BALANCING DRIVES ENERGY SAVINGS

A COMMERCIAL FACILITY INSTALLATION

Upgrading an HVAC system to use Armstrong Design Envelope pumps with Pump Manager helped the facility cut energy use and save over $21,000 in annual energy costs.

Chemical Manufacturing Facility, Egypt

Design Envelope is an intelligent, connected technology that tracks system conditions, and dynamically adjusts equipment operation. Pump Manager, a cloud-based service that leverages the intelligence of Design Envelope pumps, allows operators and managers to actively manage the performance of an HVAC system.

Background

As part of an energy upgrade project, a leading chemical manufacturing company in Egypt partnered with Armstrong Fluid Technology and our local representative partner, Gabtic Engineering, to reduce power consumption at its production facility. The primary goal was to minimize pump force during production cooling - an essential step in improving operational efficiency and cutting energy costs. The existing HVAC system included oversized and outdated legacy pumps which contributed to reliability concerns and excess energy use.

Understanding the goals to be achieved, Armstrong suggested replacing the existing system with intelligent Design Envelope pumps, supported by Pump Manager, a cloud-based performance tracking service.

Design Envelope is an intelligent, connected technology that tracks actual system conditions, and dynamically adjusts equipment operation. Pump Manager, a part of Armstrong's Active Performance Management™ suite, is a cloud-based service that leverages the intelligence of Design Envelope pumps, allowing operators and managers to actively manage the performance of an HVAC system.

The upgrade leveraged Auto-Flow Balance technology to determine the actual system demand for flow. The new pumps also provide sensorless parallel operation and best-efficiency staging using the patented Parallel Sensorless Pump Control.

The project was completed without any disruption to system operations, demonstrating Armstrong's commitment to minimizing down-time and ensuring seamless transitions. This simple retrofit helped reduce the facility's annual energy costs from $34,549 to $13,194, a savings of over $21,355 per year, based on continuous operation (8,760 hours per year) and an electricity rate of $0.034 per kWh. In addition to improving system efficiency and reliability, the upgrade also reduced power consumption from a design condition of 116 kW at design head to an actual building requirement of just 44.3 kW, measured after Auto-Flow Balancing. This project is a prime example of how advanced pump technology can be used to meet sustainability goals while reducing costs and enhancing performance.

Tech-info

- Design Envelope Vertical In-Line 4300 pumps
- Pump Manager

FILE NO.: 9.5038
DATE: JUNE 2025
SUPERSEDES: NEW
DATE: NEW