WARRINGTON, UKMAY 13, 2014

Cherry Valley to save £30,000 on freezing costs with ABB variable-speed drives

One of the UK's largest producers of duck products is set to save £30,000 a year on freezing costs following the introduction of ABB variable-speed drives on its blast chiller application.

Cherry Valley Farms of Lincolnshire rears some eight million ducks every year and processes 45,000 birds a day. Some are prepared as fresh duck products but most are frozen in the company's ten blast chiller bays. Each bay has two 4 kW motors turning fans that blow air over coils of ammonia to produce a blast of very cold air. A complete day's production of ducks is usually frozen in around ten hours overnight.

Although freezing only takes place on four days a week, the fans need to operate 24 hours a day every day, as switching the fans off would cause them to ice up. As the blast chillers are a major part of the production process and an energy intensive application, Cherry Valley Farms was keen to investigate any methods that would reduce the amount of energy used by the blast chillers. It was not possible to control the temperature of the blast chillers through PI control as the bays go through regular de-frost cycles. There is also a significant air exchange between the bays, making any form of temperature feedback unreliable.

The company asked ABB authorised value provider, Inverter Drive Systems (IDS), to come up with a solution. Rob Stevens, Factory Engineering Manager for Cherry Valley, says: "We have worked with IDS on several other projects. They have installed ABB variable-speed drives on condenser pumps for us in the past and these have worked very well."

IDS installed 20 ABB HVAC drives, two for each blast chill bay. In production, the drives run the motors at 45 Hz, giving a 25 percent energy saving during the freezing period. Outside production hours, the motors are slowed further to 30 Hz, producing a 60-70 percent saving when no product is being frozen. Overall, this is expected to produce an annual saving of £30,000 on the energy costs of the blast chillers.

Phil Nightingale of IDS says: "We set up one of the variable-speed drives as the master, with the other 19 as slaves. This allows the operation times of the master drive to be set and all the slave drives will follow this schedule. If Cherry Valley needs to operate the chillers in production outside normal time, an override switch can be used to bring the fans back up to the production speed of 45 Hz."

A challenge involved in the installation was that the drives were installed in a roof housing containing the ammonia lines, making for very cold working conditions. However, the ABB drive is rated for a working temperature down to -15 degrees centigrade, so installing the drives in this area is not a problem.

Stevens adds: "As well as the energy saving, we expect that the slower start up achievable by the drives could lead to fewer fans breaking up, which we sometimes experienced with the old direct-on-line method used previously."

ABB (ABBN: SIX Swiss Ex) is a pioneering technology leader in power grids, electrification products, industrial automation and robotics and motion, serving customers in utilities, industry and transport & infrastructure globally. Continuing a history of innovation spanning more than 130 years, ABB today is

writing the future of industrial digitalization with two clear value propositions: bringing electricity from any power plant to any plug and automating industries from natural resources to finished products. As title partner in ABB Formula E, the fully electric international FIA motorsport class, ABB is pushing the boundaries of e-mobility to contribute to a sustainable future. ABB operates in more than 100 countries with about 147,000 employees. www.abb.com

Caption: Cherry Valley Farms to save £30,000 a year on freezing costs following the introduction of ABB variable-speed drives on its blast chiller application.

—

For more information please contact:
Layla Hewitt
Marketing Communications
Phone: 01925 741517
Email: layla.hewitt@gb.abb.com

ABB Ltd.
Daresbury Park
Daresbury
Warrington WA4 4BT

Emma Jenkinson
Armitage Communications
Phone 020 8667 2218
Email: emma.jenkinson@armitage-comms.co.uk