Hydraulic controls built for ebb and flow

Are your hydraulic-injection molding presses running at full throttle all the time? Not efficient, right? That's why Focus on Energy, Wisconsin's statewide program for energy efficiency and renewable energy, worked with Xten Industries (Xten) to explore the impact of retrofitting the existing pump motors on their hydraulic injection molding presses with variable speed control systems—the results are positive for the plastics industry.

CHALLENGES

Xten, a custom injection molder and contract manufacturer, was near electrical capacity due to company growth. In other words, they were running out of available power. Instead of boosting electrical capacity to the facility, Xten's leadership team gave itself an energy-friendly challenge: reduce the company's energy use.

Xten got to work. The team installed energy-efficient lighting and motion sensors in offices, warehouses, and the production area. Heating and air conditioning improvements were next. However, Xten wanted higher savings. So, the decision was made to improve the efficiency of its core manufacturing processes without compromising product quality.

Xten uses electric and hydraulic injection molding machines to manufacture products. Demand for hydraulic fluid varies greatly during the molding process, yet, pumps ran at top speed all the time in order to meet infrequent maximum demand levels.

ACTIONS

Xten turned to Focus on Energy for objective third-party information to make smart energy decisions about its hydraulic presses. With regard to Xten's budget considerations, Focus selected 13 of Xten's hydraulic presses for energy-efficiency upgrade evaluation.

SyncroSpeed, a variable-frequency drive hydraulic control system, next to Xten's largest press.

About Xten Industries
Founded: 1940
Profile: Xten is based in Kenosha, Wisconsin and develops plastic parts, assembled components, and subassemblies for small- and medium-sized manufacturers.
Website: xtenindustries.com

A computer modeling tool helped estimate the energy savings for each press. Based on the model's findings, four presses were identified as the best candidates for variable-frequency drive hydraulic control systems. SyncroSpeed, a variable-frequency drive hydraulic control system, was installed on these four presses.

Instantaneously SyncroSpeed significantly reduced power consumption by automatically delivering the correct volume and pressure of hydraulic fluid needed at each stage of the process, and no more. SyncroSpeed works entirely behind the scenes, requiring no intervention from personnel during operation or set-up changes.

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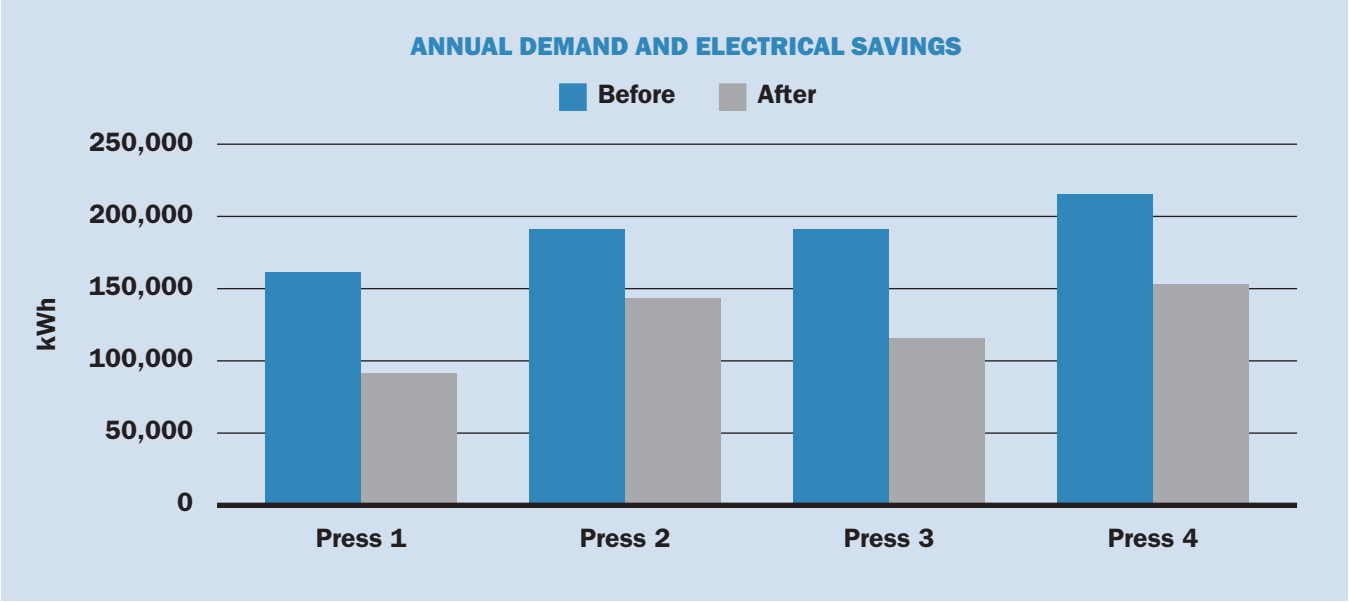

RESULTS

The four retrofitted hydraulic presses use 34 percent less energy, saving Xten 220,000 kWh and $24,000 annually in electricity costs. Focus on Energy provided financial assistance in the form of a lease with no up front costs to Xten. Payments are made based on a portion of the energy savings. An additional $27,000 in Focus financial incentives was also provided. Payback on this project was a little over 2.5 years and four additional presses are scheduled for modification.

"In the past, the motors ran flat out all the time," says Mark Dirr, director of engineering at Xten. "Now with the retrofit controls, they only run just enough to get the job done. This saves a lot of electricity."

BOTTOM LINE

Xten significantly reduced its energy use, improved efficiency, and benefited from Focus on Energy's advice and financial assistance.

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