

Pilot Project "Introduction to Energy Efficiency and Energy Management Systems in SMEs in Mexico"

Example of energy efficiency improvement Infinish A I: continuous, low-cost improvement

Background information

The implementation of the pilot project began with the introductory workshop to ISO 50001 in October 2015. The companies then conducted energy audits to identify and prioritize various opportunities for improvement, with the guidance of Mexican consultants with expertise in energy efficiency.

The company **Infinish Acabados Industriales** (www.infinishai.com.mx) is located in the city of Celaya, Guanajuato and its main activity is the application of electrostatic paint to metal parts, primarily for manufacturers of household appliances and automotive parts. The management of AI Infinish decided to participate in the pilot project because they were convinced that it was possible to optimize the organization's energy consumption; moreover, they considered it necessary to learn how to ensure that their production system operated efficiently following the project.

Description of the improvement

The paint application process is carried out using a dry powder coating system in which micro pulverized particles that are electrostatically charged are sprayed onto negatively charged parts, which are then cured in a furnace at a temperature of between 190° and 240° C for an average of approximately 12 minutes per part.

The body of the curing furnace has a straight-sided structure, which causes air currents to form along the length of the furnace, resulting in cooling inside the furnace and a temperature gradient along its length. In November 2015, the furnace exit was modified to give it an L-shape. This has made it possible to minimize the air currents inside and simultaneously homogenize the temperature along the course taken by the parts inside the furnace, thus improving the quality of the painting process.

The ceramic board in the combustion chamber of the same furnace was also changed, which improves its thermal insulation.

This case highlights how a modification that improves energy performance can affect the quality of the product and have a much greater effect than just saving energy. Although the idea of making improvements already existed, thanks to the management system, it was possible to quantify the savings and thus encourage the decision to invest.

Savings achieved, results and additional benefits

Key indicators	
Plant's saving in natural gas consumption	7.2%
Annual economic saving	MXN \$ 131 000
Annual savings in m ³ of natural gas	35 264
Investment needed	MXN \$ 40 000
Payback period	4 months



The Mexican National Commission for the Efficient Use of Energy (CONUEE) and the German Metrology Institute (PTB) make the aforementioned project available to small and medium enterprises (SMEs) in order for them to implement an energy management system (EnMS) according to ISO 50001, by strengthening the skills of technical staff within each company.

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