SMC
SOFTWARE MOTOR COMPANY

CASE STUDY

Multinational Biotech Company Improves Reliability of Headquarters' HVAC System and Realizes Annualized Fan Motor Energy Savings of 63%

The Challenge

A global biotech company wanted to improve the efficiency of the HVAC equipment at its San Francisco headquarters. It had multiple requirements for the upgrades. The system had to: 1) reduce maintenance costs through fault detection and systems diagnostics, 2) minimize potential losses from production downtime through greater reliability, and 3) adhere to current Good Manufacturing Practices (cGMP) guidelines from the FDA.

The company was committed to taking advantage of a utility program that provides incentives for high-performance new building design and construction that exceeds energy efficiency standards. Because energy efficiency is a competitive metric for biotech companies, the company evaluated its operations, looking for ways to continuously reduce its environmental impact by reducing energy consumption. It was already working with the utility company to increase the efficiency of pumps and motors in their production manufacturing facility, but they wanted to do more.

The Solution: Upgrade Fixed Speed Induction Motors with the SMC Smart Motor System

With its simple design and ultra-high efficiency across a wide range of speeds, the SMC Smart Motor System was selected to replace the fixed speed induction motors in three of their HVAC rooftop units (RTUs).

Profile

Global biotechnology company providing innovative therapeutics to patients with serious unmet medical needs

BUILDING TYPE
Biotech Company Headquarters

HVAC SYSTEM SIZE
3 rooftop units (RTUs)

SMC SMART MOTOR SYSTEM SIZE
6 HP

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Results

The SMC Smart Motor System improved reliability and achieved significant energy savings in the HVAC system with a 2.2-year payback. The company realized greater:

EFFICIENCY

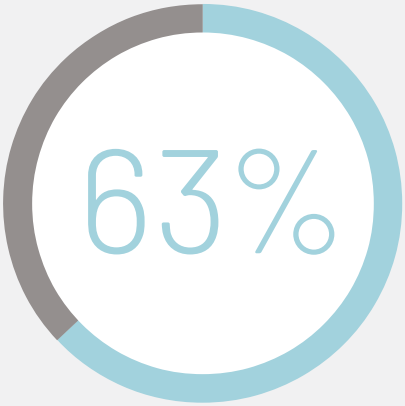
- In a comparison of baseline data with data collected after the SMC Smart Motors were installed (baseline fixed speed: 1,760 RPM), the SMC Smart Motor System delivered total annualized fan motor energy savings of 63%
- For the three RTUs, the SMC Smart Motor System achieved between 28% - 42% savings during heat/cool mode (1,550 RPM) and 76% - 90% during vent mode (690 RPM)

RELIABILITY

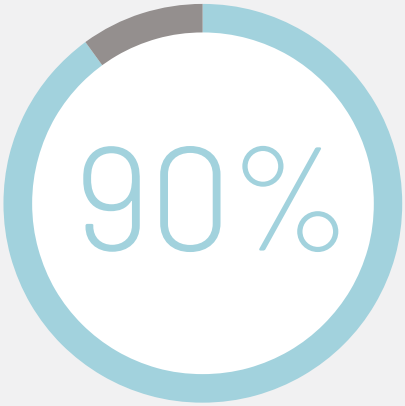
- Increased operational reliability and the ability to use diagnostic trend data to detect anomalies and mitigate downtime lead the company to commit to replacing the motors in exhaust fans in its lab equipment manufacturing buildings

INTELLIGENCE

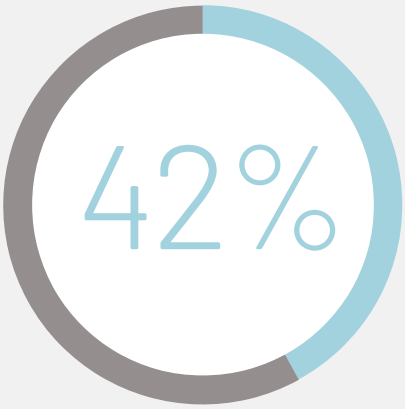
The facilities team was able to conduct data logging on motor torque, supply, return, and external temperatures to develop performance trends from baseline data. The company used the data to detect anomalous operations and proactively maintain the HVAC system, eliminating costly downtime.



OVERALL DECREASE IN FAN ENERGY CONSUMPTION



FAN ENERGY SAVINGS DURING VENTILATION MODE



FAN ENERGY SAVINGS DURING HEAT/COOL MODE

3 RTU BLOWER MOTORS

2.2-YEAR PAYBACK

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.