

CASE STUDY

# Reducing water-heating costs and improving energy efficiency

Salamanca, Spain



## Heat pumps allow 32% reduction in energy costs and support Dehesa de Guijuelo's competitiveness

### About the customer

Dehesa de Guijuelo is a Spanish company, producing slow-cured ham and shoulders of ham from Iberian Acorn fed pork. 'La dehesa' is a unique woodland area in Spain, homeland to the black-footed Ibérico pigs, known as product of the best ham in the world. This high quality and therefore pricy product requires a perfect control of the seasoning conditions. The premises cover a land of 37.000m<sup>2</sup> with a building of 27.000m<sup>2</sup> and with a storing capacity of 1.520.000 hams.



- 32% savings on energy costs
- 16% less CO<sub>2</sub> emissions

Johnson Controls has been optimizing an industrial refrigeration system with a heat pump installation to help Dehesa de Guijuelo, a leading actor in the Spanish ham industry headquartered in Montejo, Salamanca (Spain), save 130.000 euro a year by cutting energy waste. The new equipment allows the company to deliver top-quality ham and to keep up with the price battle in this very competitive market.





## Challenge : cutting energy waste

In a preliminary study, Johnson Controls identified several challenges specific to the ham industry. A precise control of air temperature, air humidity, air speed and working time of the ham driers cabinets is necessary to get the best result for the long term seasoning required by this high quality and high priced product. It is necessary to control the exact temperature and to add humidity during the curing process.

The plant was equipped with a boiler on fuel that warmed the water to 70°C. The study revealed that 94% of the water used in the company was 45°C water, mainly used in the production process of the ham dryer. The remaining 6% was 70°C water, used to clean and to maintain a high level of hygiene. The company was spending 153.000 euro every year to warm water that needed to be cooled down before being used in the production process.



## Achieving energy efficiency with heat recovery

Johnson Controls proposed to connect a heat pump to the existing refrigeration system to recover the energy, produced during refrigeration and to generate heat needed in the production process.

The implementation started in March 2011 and ended in September 2011. Johnson Controls proposed to install a Sabroe Heat Pump to generate hot water for cleaning and for drying in one phase with no disruption of the production.

## Achievements in energy efficiency

The new installation cuts the costs on fuel, saving almost 141.000 euro a year. The heat pump system is 8,6 times more efficient than the boiler (Coefficient Of Performance), cutting CO2 emissions by 16%. The 340.000 euro investment was paid back in only two years, at a range of 358 euro savings a day.

## Energy efficiency encourages competitiveness

The investment in cutting edge technology allowed Dehesa de Guijuelo to reduce production costs and improve its pricing policy in this very competitive market. The whole process globally lowered the impact of economical crisis on the production, allowing Dehesa De Guijuelo to continue focusing on the quality of the ham that makes its reputation.

A.Luis Iglesias Fernández  
Director Ancin Grupo Alimentario

*"Dehesa de Guijuelo confided the project to Johnson Controls as we trusted their analytical approach would unveil hidden potentials for both budget and energy savings. Johnson Controls showed that simple technical interventions could help us meet the needs of the company in this critical economic context."*