

## Energy Savings Case Study

### Monitoring and Detecting Leaks in Small Compressors Yields Big Savings

**Company:** Best Cutting Die – Skokie, IL

**Background:** a fully integrated design and manufacturing facility. Supplying cutting dies and complete cutting modules to the converting industries. The cutting applications include envelopes, diapers, sanitary napkins, labels and packaging products.

**Equipment Monitored to Achieve Savings:** Air compressors – 40 HP & 60 HP

**Operating Costs:** \$30,000 a year in electricity to operate both air compressors. Typically, these compressors operated alternately.

**Tools Used:**

- CTRL UL101 – ultrasound detector to find air leaks
- Sensor Synergy's Watts Aware for Compressed Air – monitors electricity usage and monitors compressed air pressure

**Findings & Actions:** the 60 HP compressor required 1160 kWh during an average day. Reducing the upper set point pressure from 120 psi to 95 lowered the average daily power requirements to 1,030 kWh. On alternate days, the 40 HP air compressor was operated and required 770 kWh. Reducing the set point pressure from 120 to 95 psi lowered the average daily power requirement to 680 kWh. The UL101 was used to detect and locate compressed air leaks throughout the compressed air system. The air leaks were tagged for repair. Approximately half of the leaks have been repaired.

**Timeline:** each compressor was monitored for 2 weeks of operation. Intermittent activities during 1 work week (5-days) identified and tagged the air leaks and set the target air pressure to the lower value. Leak repairs are ongoing.

**Savings:** saving \$3,160 a year by adjusting the psi from 120 to 95 on both the 60 HP and 40 HP air compressors. The savings ranged from 9% to 12% of the compressor's electricity costs. During periods of low demand (2<sup>nd</sup> shift) the electricity savings approached 14%.

Fixing all the leaks found with the UL101 will yield an estimated annual savings of \$6,000 to \$7,000.

The combined actions of fixing the leaks and modifying the set-point pressure translates into about a 35% savings on their total corporate-wide electric bill.

**Return on Investment:** combining the UL101 leak detector and Watts Aware power and pressure monitoring equipment, Best Cutting Die will save enough money on their electric bill to pay for the entire package in about 9 months.

Based on the data and the distribution of air leaks, the company is pursuing other configuration changes that should result in even greater savings.

Best Cutting Die had relatively small air compressors, but was able to save a significant amount of money with only minor investments of time and money.

**From the Customer:**

"The use of Sensor Synergy's power and air pressure monitor combined with CTRL's leak detector has been very useful in finding ways to significantly reduce spending on electricity for our compressed air system. Our latest measurements have shown that we have already realized over 35% savings in electricity for only a small investment in measuring gear, leak repairs, and operational changes."

Lucian Predescu  
Electro-Technical Engineer  
Best Cutting Die facility  
April 20, 2011