Metzeler

CASE SUMMARY 14

METZELER AUTOMOTIVE PROFILE SYSTEMS

Keokuk, Iowa
Lee County

Intern: Robert Merlino
Major: Mechanical Engineering
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The Company

Metzeler is an international company specializing in rubber products. The company owns over 30 plants worldwide, with more than 10,000 employees and more than $900 million in annual sales. The North American division of the company is the largest supplier of automotive seals to American auto makers. The Keokuk facility produces seals for General Motors, Ford, and Chrysler and also provides rubber compounds for other North American manufacturing facilities. The Keokuk plant has been producing rubber products since 1914.

Project Background

Metzeler is an ISO 14001 certified company, thus committed to environmental improvement. The company has a wide range of programs to recycle cardboard, metal, white paper, uncured rubber, cured rubber, and pallets. Measures are also in place to help improve the energy efficiency of equipment in the facility. Reducing energy usage and improving energy efficiency is important to the company as electric and gas rates increase.

Incentives to Change

Metzeler has a complex compressed air system which consumes approximately 15 percent of the plant electricity. Compressed air is used throughout the plant for various processes including; air motors, cooling, pneumatic conveying, drying, blow offs, and air tools. Improvements can be made to the system in order to reduce operating costs. Natural gas is also an expensive utility and any reductions in use will be beneficial.

Results

1. Water Blow Offs - $38,900 per year
Currently both compressed air nozzles and blowers are in place to remove water from the extrusions. The blower configuration can be varied to almost completely dry the extrusion without compressed air. The compressed air nozzles can then be removed.

2. Pneumatic Transport - $10,100 per year
Sand is removed from the extrusion at the end of the oven. This sand is then returned to the oven using compressed air. An auger system is being installed to replace this process.

3. Repair Air Leaks - $17,400 per year
Using an ultra sonic leak detector, air leaks were identified throughout the plant and scheduled for repair. A periodic maintenance inspection program is recommended.

4. Panel Coolers - $17,700 per year
Compressed air is used to cool electronics inside control panels. Instead, a system of fans can dramatically decrease energy use.

5. Air Supply Valve - $9,800 per year
Most machines are equipped with an on/off valve on the compressed air line. Many of these machines use air for processes when no production is taking place. The valve should be turned to off when these machines are not in use.

6. New Controllers for Compressors - $25,000 per year
All but one compressor is controlled with mechanical controls and manual on/off operation. Purchasing a new complete control unit would completely automate and optimize the compressor operation.

7. Take Boiler Off-line - $37,000 per year
A large boiler is currently used on low fire to provide steam for space heating and other heating applications during the winter. If these applications can be replaced by a very small boiler and gas space heaters the large boiler can be completely taken off-line.

Project Summary Table

Project Description	Environmental Impact	Economic Cost Savings	Status
Water Blow Offs	857,000 kWh/year	$38,900 per year	Recommended
Pneumatic Transport	224,300 kWh/year	$10,100 per year	In Progress
Repair Air Leaks	383,800 kWh/year	$17,400 per year	In Progress
Panel Coolers	390,600 kWh/year	$17,700 per year	Recommended
Air Supply Valve	217,700 kWh/year	$9,800 per year	Recommended
New Controller for Compressors	550,700 kWh/year	$25,000 per year	Recommended
Take Boiler Off-line	4,800 MMBTU Natural Gas/year	$37,000 per year	Recommended
Total		$155,900 per year	