SMC™
SOFTWARE MOTOR COMPANY

CASE STUDY

Leading National Grocer Takes Industry-Leading Sustainability Action by Upgrading HVAC Fan Motors

The Challenge

As a Better Buildings Challenge Partner, this international grocery chain was already using submetering and monitoring tools to measure, analyze, and publicly share the performance of its energy efficiency and climate protection initiatives in its stores. It was also working with manufacturers, trade allies, industry peers, the Department of Energy, the Environmental Protection Agency, and other organizations to further its energy efficiency goals.

But the company was interested in doing more. They wanted to reduce HVAC system energy and facilities maintenance costs in accordance with their sustainability program and profitability goals. Maintenance costs specifically related to failures of its variable frequency drive (VFD) motors when bearings overheated also needed to be addressed. The solution needed to provide intelligent controls and system monitoring. It also needed to be highly reliable and fault resistant.

The Solution: Upgrade Supply Fan Motors with the SMC Smart Motor System

The company selected Software Motor Company to implement an innovative solution addressing its key needs: fan energy savings, intelligent controls, and improved monitoring of the HVAC, refrigeration, and pump systems.

The store's facilities contractor replaced two, single-speed, three-year-old Baldor supply fan motors with an SMC Smart Motor System. The system featured a wireless LAN connection to each rooftop unit (RTU) to establish a two-month energy baseline for all heating and cooling modes. Run hours for each mode were determined using data from the building automation system. A power meter was also installed.

Profile

Industry-leading grocery chain specializing in selling food products without artificial preservatives, colors, flavors, sweeteners, and hydrogenated fats

BUILDING SIZE
67,613 sq. ft.

HVAC SYSTEM SIZE
2 rooftop units (RTUs)

SMC SMART MOTOR SYSTEM SIZE
4 HP

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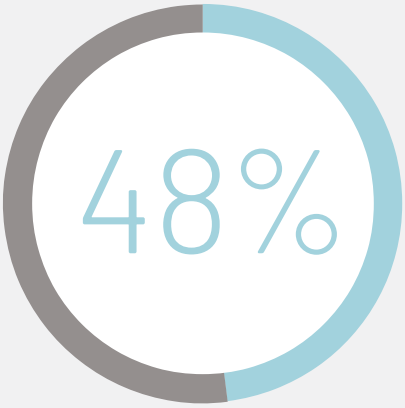
Results

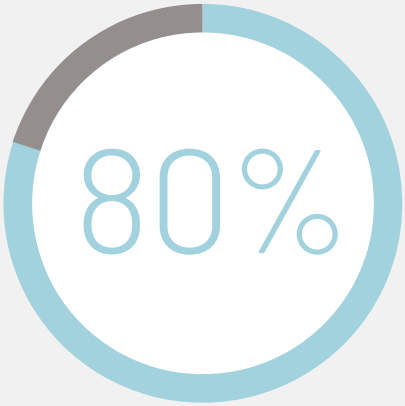
By replacing two RTU fan motors with the SMC Smart Motor System, the company achieved significant energy savings and added intelligent controls and monitoring to its system. Savings were so significant, the company committed to upgrading additional stores with the SMC Smart Motor System.

EFFICIENCY

- In a comparison of baseline data with data collected after the motors were installed (using a weighted average for heating and cooling modes), the company realized annualized HVAC fan motor energy savings between 46-48%
- The upgraded system also achieved over 80% savings during ventilation mode and more than 30% savings during the heat/cool mode, while maintaining comfort for employees and shoppers
- The increased efficiency supports the company's commitment to reduce energy consumption by 20% by 2023, compared to a 2010 baseline



OVERALL DECREASE IN FAN ENERGY CONSUMPTION



FAN ENERGY SAVINGS DURING VENTILATION MODE

FAN ENERGY SAVINGS DURING HEAT/COOL MODE

$8,700/RTU

ANNUAL SAVINGS SUPERMARKETS CAN GAIN BY INSTALLING **HIGH-EFFICIENCY UNITS**

20% **HVAC ENERGY SAVINGS POSSIBLE**
BY RETRO-COMMISSIONING AN EXISTING HVAC UNIT

Source: Retail Industry Leaders Association, Energy Savings Opportunities and Tactics for Retail

The Silicon Valley based Software Motor Company is setting a new standard of efficiency, reliability, and intelligence with the SMC Smart Motor System. SMC combines modern computing and software control with the proven reliability of switched reluctance motor technology to achieve an unprecedented optimal efficiency. The patented SMC Smart Motor System only uses energy when it is needed, thereby significantly reducing space conditioning and refrigeration energy costs. A fully programmable IoT controls package facilitates maintenance savings and easy integration with existing building systems.

POWER IS VALUABLE. USE IT INTELLIGENTLY.

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