widespread adoption of these motors will be a big step toward a greener, more sustainable future." 

**SWITCHED RELUCTANCE MOTOR**

**How to Get It**

Visit softwaremotor.com or call 603-226-6377

**SMC motors are made of high-quality raw materials and are self-serving by design.**

**SMC energy reduced by up to 45%**

**Superior motor efficiency**

**Smart Motor Drive automatically optimizes operation at optimum speed**

**Longer life expectancy**

**True induction motors**

**Intelligent notifications via the cloud**

**Cost-effective retrofit**

**User-friendly I/O controls**

**Made of high-quality raw materials**

**Inductry leading flow/flow motor warranty**

**Reliability**

The ultra-premium design that makes the motor more efficient also makes it more reliable. A standard motor will fail when it overheats, as the heat impacts winding insulation and bearing lubrication. SMC motors run cooler and release overheating failures. SMC motors use ordinary grade bearings and indestructible independent coils that are fully encapsulated. Another growing reliability challenge for induction motors controlled by VFDs is "fluting," bearing damage caused by numerous small arcs from rotor currents. Because the SMC motor has no rotor currents, this isn’t an issue. Electronic cooling fans (ECMs) for VFDs are introduced in the 1980s, gaining traction in HVAC, but can also fail when their gears fail or exhaust and inlet magnets. SMC motors do not use magnets. And, unlike induction motors that can stop working when one of its phases drops out, the SMC motor continues operating because its intelligence automatically takes control and prevents the two remaining phases. "These are a few of the ways SMC avoids the fault that plagues the induction motor," Morris says.

**Intelligent Controllability**

Variable-frequency drives (VFDs) in induction motors can control motor speeds but can’t provide intelligent feedback. SMC’s motor collects this data because it is self-sensing by design. No external sensors are needed because the motor is the sensor.

**Energy Efficiency**

SMC’s motors are either standard or premium efficiency. SMC motors are in the ultra-premium category and demonstrate better than what you get from standard or premium efficiency motors."—Richard Almini, president and CEO of Legacy Mechanical & Energy Services, an energy-focused HVAC design/build firm in the San Francisco Bay Area.

Spectrum’s company conducted eight pilot projects with customers in different industry sectors to demonstrate the SMC motor’s energy efficiency. It resumed the energy savings by attaching watt meters to the motor’s power source. The watt meters are fed into the SMC controller that automatically uploads performance data to the cloud. "We consistently documented energy savings in real-time starting as soon as the motor was operating," Almini says.

Legacy customers were so impressed with the smart motor’s capabilities that it contracted to install motors in eight additional locations.

Other companies have intelligent controls, but they deal with the smart motor as designed to be smart and more reliable. One of the main selling points to our customer base has been its affordability. It costs less to purchase than variable-frequency motors and its streamlined design and simplicity make it much less expensive to operate. "It’s not just the physics that are more efficient. SMC motors maintain efficiency at slower speeds where the best aftermarket motors are achieved. The total annualized energy savings is four fold; when comparing SMC motors to induction motors running at variable speeds—averaged 45%. At reduced speeds used for heating, cooling, and venting, the savings were as high as 95%.

Contractors are ultimately in the business of saving energy for their customers. SMC’s motor is a cost-effective way to take the biggest pass out of the energy pie by requiring a company to make a much lower investment than what it would need to replace older HVAC equipment," Prinsloof says. Another saving benefit replacing the motor is a cost-effective retrofit. "It takes an average of two hours to remove an existing motor and install a new one," Morris says. Morris.

**Intelligent overheating sensors**

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**Benefit**

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