Heat Recovery Project Yields 50% Reduction in Gas Usage

Case Study

InterFlex Group, Inc., a premier supplier of shrink- and stretch-printed film services, wanted to reduce the cost of energy to operate its MEGTEC MAGNUM™ catalytic oxidizer at its facility in Wilkesboro, N.C. The plant site is not accessible to natural gas lines, so it must operate on propane, a more costly alternative.

The bottom line is process knowledge

Control Panel

Process Heating Coil

The MAGNUM unit was more than 15 years old, had a design VOC destruction efficiency of 98 percent, a thermal efficiency of 70 percent and was rated for maximum air flows of 13,500 SCFM. The decision was made that the most prudent approach would be to retrofit the unit with a heat recovery system as a way to reduce fuel costs.

To justify the capital expense for the retrofit, InterFlex looked at payback as the key justification for the project.

"The challenge today for so many companies is how to keep the cost of doing business at a level that allows them to remain both competitve and profitable," said Chris Worachek, MEGTEC project engineer. "The engineering analysis looked at an entirely new system vs. established equipment with an outstanding uptime rate that was still able to deliver environmental compliance".

"We determined that there was enough physical space to do the retrofit, so that seemed to be the most feasible and economical approach. With a calculated payback of a little more than 12 months, we were confident of great outcomes."

The retrofit was installed in October 2006, with InterFlex doing as much of the work as possible to help keep costs down.

"We're very pleased with the operation and since startup have had no related issues," said Paul Douglas, plant manager at the Wilkesboro facility. He notes that the key benefits and opportunities realized so far include:

- The oxidizer runs in the self-sustain mode 40 percent of the time, compared to 5 percent before the retrofit.
- Heat recovered (added back prior to the oxidizer inlet fan) averages approximately 1,000,000 Btu/hr.
- Fuel consumption (gallons of propane) has dropped approximately 50 percent since the project was installed.
- Surplus heat is also being used to heat InterFlex's 7,500-square-foot raw material warehouse. Here, hot water coils were added to the existing HVAC unit fan coils for a very inexpensive and easy payback.
- Surplus heat is also being used to heat a new 1,200-square-foot ink storage shed, where hot water radiant floor tubing was installed in the shed concrete floor. This is a very inexpensive, explosion-proof way to heat the area.

"The outcomes have certainly met and exceeded our expectations," Douglas noted. "In fact, we have plans later this year to extend the hot water piping to one of our CI presses to further reduce propane usage. We're confident we'll find additional opportunities that will have an even greater impact on the payback associated with this project."

In a broad perspective, sustainability seeks a balance between economic, environmental and social considerations. For InterFlex Group., what began as a heat recovery project is in fact saving energy and meeting environmental compliance, while helping it maintain a competitive position as a premier supplier of shrink- and stretch-film services to the poultry, meat and produce markets.

By reducing the burning of valuable, non-renewable fossil fuels, this project makes a positive impact on the environment by reducing CO_2 and NO_x

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