Plant Practices: Metal Manufacturer Finds Ways To Compress Costs

The U.S. Department of Energy (DOE) has suggested that over 50 percent of all compressed air systems at small- to medium-sized industrial facilities have energy efficiency opportunities.

Running energy surveys using data loggers turned out to be a successful way to pinpoint compressed air loss for a NY-based metal manufacturer.

One of the greatest challenges facing building owners and facility professionals today is finding ways to reduce energy costs. The challenge can be even greater in industrial facilities filled with production equipment.

Air compressors, for example, are often one of a production facility's largest energy consumers. In fact, the U.S. Department of Energy (DOE) has suggested that over 50 percent of all compressed air systems at small- to medium-sized industrial facilities have energy efficiency opportunities.

Concerned about its own facility's excessive energy usage, a New York-based metal products manufacturer recently paired up with Power Concepts LLC, a Manhattan-based consulting engineering firm, to conduct an energy feasibility study at the company's production facility. Specifically, the company wanted to perform runtime monitoring on a number of air compressors in the facility in order to understand usage patterns on a 24/7 basis and see where energy reduction opportunities existed.

Betsy Jenkins, Director of the Energy Field Team for Power Concepts [1], led the project. "Our client wanted an energy survey conducted because they felt they

were spending too much money on their facility's energy consumption," explains Jenkins. "They were concerned that their compressors were consuming most of the building's energy and requested that we monitor the runtime on several of their main air compressors."

Consultants like Jenkins use their knowledge and expertise to help building owners and facility professionals identify the largest energy consumers within a facility and make recommendations that can help their clients operate more efficiently and save money.

To monitor compressor runtimes, Jenkins selected HOBO® State On/Off data loggers from Massachusetts-based Onset Computer Corporation. [2] The HOBO loggers were chosen, in particular, due to their reputation for accuracy. "In our line of work, we have to make sure that we are getting the most accurate data," explains Jenkins.

HOBO State On/Off loggers are compact, battery-powered devices that are used for recording on/off status changes. They store time, data, and state information for each change. One state logger was attached to each of the facility's three main compressors to monitor the exact on/off status of each compressor for a two-week period.

Once two weeks worth of data was recorded, it was offloaded onto a PC and analyzed using Onset's HOBOware® Pro graphing and analysis software. The data indicated that compressor run-times were unusually high, and contributed to the facility's high energy demand.

Jenkins and her team then performed a second, more in-depth site evaluation of the building when it was shut-down during the company's lunch-hour. They noted a number of locations where compressed air leaked out of various fittings. In one case, they noted a compressed air nozzle which had an actuating handle that had actually been taped open to disperse fumes.

"Because we conducted our site survey when the building was quiet, we were able to detect a hissing sound that we had never noticed before. We discovered that one of the machine operators was using a compressor nozzle as a fan to blow fumes away from his welding machine. That employee had no idea that he was costing the company a huge amount of money," explains Jenkins. "The situation could easily be fixed by placing a small fan mounted near the machine to disperse the unpleasant fumes at a much lower cost."

The data loggers, according to Jenkins, were instrumental in helping to understand how a large portion of electrical use was attributable to several leaks in the air compressors.

"Before conducting the survey, our client didn't realize how often their compressors were running. The projected cost savings from our recommended energy conservation measures will save the client a substantial amount of money," concludes Jenkins.

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