

Ryobi Die Casting

Saves Nearly \$1 Million in Energy Costs Each Year

Problem: Energy Costs Out of Control

Rising energy costs were becoming an increasingly serious problem for the Shelbyville, Indiana, manufacturer, Ryobi Die Casting. Natural gas has more than doubled in the past five years, and this year alone, electric rates increased by 45 percent.

Until recently, Ryobi has viewed energy as a fixed expense; little effort had been given to reducing or conserving it. Energy was monitored, but little motivation or information was being transferred to managers and employees on how much was being wasted or consumed. Even though the price of energy continues to be front-page news, Ryobi's customers refused to incur price increases to account for high energy expenses. Ryobi had to resolve the energy cost problem.

To develop a solution to use less energy and spend less money on energy prices, president of Ryobi, Tom Johnson and Lynn Funk, Melt Operations and Facilities Engineering Manager, created an energy savings initiative in 2004 to cut energy use and costs.

Ryobi's Top Concerns

- Longevity of the company
- Return to stockholders on investment
- Conserving natural resources
- Reducing pollution.

Ryobi's Strategy to Save Energy

- Raise awareness about the energy crisis among employees; create a culture of saving energy by challenging and motivating everyone in the company to be proactive and energy conscious.
- Understand where and when energy is used in their facility so times of non-use and low use areas could be addressed immediately.
- Immediately implement cost-free conservation measures such as manually controlling heat/cool equipment.
- Conduct an energy audit in order to make necessary investments to generate additional savings, monitor energy usage, and maintain savings long term.

Getting everyone involved happened quickly once employees were made aware of the investment made toward energy savings and the costs involved in excessive energy use. Daily facilities meetings were held and always included reports of energy usage from the previous day, as well as discussions on potential areas of savings. This information was then reviewed and discussed in the daily plant-wide operations meetings. Cash incentives were awarded to employees who contributed ideas that successfully led to new energy savings. Once the culture shifted to one of energy and cost conscious employees, people supported the new energy initiatives instead of resisting the implemented changes.

Additionally, a team was organized to keep plant temperatures set at proper levels to avoid wasted run times like weekends, evenings and during inclement weather. In a 500,000 square foot facility with three plants, varying shifts of operation, and 400 pieces of heat/cool/ventilation equipment that all consume significant amounts of natural gas and electricity, this project was no small feat. Most of the equipment should be operated differently on cold days than on mild days. Much time and effort was devoted to this project in the first year, but the savings resulted in more than 43 percent, or directly \$381,747 (see Plant 3 Chart below).

Understanding where energy was being wasted had a huge impact on costs and savings for the company. One entire melt furnace was eliminated when someone realized their other lines had enough spare capacity to make up the difference. Another melt furnace was put entirely out of service, saving \$480,000 a year. The cost of such change was virtually nothing. It was also discovered that 20 large air make-up heating units were not necessary and could be left off permanently.

Investments Made

High-speed overhead doors were installed on 11 overhead doors that open and close frequently – cutting the time doors remain open during cold weather. Ryobi also installed seven large fans to bring the heat down off the ceilings in the production areas.

Ryobi applied for and was awarded a \$250,000 Grant by the State of Indiana to offset some of the cost of installing a new high-efficiency melt furnace.

After implementing all of the possible manual systems for energy savings, Ryobi was aware of an opportunity for even more savings. Prior to implementing manual systems, Ryobi had been engaged in discussions with Energy Management Systems (EMS) about a facility-wide energy control system to automatically regulate temperatures and run times of equipment.

And in 2005, EMS designed a system for one of the three Ryobi plants. The largest energy-consuming equipment was controlled first. The system monitored electric, natural gas, and water meters. That system freed maintenance staff to concentrate on core duties again instead of changing thermostats and monitoring energy usage. Energy savings increased by another 28 percent over the manual effort, creating an additional savings of \$248,579 a year, bringing the annual savings of more than \$630,000 per year.

In 2006, Ryobi enlisted EMS to install a similar energy savings system in a second plant that anchors 350,000 square feet. The manual effort implemented by Ryobi saved the company 37 percent on heating costs. EMS added another 18 percent savings in this plant for an average savings of more than 50 percent or an additional \$350,000 per year.

Together with manual savings practices and a renewed energy conscious culture, EMS enabled the company to save more than \$900,000 every year.

Unmatched Benefits

- Monitoring energy use is easy using software customized by EMS.
- Heat/cool equipment now runs 60 percent less, cutting maintenance costs by thousands of dollars every year.
- Due to reduced run times, equipment lifecycles will be extended by years – a future cost avoidance of hundreds of thousands of dollars.

Natural Gas for Heating in Plant 3

Year	2004	2005	2006
Energy Strategy	No Control	Manual Control	EMS Control System
Gas for Heat (Dth)	73,982	41,211	30,011
Cost to Heat	\$887,784	\$506,037	\$257,458
Savings Percentage	0.0%	43%	71%
Dollar Savings	\$0	\$381,747	\$630,326

EMS President, Dave Riggle, remarked “My congratulations to the Ryobi staff. I have never seen a company change its culture so quickly and effectively. With approximately \$700,000 investment, they created a permanent savings of \$1 million a year without compromising quality or laying off employees. This savings and commitment to saving energy and costs, probably has the same impact to Ryobi’s bottom line as selling and manufacturing \$10 million of product – EVERY year from here on.”

For more information or to contact Ryobi Die Casting, visit Energy Management Systems at www.energymanagement.com, as well as to view a short informational video, or call Dave Riggle at 317/341-5968.