

Case note

ABB drives save £25,000 on energy at duck processing plant



An investment of £16,000 is bringing a £25,000 per year energy saving.

Cherry Valley Farms is the largest manufacturer of duck and duck products in the UK, processing 45,000 ducks per day. Each duck is chilled so the chilling plant is a major part of the factory's operation and accounts for a high proportion of its operating costs.

Cherry Valley wanted to explore ways of reducing its energy costs using variable speed AC drives and so contacted ABB and its channel partner Inverter Drive Systems (IDS).

7-day energy analysis

IDS agreed to find and implement energy savings on a 'no savings, no fee' basis. The project initially involved a seven day energy analysis of the existing direct-on-line controlled condenser fans on the refrigeration plant to establish operating costs at fixed speed. The four fans had a combined measured power of 38 kW.

The refrigerant gas enters the condenser, where fans are used to help cool it down to atmospheric temperature and turn it back into a liquid, ready to expand and cool once again.

IDS used the head pressure signal to control a variable speed AC drive to keep this pressure perfectly at its design point, varying the fan's speed to meet the chilling demand.

On completion of the project, a further seven day energy analysis was carried out and the savings and payback periods calculated. It was shown that the drives on the four fans had saved 13 kW in total representing an annual saving of £7,400.



Drives are installed in condenser fans, air compressors and water pumps.

As well as the energy saving on the condenser fans, the reduced on-off cycling of the refrigeration plant lead to a further 10 percent reduction in compressor power. It also significantly reduced fan noise, improving the environment for neighbouring properties.

Faster payback

Drives were installed on other processes including air compressors and water pumps, and the facility is now making energy savings of £25,000 a year after installing £16,000 worth of ABB general purpose drives. The original forecast estimated that payback would be in 12.6 months, yet actual payback time was only 7.7 months.

Darren Bolton, Operational Improvement Manager at Cherry Valley, says: "IDS' theoretical results were all backed up with good graphs and charts. Quite simply IDS are very, very good - we doubted the energy savings and needed IDS to prove each drive in turn. That also gives you trust in your partner because if the proof was not there, we simply did not have to pay for the drives.

"ABB is a worldwide brand with a first class pedigree so that gave me confidence to know I was making the right choice."

Challenge

- Reduce energy costs by replacing direct-on-line controlled condenser fans on refrigeration plant

Solution

- 7-day energy analysis of existing system and new system to prove savings
- ABB general purpose drives controlling the speed of condenser fans, air compressors and water pumps

Benefits

- Energy costs reduced by £25,000 per annum
- Savings represent nearly 50 percent of energy consumed by the applications
- Reduced on-off cycling of refrigeration plant gave further savings
- Reduced noise
- Better than estimated payback time of only 7.7 months

For more information please contact:

www.abb.com/drives

www.abb.com/drivespartners

© Copyright 2014 ABB. All rights reserved.
Specifications subject to change without notice.